

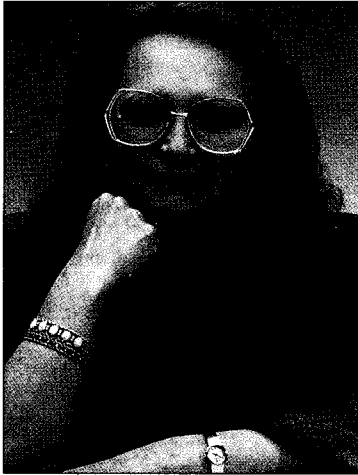
FIRST WORD

SKULL AND BONES:

In 200,000 years we'll be fossilized bits to ponder

By Jean M. Auel

What was the origin of modern humans? What happened to the Neanderthals? The answers, says Jean M. Auel, may shed light on our future.



Are we, *Homo sapiens sapiens* (wise wise man?), the culmination of the 5 million years of human evolution, or a step along the way to something else, to *Homo sapiens futuristis*? Two hundred thousand years ago, Neanderthals—technically *Homo sapiens neanderthalensis*—were the dominant human life on Earth. What kind of people will the earth see 200,000 years from now?

Fifteen years ago, when I first started researching for *The Clan of the Cave Bear*, the earliest known appearance of modern humans was in Europe around 40,000 years ago, during the last ice age. They were the ones referred to as Cro-Magnons, and there was evidence that for a period of time, they lived side by side with Neanderthals.

The case for their coexistence has now become much stronger. The skeleton of a Neanderthal was found in France that dates to around 30,000 years ago, demonstrating that western Europe was home to both for perhaps 10,000 years, but even more astonishing are discoveries from the rest of the world. New techniques have dated the bones of an anatomically modern man discovered

in Israel as 90,000 years old. There is still some doubt about the dating method, but if the date holds it means that both modern and Neanderthaloid types of humans occupied that part of the world for 60,000 years!

When did these two subspecies of *Homo sapiens* emerge? Around a million and a half years ago in Africa, an earlier form of hominid, *Homo erectus*, began migrating and eventually populated the rest of the Old World. Neanderthal types that have been found throughout Africa and Eurasia apparently evolved directly from the local *H. erectus*. In France, for example, there are *erectus* sites such as Tautavel that date back 400,000 years, and the recently excavated Grotte Vaufrey that date Neanderthals at about 300,000 years.

At one time most archaeologists thought that modern humans, *H. sap. sapiens*, evolved in Europe from *H. sap. neanderthalensis*, but new evidence suggested that we arrived later, bringing with us a more developed stone tool kit. It was then theorized that at some unknown location, east or south, modern humans evolved from an earlier type, perhaps *H. erectus*, and migrated to Europe.

Then, a few years ago, DNA studies indicated that anatomically modern humans could be traced back to an original mother, dubbed Eve, though it may have been a group of related women who evolved, again in Africa, less than 200,000 years ago. Those early modern humans are thought to have migrated to all the rest of the world, completely replacing the existing populations.

That theory has been disputed by some paleoanthropologists who have examined skulls of earlier forms, such as *H. erectus*, particularly in Asia, and found indi-

cations of characteristics still seen in Oriental people today. How could the newcomers replace existing populations but take on their physical traits? Could there have been some intermixing? In central Europe and the Mideast, a combination of Neanderthal and modern human characteristics is sometimes found in a single skull, but scientists debate whether it shows evolution or crossbreeding.

Debates are the heart of the scientific process, but looking at the past can shed light on the future. The evidence suggests that evolution is still going on, but what lies ahead? Drastic climatic changes probably played a major role in the adaptive strategies of ancestral hominids, but mutational changes occur at different rates and contemporary societies have so much control of their physical environment, they can live in any climate, including no climate at all, in space. Will that lessen the selective pressures to change and cause the process of evolution to slow?

Or will the pollution, the chemical fertilizers and pesticides, the toxic and nuclear wastes, the greenhouse effect, and the depletion of the ozone layer accelerate mutations? What about reactor meltdowns? Nuclear winter? Nuclear war? Though most would be harmful or fatal, might some mutations actually be beneficial? Perhaps selecting for immunity from some of the effects? What about genetic engineering?

There are no more Neanderthals, but are there still a few Neanderthal genes? Were they replaced or assimilated? Would we share our world with another kind of intelligent human being? One that might make us the next Neanderthals? The thought is fascinating to consider. One could even imagine stories . . . ☐