

Digging for Pathogens

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## Culture, Environment and Disease: Paleo-anthropological Findings for the Southern Levant

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### Abstract

Most of our knowledge of the prehistory of disease in relation to culture and technology is based on the examination of skeletal remains dated to the last 20,000 years and so post-dates the emergence of *Homo sapiens sapiens*. There is little chance that we will ever recover sufficient material to directly assess disease incidence in the four million years of human evolution that preceded the development of modern humans. However, the archaeological record does provide some indication of habitats utilized, diet and methods of food preparation, as well as estimates of group size and interaction. In this presentation the extent

courtyards from the Upper Paleolithic to Chalcolithic Periods and are also present, in low frequencies, in Bronze Age and Iron Age sites alongside large necropoli. Even if the intramural graves were located in abandoned dwellings, they were still in close proximity to the living. Prior to the Late Bronze Age (14th century BCE), when public toilets may have existed in urban areas, there is no evidence of drainage channels or other sanitary arrangements. Toilet seats of pierced stone, placed on ceramic pots or draining into pits, have been identified from the Iron Age in urban settlements such as Jerusalem (Cahill et al. 1991). The earliest constructed water well dates to the terminal PPNB of Atlit Yam (Galili et al. 1993). Wells, together with cisterns in later periods, have traditionally provided water in most regions of Israel where there is only winter rainfall and few perennial rivers. In Israel, there is no evidence of large-scale irrigation projects such as those characteristic of Egypt and Mesopotamia (Adams 1966), but in the Chalcolithic and Byzantine periods, there is evidence to suggest water management using check dams and flood water irrigation (Levy 1995; Evenari et al. 1982).

### *Paleoclimate*

Today Israel comprises three distinct phyto-geographic zones (Fig. 2). The northern Mediterranean zone is characterized by high annual rainfall (800–900 mm in the Carmel region) and lush vegetation cover; it contrasts with the arid, Saharo-Arabian zone in the south, with an annual rainfall of less than 250 mm. To the east, the Jordan Valley is characterized by Irano-Turanian steppe vegetation with semi-tropical enclaves (Orni and Efrat 1980). Until this century, marshy swamps predominated along the Mediterranean coastal plain and around the Hula Lake in the Jordan Valley. The boundaries between these zones have fluctuated markedly in the past, in response to global changes in climate (temperature and rainfall) and with variations in the sea level (Horowitz 1992).

In the Upper Paleolithic and Kebaran periods, the climate was cold and dry. In the Geometric Kebaran the climate became warmer and

