

2. The distinctiveness and systematic context of *Homo neanderthalensis*

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Keywords: *Homo neanderthalensis*, Neanderthals, *Homo heidelbergensis*, Mauer, Arago, Atapuerca, Sima de los Huesos, reconstructed skeleton

Abstract

The “packaging” of the diverse living world is untidy, with the result that there are no absolute criteria for recognizing in all contexts the bounded historical entities we call species. However, there is no doubt whatsoever that *Homo neanderthalensis* is as clear-cut a morphological entity as any in the hominid fossil record: one that is characterized by a whole host of cranial apomorphies. Further, a recent full-skeleton reconstruction further emphasizes just how different Neanderthal body structure was from that of *Homo sapiens*, not simply in numerous anatomical details, but in the proportions of the thorax and its relation to the pelvic region. These bodily proportions would have given these extinct hominids a very distinctive appearance on the landscape, and enhance the likelihood that we are dealing here with a reproductively differentiated entity. Still, *Homo neanderthalensis* is not unique in all those features that distinguish it from *Homo sapiens*. Many “Neanderthal” cranial features are shared with various middle Pleistocene European hominids, notably the Steinheim specimen and, to a lesser extent, the Sima de los Huesos hominids from Atapuerca. Indeed, it appears that, far from being an isolated phenomenon, *Homo neanderthalensis* formed part of a larger endemic European hominid clade. This clade seems to have existed contemporaneously in Europe with at least one other hominid lineage or clade, exemplified by the *Homo heidelbergensis* fossils from Mauer, Arago and Petralona.

Introduction

Over the century and a half since the first description of a Neanderthal fossil, an impressive record of these extinct hominids has accumulated. Indeed, not only has the mor-

phological distinctiveness of *Homo neanderthalensis* for long been vastly better documented than that of any other of our fossil relatives (Tattersall, 1986), but we are also in a better position than in the case of any other extinct hominid to appreciate the morphological

variations (around a very distinctive mean) that are shown by the various populations of this form over time and space (Tattersall and Schwartz, 2000). Yet many paleoanthropologists continue to equivocate over the question of whether the Neanderthals actually constitute a bounded historical entity (Ghiselin, 1974) of the kind that warrants recognition as a species. Since this problem appears to be related, at least partly, to more general difficulties of species definition and recognition, it seems appropriate to begin our discussion of the status of the Neanderthals with a brief consideration of the nature of the boundaries that exist in the living world.

Species as Bounded Historical Entities

It must be very clear to anyone concerned with the luxuriant variety of living organisms that at some level Nature is “packaged.” The biosphere is composed of a mass of discrete (but nested) units. At higher taxonomic levels there is no problem distinguishing these units: all horses are distinct from all whales by any definition. But as we approach finer degrees of distinction, particularly at intragenetic levels, difficulties proliferate. These difficulties are reflected in the extraordinary plethora of definitions of the species, by practice and by common consent the basic systematic unit, that is currently on offer. As Hey (2001) observed, literally dozens of new such definitions have been proposed in recent decades. This is not the place to trawl yet again through this lengthening list, but perhaps it is appropriate to point out that it is vanishingly unlikely that any single definition of the term “species” will ever fit all cases. This is not only because any universal definition would have to fit both living and extinct species, which offer us different information sets; it is also because speciation, the process by which individuated, non-reticulating units come about, is not a unitary mechanism. It is not, for example, simply an

inevitable, passive, consequence of the morphological differentiation of populations over time (though this routine if poorly understood process certainly furnishes the basis for the morphological differences by which species may often be distinguished). Instead, speciation is a *result* (individuation, expressed most essentially among living populations as reproductive independence, but always seen *a posteriori*: Tattersall, 1994), which may eventuate from shifts in developmental regulation at many different levels (Schwartz, 2005).

Human beings are instinctively reductionist creatures; but for all these reasons, and more, we may be unrealistic in expecting Nature to be *neatly* packaged. Ultimately, the boundaries defining historically (evolutionarily) independent units must lie in their (effective or absolute) reproductive isolation. But even reproductive behaviors may not provide us with a golden bullet. The studies of Clifford Jolly and his colleagues (e.g. Jolly, 2001) have shown that evidence of quite extensive hybridization between adjacent populations of baboons that are sometimes well differentiated to the eye may often be readily observed; yet evidence is still lacking that such behaviors are necessarily associated with the progressive integration of what evidently continue to be distinctive gene pools. Jolly (2001: 17) has, indeed, penetratingly observed that baboon allotaxa may at one and the same time be “‘phylogenetic’ species, but ‘biological’ subspecies.” And if this is truly the case, from a historical (evolutionary) perspective morphological differentiation becomes much the most significant factor to consider. Still, this hardly simplifies matters much. For, from the phenotypic standpoint, remarkable amounts of geographically (or artificially) maintained morphological variety may accumulate within a species without the disruption of reproductive continuity – although, at the same time, the latter can occur in the absence of readily detectable phenotypic change. Indeed, Schwartz (1999) has emphasized that there are