

# Pulling Neandertals Back Into Our Family Tree

*A band of partisans is trying to restore Neandertals to a place in the lineage leading to modern human beings*

**Milwaukee**—ANYONE WHO'S FOLLOWED THE field of human origins over the past few years knows a major shift has taken place there—based in part on some new high-tech methods, including the analysis of mitochondrial DNA. In that transformation the view that anatomically modern humans evolved in many locations around the world has become a minority opinion; many anthropologists now believe that all anatomically modern human beings originated in Africa beginning as recently as 250,000 years ago. One aspect of this shift was that the Neandertals, once seen as forebears of modern Europeans, became little more than a stunted branch of the human family tree: a local, heavy-bodied, heavy-browed population that was muscled aside by slender newcomers from Africa.

Some partisans of the Neandertals-as-progenitors theory, however, have never given up; now they're fighting back. At a symposium during the American Association of Physical

Anthropologists meeting, held here from 2 to 6 April, they tried to pull the Neandertals back into the main line of human evolution in the Middle East. Rather than migrants from Africa displacing local populations, they say, a key factor in the emergence of the modern human form was gene flow: One local population interbred with the next so that the genes for the anatomically modern form may have traversed long distances without a great human migration. As a result, Middle Eastern Neandertals may not have been replaced but simply evolved into the slender, modern form by acquiring genes from their southern neighbors.

At the moment, the ground for this rear-guard battle is four key cave sites in Israel: Skhul, Qafzeh, Tabun, and Kebara. At Skhul and Qafzeh excavators have dug up anatomically modern remains; at Tabun and Kebara they found remains that appear to be Nean-

dertal. It was once assumed that the Neandertal bones were far older, but in the past 5 years new techniques called thermoluminescence and electron-spin resonance have been used to date the Skhul and Qafzeh remains to about 100,000 years ago. The Neandertals of Kebara have been dated to about 60,000 years, and those of Tabun to about 120,000—making it seem probable that the modern types and the Neandertals were contemporaries on the Israeli landscape.

According to the hardline Out-of-Africa school, this is evidence that as the anatomically modern humans moved north, they coexisted with the Neandertals as separate species. According to Yoel Rak of the University of Tel Aviv, when looking at the Israeli data: "I see two species, one *Homo sapiens* and one Neandertal, contemporary in time."

Rak and others say the new dates are more bad news for Neandertal partisans: If Neandertals and anatomically modern people were contem-

poraries, one can't be the ancestor of the other. Alan Mann of the University of Pennsylvania, who has been in the Neandertal camp, admitted the dates are unsettling. "Many of us are still in shock over the dates."

"There's a lot of re-evaluating going on," agreed Milford Wolpoff, long a champion of the Neandertals as human ancestors. In fact, Wolpoff decided that what was needed was a "real serious re-examination" of Neandertals in the Middle East. So he and Mann organized the Milwaukee session.

At the symposium Wolpoff and Baruch Arensburg of Tel Aviv argued that bones from the Israeli sites are not from two separate species but from one population that interbred. They acknowledge that this population was quite variable anatomically, but they attribute such variability to the flow of genes from Africa mingling with Neandertal-like European genomes. Furthermore,

Wolpoff claimed, the degree of variability in anatomical form among the specimens wasn't all that great—no greater than in today's Detroit, with its population of European Americans, African Americans, Amerindians, and Asians. As Wolpoff put it succinctly: "The separate species concept won't fly."

Not all of those who would relegate Neandertals to an evolutionary dead end attended the conference, but one who did, Yoel Rak, believes the modern and Neandertal specimens from the Middle East are so different morphologically that they couldn't possibly fit into a single species. He argued that view at a packed session on the nature of species, held the day after the Neandertal symposium, where the discussion from the day before kept right on rolling. Describing a Neandertal-like specimen from Kebara and an anatomically modern fossil from Qafzeh, he said: "These are two specimens, found in caves 30 km apart. And the differences in them are larger than those in the Alaskan Eskimos and the bushmen in Africa."

Among other morphological differences, he said, the Kebara skeleton has a long, slender pubic bone that is quite different from the shorter, thicker version found in modern humans—and in the Qafzeh specimen. "It's more than 3 standard deviations away," Rak said, showing a graph in which the Kebara specimen was a distant outlier while the Qafzeh skeleton was indistinguishable from modern samples. In addition, the jawbone of the Kebara specimen is very large and heavy, in contrast to that of the Qafzeh specimen.

"In light of all these differences," Rak said, referring to the Wolpoff session, "it gave me the feeling yesterday that I was in a session of the Flat Earth society." Knowing Wolpoff was in the audience, he added: "I do not understand how you could not see this variation."

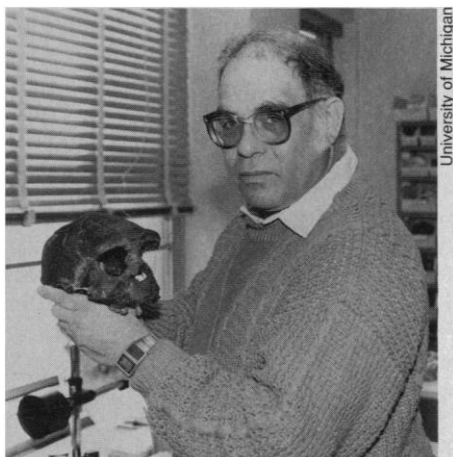
Wolpoff: "We do see the differences, Yoel. We just don't agree with the interpretation."

Rak: "Then why don't you take the measurements and plot them? You didn't do this."

And, indeed, in Wolpoff's presentation at his session the key slides were photos of four skulls rather than graphs plotting quantitative measures of variability. Wolpoff didn't respond at the time, but to *Science*, he said that he chose to leave a memorable impression rather than list specific data. "This isn't a major data battle. People don't need to see the data all over again—people know the specimens. The question is, Why do we interpret them differently?" That's one question that isn't likely to be resolved soon.

■ ELIZABETH CULOTTA

*Elizabeth Culotta is a free-lance science writer based in Raleigh-Durham, N.C.*



**Family resemblance?** Milford Wolpoff