Lee R. Berger

First published for National Geographic News December 4, 2001 A team of researchers led by paleoanthropologist Meave Leakey sparked a controversy among evolutionary scientists and the press alike earlier this year when they announced the discovery of a new genus and species of ape-man. They named their find Kenyanthropus platyops, the "flat-faced man of Kenya." Ordinarily, the find itself would be enough to spark a flame of controversy in the heart of any follower of human origins research.

But this find also highlighted an ongoing debate within the scientific community over the adoption of a new system for naming, ranking, and classifying organisms. The debate is not confined to ivory tower scientists. The fossil discovery was widely reported. The New York Times referred to the new genus as a hominid; National Geographic reported on the find as a hominin.

National Geographic subsequently received several hundred e-mails complaining about the poor editorial work of the staff that had clearly erred by replacing a "d" with an "n." But were they really wrong, and more important, does it really matter?

Linnaean Classification The taxonomic classification system devised by Linnaeus in 1758 is still used in modified form today. Animals are identified, in descending order, as belonging to a Kingdom, Phylum, Class, Order, Family, Genus, and finally, a Species. This classification system is based largely on the animal's physical characteristics: things that looked alike were placed together. In the Linnaean system, humans would be categorized first as Animalia; then Chordata because we have a backbone; Mammalia because we have hair and suckle our young; Primates because we share with apes, monkeys, and lemurs certain morphological characteristics; Hominidae because, among a few other criteria, we are separated from the other apes by being bipedal; Homo being our generic classification as human; and finally, sapiens, a species name meaning, rightly or wrongly, "wise." The Linnaean system also recognizes such groupings as superfamilies and sub-families. In the case of the human lineage, the most often recognized superfamily is the Hominoidea (hominoids), which includes all of the living apes.

It is from this point onward that most of the present human origins classification debate begins. The traditional view has been to recognize three families of hominoid: the Hylobatidae, the Hominidae, and the Pongidae. The Hylobatidae include the so-called lesser apes of Asia, the gibbons and siamangs. The Hominidae include living humans and typically fossil apes that possess a suite of characteristics such as bipedalism, reduced canine size, and increasing brain size such as the australopithecines.

The Pongidae include the remaining African great apes including gorillas, chimpanzees, and the Asian orangutan. New Molecular Evidence Modern-day genetic research is providing evidence that morphological distinctions are not necessarily proof of evolutionary relatedness. Recent evidence suggests that humans are in fact more closely related to the chimpanzee and bonobo than either species is to the gorilla. Chimps and humans share something like 98 percent of genes, indicating that we share a common ape ancestor.

Divergence times between the two groups based on a molecular clock suggest that the chimpanzee/human split occurred between five and seven million years ago. In turn, the African apes, including humans, are more closely related to each other than any are to the orangutan. In recognition of these and other genetic relationships, some argue that we must overhaul the present morphologically based classification system for one that is more representative of our true evolutionary relationships as evinced by our genes.

Reworking the Family Tree This is where the term hominin comes into play. Under the newclassification model, hominoids would remain a primate superfamily, as has always been the case. Under this hominoid umbrella would fall orangutans, gorillas, chimps, and humans, all in the Family Hominidae.

In recognition of their genetic divergence some 11 to 13 million years ago, the orangutans would be placed in the sub-family Ponginae and the African apes, including humans, would all be lumped together in the sub-family Homininae. The bipedal apes - all of the fossil species as well as living humans - would fall into the tribe Hominini (thus hominin). All of the fossil genera, such as Australopithecus, Ardipithecus, Kenyanthropus, and Homo, would fall into this tribe.

A few evolutionary biologists want a more extreme classification, which would include humans and chimpanzees within the same genus, the genus Homo. Old Versus New So hominid or hominin? Is it just a matter of semantics that only purists should be worried about? The New York Times' use of "hominid" and National Geographic's use of "hominin" were both right in the broadest sense. In either the "old" or "new" classification system, hominid works, it just means different things. In the old system, hominid refers solely to the bipedal ape lineage. In the new classification system it refers to the broader grouping of all the great apes, which would by definition certainly include the new Kenyanthropus fossils.

The use of hominin by National Geographic is technically more correct in that it recognizes the relationship of Kenyanthropus to the other bipedal apes and distinguishes it from other living and fossil African apes which are not so closely related to us based on the molecular evidence we have to date. In the long run, hominin is likely to win out against the term hominid. It is more precise and recognizes the biological reality that moves beyond physical morphology. Do I like it? Well, I would never try to stand in the way of the advancement of science, but just try saying Hominidae, Homininae, Hominini three times fast in front of a first year Introduction to Anthropology class and you will have some sympathy for the scientist who clings to the term hominid for a few more years.

So, what's in a name? The classification debate is not just a debate for the purist; it cuts to the very core of our understanding of human's place in nature and our evolutionary relationships with our closest living relatives. All hominins are hominids, but not all hominids are hominins.”

Lee Berger.