

LITERATURE REVIEWS

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CLOSETS FULL OF SKELETONS

BONES OF CONTENTION: CONTROVERSIES IN THE SEARCH FOR HUMAN ORIGINS. 1987. Roger Lewin. NY: Simon & Schuster. 348 p. Cloth, \$19.95.

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Paleoanthropology — the science that focuses on man's evolutionary ancestors — has long been noted for the instability of its conclusions. This volume adds another deprecating dimension to this "science": that of contention.

The author, research news editor for the journal *Science* at the time this book was written, is a well-known science writer. In this book it appears that Lewin has done his homework carefully, with extensive referencing of pertinent material and direct interviews with many of the main players.

The book is mostly a chronicle of the recent wars over hominid fossils with an attempt to analyze the reasons for so much acrimony. Lewin attributes this to a number of factors, including: 1) the personal involvement of a human studying his own evolution; 2) the passion to find new fossils; 3) the pitifully small inventory of fossils in the hands of a possessive few; 4) the influence of preconceived ideas on what one sees (in support of this he quotes anthropologist David Pilbeam: "Our theories have often said far more about the theorists than they have about what actually happened"); 5) the competition among paleoanthropologists for funds and also for designation as to who is "king of the mountain"; and 6) the subjectivity of deciding what is a valid species (in recent years the number of species in the controversy has been reduced from over 100 to about half a dozen by combining invalid species).

Lewin also reports on the Landau theory which proposes that there is a classic literary genre in the anthropological literature describing

human evolution. At Yale University, Misia Landau worked out a pattern for this genre which is based on traditional folk literature. Landau suggests that the accounts of the evolution of man follow this traditional pattern. All of this may seem foreboding for the objectivity of paleo-anthropologists who are, understandably, reluctant to accept the view that they may not be purely scientific.

The main controversies Lewin reports on include: 1) the Taung Child fossil found in South Africa, at first rejected and now accepted as an important ancestor in man's evolution; 2) the Piltdown Hoax fabricated from a modern human cranium and an orangutan's jaw (one of the great unsolved whodunits of all time, it fooled scientists for some four decades while Piltdown held an honored place in man's evolutionary tree); 3) Nebraska Man based on a tooth that turned out to be from a pig-like creature; 4) the original distortions towards primitiveness in describing Neanderthal; 5) the bitter battle over dethroning *Ramapithecus* from a human ancestor to a relative of the orangutan; 6) the complex, protracted and heated controversy over the dating of a key volcanic layer associated with important remains in East Africa; 7) the recent intense controversy between Richard Leakey and Donald Johanson over the evolutionary position of the newer *Australopithecus afarensis* fossil finds; and 8) the milder conflicts in ideas as to what is considered the basic force for man's evolutionary advancement (candidates for this have changed from predation to hunting and now to cooperation).

The book is well written. The science is kept at a non-technical level and is skillfully interwoven into the historical background. It is a difficult task to ferret out the usually unpublished attitudes and emotionally charged incidents of the past, but Lewin has made a commendable attempt towards this goal. One is amazed at the revealing details he has included: e.g., shouting matches, accusations of subversion, insults, and slamming of doors. This book gives a striking picture of science at work, and the image of the cold, calm, calculating scientist is largely destroyed.

Lewin strongly emphasizes that preconceived ideas freely influence interpretations and speculation. As an example, referring to descriptions of *Ramapithecus* he states: "Here, then, was a very complete picture of an animal — not just what it looked like, but also how it lived. And all based on a few fragments of upper and lower jaws and teeth" (p 95). It should be noted that several hominid fossils including *Ramapithecus*

are now better represented than by just fragments. However, *Ramapithecus* has now been removed from the assumed evolutionary line of man and is classified as a relative of the orangutan.

The non-expert has some difficulty in trying to keep up with the ever-changing saga of man's evolution, including changes in: 1) the relative arrangement of the putative ancestors, 2) the classification of specimens, and 3) even in the characteristics of a species. For instance, Louis Leakey once changed the definition of the genus *Homo* to include a smaller-brained animal.

The "humanness" of the paleoanthropologist is reflected throughout the book. One scientist deplored Louis Leakey's attitude of viewing "his" fossils as being the important, direct ancestors to man; whereas fossils found by others were of lesser importance, being merely side branches of the human evolutionary tree. Lewin evaluates this comment as "exaggerated, perhaps, but not entirely unfair" (p 132).

Although Lewin does not disclose his personal beliefs, inferences suggest confidence in traditional scientific views. On the other hand, the author has serious questions about how man achieved superiority, including the origin of man's higher mental attributes. In a candid statement he reveals:

In the physical realm, any theory of human evolution must explain how it was that an apelike ancestor, equipped with powerful jaws and long, daggerlike canine teeth and able to run at speed on four limbs, became transformed into a slow, bipedal animal whose natural means of defense were at best puny. Add to this the powers of intellect, speech, and morality, upon which we 'stand raised as upon a mountain top,' as Huxley put it, and one has the complete challenge to evolutionary theory (p 312-313).

Probably the most significant contribution of this book is not the cautions deduced from paleoanthropology alone — many are already aware of these —, but for science as a whole. Lewin feels that paleoanthropology is especially susceptible to problems of subjectivity and emotions, but these also apply to science in general. He cautions:

And scientists, contrary to the myth that they themselves publicly promulgate, are emotional human beings who carry a generous dose of subjectivity with them into the supposedly 'objective search for The Truth' (p 18).

No science — least of all paleoanthropology — is as objective ... as is often portrayed in the philosophers' idealized view of science (p 20).

... there is a degree of uncertainty in science that is not often made public, because it is contrary to the mythology of what science is supposed to be like (p 235).

Science has become very powerful because it works well in many areas. It is easy to extrapolate that success into all the areas that science deals with, and be blinded to the pitfalls that lurk in the shadows. The science that deals with the past — sometimes called historical science — often deals with non-repeatable, non-testable events. It is particularly susceptible to the problems outlined in this book, but all areas of science are in varying degrees the victims of preconceived ideas.

Those who believe in creation will wonder why the biggest bone of contention of all — namely, whether man evolved or was created — is not given consideration in this book. This is a serious, but understandable, omission, since science in its present naturalistic stance does not recognize creation as a possibility. Lewin does point out that man is special and that tension is created in science when it comes to the origin of the higher mental characteristics of man. In a society such as that of the United States, where a 1982 Gallup Poll revealed that 44% of adults believed God created man within the last 10,000 years, the omission of creation can scarcely be considered casual. If it is argued that creation is not worthy of consideration, one has only to point to the plethora of unworthy information that has decked the halls of paleoanthropology for over a century to realize that this is not a valid reason. In the opinion of this reviewer, this omission reflects the bias of a science which does not allow for any possibilities beyond its own closed, naturalistic system.

While the findings of paleoanthropology in the past two decades have been impressive, especially in the *Australopithecus* realm, readers who believe in the evolution of man will not find much comfort for their ideas in this book. One is left with the distinct impression that the last chapter of the saga of man's origin is a long way off. This is a very insightful volume that should be read by anyone interested in the human dimensions of science.