PAPERS ON PALEOPATHOLOGY

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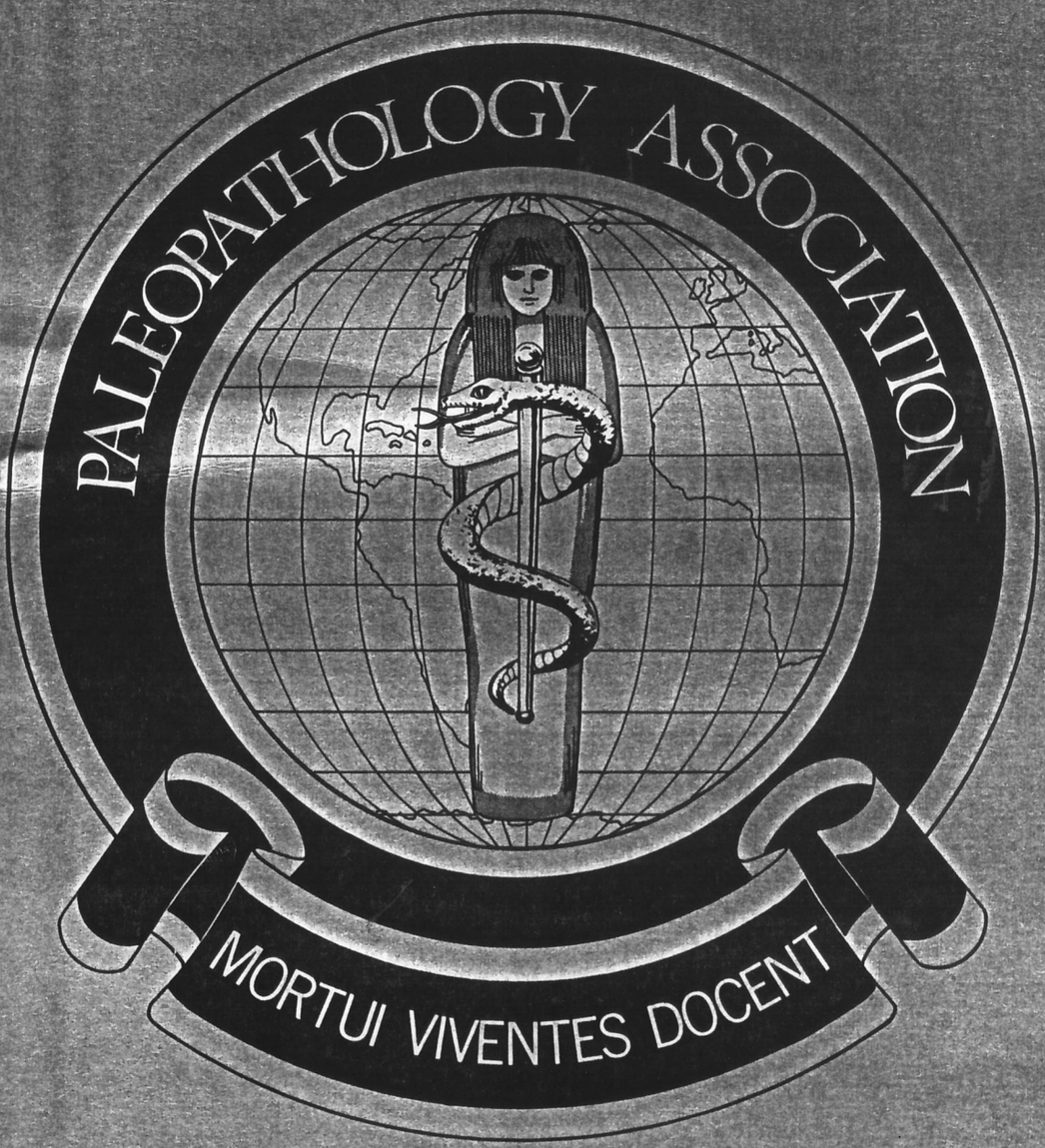

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(deficiency of vitamin C resulting in deficient synthesis of collagen precursors), rickets (juvenile deficiency of vitamin D resulting in delayed epiphyseal cartilage maturation and synthesis of excessive unmineralizable osteoid), and osteomalacia (adult deficiency of active vitamin D metabolites or presence of inhibitors of mineralization, resulting in accumulation of unmineralized osteoid, especially at sites of accelerated bone turnover). Hypervitaminosis A (resulting in retardation of central regions of major growth plates), plumbism (lead is an osteoclast toxin resulting in bands of increased transverse metaphyseal density due to deficient remodeling, not lead deposition), and fluorosis (ionic-substitution into the crystal lattice for calcium results in mechanically inferior bone substance and excessive periosteal additions with the potential for major nerve compression especially along the spine) are examples of ingestion diseases. Even gout could be included as a nutritional disease (red wine and red meat contributing to the overproduction of uric acid in individuals with genetic deficiencies in purine synthesis).

SURVEY OF PREHISTORIC PARASITES FROM SOUTH AMERICA

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We surveyed parasites from the Atacama Desert of Peru and Chile and also from sites in northwestern Brazil. The analysis of some 400 specimens, combined with published papers, facilitates a comparison of helminths in those areas. *Enterobius vermicularis* (pinworm) has infected humans in Peru and Chile for several thousand years, reaching a high prevalence at some sites. This parasite is absent in Brazil. *Diphyllobothrium pacificum* (fish tapeworm) infected coastal cultures in Peru and Chile throughout prehistory, being nearly ubiquitous in preagricultural times except in the region south of Arica, Chile; its distribution in post-agricultural times has been spotty. Ancylostomids (hookworms) have been found only once in the Atacama Desert, but are common in northeastern Brazil. Other parasites such as *Trichuris trichiura* (whipworm) and *Ascaris lumbricoides* are distributed on both sides of the Andes. The study allows for some hypotheses about the environmental and behavioral factors that regulated the distribution of these parasites in prehistory.

POROTIC HYPEROSTOSIS: A PHENOMENON IN SEARCH OF SIGNIFICANCE

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Although porotic hyperostosis is a frequently recognized archeologic phenomenon, often attributed to iron deficiency, the diagnosis of primary iron deficiency is contrary to the medical evidence. The pathophysiology of porotic hyperostosis has been explained as a marrow hyperplasia, which radiologically (in the skull) is recognized as a 'hair on end' or 'crew cut' phenomenon. Far from evolutionary evidence for the role of iron deficiency, it is critical to examine the basic tenet that one can actually recognize iron deficiency on the basis of skeletal examination. It seems problematic to consider iron deficiency as a cause of hyperplastic marrow. If there is inadequate iron for blood cell production, the marrow may actually be hypo-regenerative. The only identified study of the frequency of skull changes in