COMMENTARY: THYROID HORMONE IN NEANDERTAL EVOLUTION: A NATURAL OR A PATHOLOGICAL ROLE?*

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Jerome Dobson recently proposed a controversial explanation for the morphological characteristics found among "classic" Pleistocene Neandertals from central Europe (1998). Chronic iodine deficiency in these hominids, he suggests, either due to low dietary iodine consumption (a pathological causality) or as a consequence of genetically impaired iodine utilization (a biological causality), may have interfered with thyroid hormone metabolism to such an extent that normal human skeletal development was compromised. He states that "the number and quality of morphological similarities between cretins and Neandertals argues for iodine as a key factor in controlling Neandertal morphology. . . . Iodine deficiency, whether biological or pathological, could explain the apparent ease with which new Cro-Magnon arrivals swept aside their Neandertal predecessors. In either case, biological or pathological, recovery from cretinism may explain the total disappearance of certain Neandertal traits in subsequent populations" (p. 14). Although I believe Dobson's explanation is untenable, the apparent similarities he describes between modern endemic cretins and classic Neandertals are intriguing.

Both Neandertal and cretin bones, Dobson points out, are particularly robust and thickened: The skull is large relative to body size, and the body trunk is disproportionately long compared with the short limbs. He illustrates the disproportionately short distal limb bones (radius/ulna, tibia/fibula) characteristic of Neandertals (Aiello and Dean 1990), a trait apparently shared with cretins.

Similar skeletal traits, however, are seen in modern Inuit and Lapp (Sami) populations and in several Pleistocene carnivores, including the dire wolf and the saber-toothed cat (Stock and Lance 1948; Stock 1956; Kurtén and Anderson 1980; Trinkaus and Shipman 1993; Wolpoff 1999). These last two species, now as inexplicably extinct as other members of the Pleistocene megafauna, are described as differing from their Holocene counterparts in skull size, limb proportions, and general robustness. A massive skull, heavy bone structure, and disproportionately shortened distal limb bones compared with those of closely related taxa are not, therefore, traits unique to Neandertals or even to the hominid lineage. I suggest that these skeletal characteristics indeed reflect thyroid hormone synthesis, but in a totally

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