

THE NEAR EAST DURING THE LAST GLACIATION: A PALAEOGEOGRAPHICAL SKETCH

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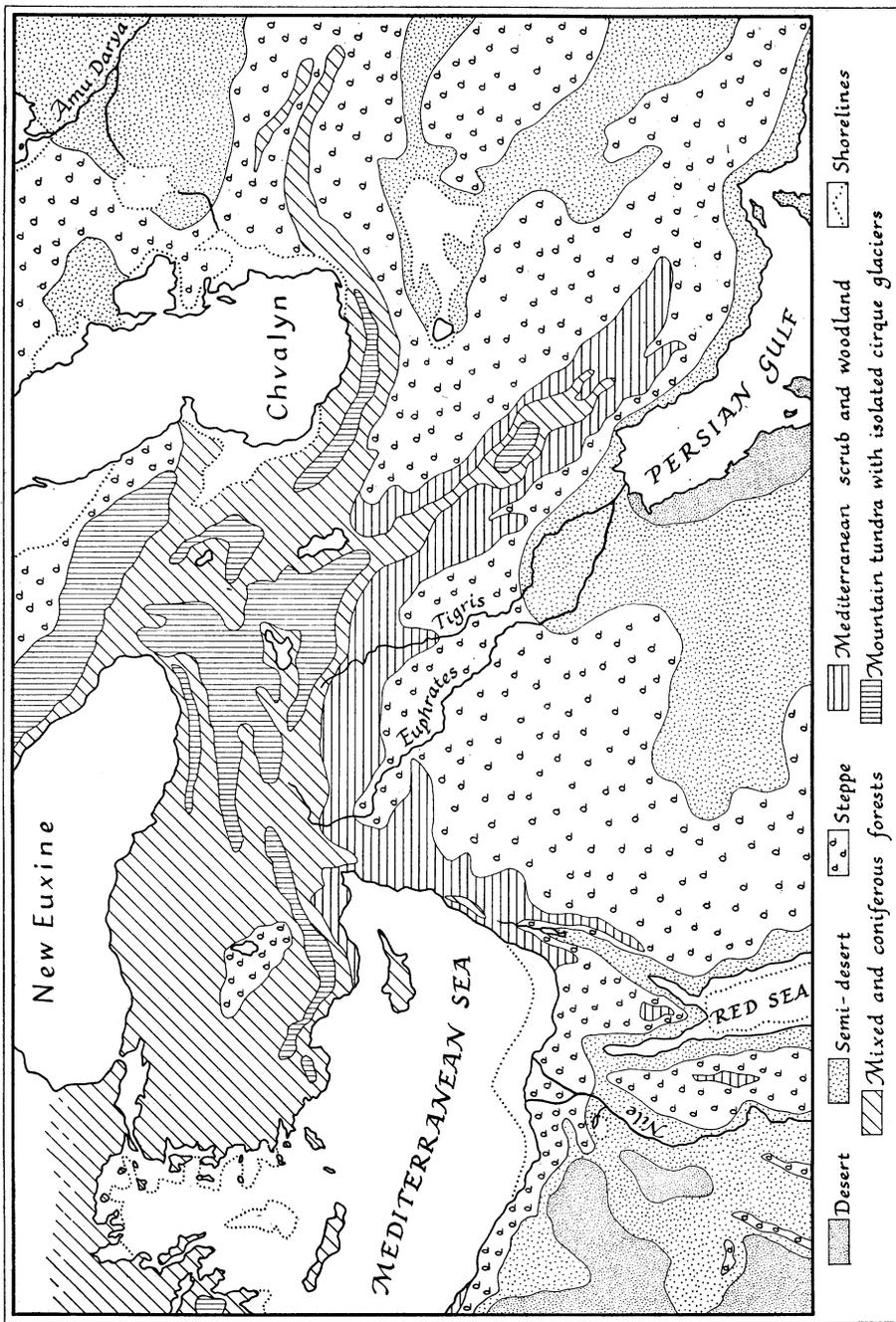
PALAEOGEOGRAPHY is not merely a reconstruction of the past configuration of oceans and continents, it is a delineation of the former landscape of an areal unit, both physical and cultural. Climate and soil, flora and fauna, land and water all form an integral and modelling part of this geographical landscape. In this sense I will try to sketch the "landscape" of the Near East during the Last Glaciation, when man was proceeding into the last phases of the Old Stone Age some ten to fifty thousand years ago. This essay represents a brief evaluation and assessment of the stratigraphical and morphological material given in a recent monograph by the writer¹; the distribution of land and water, of climate, and vegetation is tentatively depicted in cartographic form (see map p. 368).

Two major climatic features tended to alter the outline of the land surfaces during this period. Firstly, the glacio-eustatic lowering of world sea level by some 300 feet at the time of maximum continental glaciation laid wide areas of the coastal shelves dry, in particular the Persian Gulf and the northern Aegean Sea. The threshold of the Bosphorus did not permit the Black Sea to conform entirely to this marine regression, but a lowering of 130 feet is geologically confirmed (New Euxine stage). On the other hand, the lowering of mean temperatures by about 8° F. considerably reduced evaporation, which was augmented by a sizeable increase of precipitation. As a result the level of non-outlet lakes rose, the Dead Sea by 650 feet, the Anatolian and Armenian lakes by between 15 and 300 feet, the Caspian Sea by over 250 feet (Chvalyn Transgression) until it overflowed across the Manytch Depression into the Black Sea. The improvement of moisture conditions also changed the character of many rivers, which carried more water further and over a longer period of the year than at present. So, for example, a branch of the Amu Darya flowed through the Uzboi Channel into the Caspian.

The lowering of temperature also brought an extension of the montane cirque glaciers of the Caucasus, Turkey and Iran with it. The climatic snowline was lowered some 2500 feet on the average, coming to rest at an altitude of from 7000 to 11,000 feet, and running from north-west to south-east, from the maritime coasts to the continental interiors. Similarly, the zone of solifluctoidal activity and mountain tundra was lowered by the same amount, making the greater part of the Armenian Plateau inhospitable to man. A more temperate climate is indicated further south by cave deposits resulting from frost-shattering, by less thermophile bioforms and a more temperate fauna. Thus, for example, such temperate genera as oak, beech, elm and hazel were dominant on the middle slopes of Mount Lebanon, contrasting with modern sclerophyll forms. In Cyrenaica the occurrence of Aleppo pine and also of *Laurus canariensis*² (now extinct in the Mediterranean) indicates similar conditions, while the molluscan fauna of the Fayum Oasis contained three typically northern species. The increase of precipitation on the northern margins of the trade desert belts made itself noticeable in the vegetational picture as well; for example, fig, sycamore, lotus (*Celtis integrifolia*) and a lush vegetation of reeds on the now barren

¹ Butzer, K. W., 'Quaternary stratigraphy and climate in the Near East, with special reference to Egypt and Jordan.' Bonn, 1958. 132 pp. *Bonner Geographische Abhandlungen*.

² McBurney, C. B. M., and R. W. Hey, 'Prehistory and Pleistocene geology in Cyrenaican Libya.' Cambridge, 1955, pp. 115 ff.



Climatic-vegetational belts of the Near East during the Last Glaciation: generalized after Butzer (1958)

scarp of the Libyan Desert oasis of Kharga.¹ A shift of the semi-desert—steppe—sclerophyl parkland complex several hundred miles southwards at the expense of the deserts seem relatively certain, also on indirect geomorphological and stratigraphical evidence. In this sense the distribution of climatic vegetational belts shown on the map is only intended to visualize these changes of climate, and is no more than a very provisional reconstruction. From a meteorological point of view, there was probably a local intensification of the westerly circulation and the upper air jet stream, with a greater high level transfer of cold and warm air masses favouring cyclogenesis and increased precipitation. The earlier half of the Last Glaciation appears locally to have been very moist but only slightly cooler, the last half relatively dry and cold.²

As far as the cultural evidence of man is concerned we only have his camping sites and caves, with their prehistoric tools and animal remains. From the latter we can elucidate the faunal composition of the respective areas. For example, an extinct species of rhinoceros (*merckii*), hippopotamus, several members of the horse family, boar, wart-hog, camel, bison, red deer, roe, fallow deer, a number of gazelles, ibex, wild goat, donkey, jackal, wolf, fox, striped and spotted hyenas, several bears including brown bear and Syrian bear, lion, leopard, lynx, marten, ichneumon and crocodile³ were typical biotypes in the Levant area. From Cyrenaica we have remains of an extinct buffalo (*Homoioceras*), rhinoceros, wild ox, zebra, barbary sheep, deer, antelope, gazelles and wild donkey.⁴ Lastly, Egyptian deposits of this date have yielded fossils of lion, hippopotamus, buffalo, and a primitive member of the horse family (*sivalensis*).⁵

Middle and Upper Palaeolithic Man left his tools over wide areas. The flake-tools of Levalloisian character occur in North Africa and the Fertile Crescent in occasional association with a Neanderthaloid race of Man. Radiocarbon dates suggest the dominance of a more advanced form of *Homo sapiens* in connection with a locally quite differentiated later Palaeolithic blade industry after about 30,000 B.C. These people were hunters and gatherers who had no notion of agriculture and kept no domesticated animals. Apart from his hunting activity, early Man was still widely dispersed and relatively little organized, so that he exerted little influence upon the natural environment.

¹ Caton-Thompson, G., 'The Kharga Oasis in Prehistory.' London, 1952, pp. 14-21.

² Butzer, K. W., "Mediterranean pluvials and the general circulation of the Pleistocene." *Geografiska Ann.* 39 (1957) H.1, pp. 48-53. Some remarks on the general atmospheric circulation of the Quaternary. *Actes V. Congreso INQUA Madrid-Barcelona* (1957), in print.

³ Vaufray, R., "Étude Paléontologique. Mammifères." pp. 198-217 in R. Neuville: "Paléolithique et Mésolithique du désert de Judée." *Mém. Inst. Paléont. hum.*, 24, 1951, Paris.

⁴ Bate, D. M. A., "Vertebrate faunas of Quaternary deposits in Cyrenaica," in McBurney & Hey, *op. cit.* pp. 274-91.

⁵ Butzer, *op. cit.*