

of this and the general plain, but also a part of the earlier culture of the growing South Kurgan, and it continued to grow until the brilliant period of the life of this kurgan was drawing to a close at a height of 52 feet above its base. Then followed a change to dryness, causing the reexcavation of the valley, and lasting through a period when the site was not occupied. A reverse change caused the refilling (shaft B) that followed, which lasted till the introduction of irrigation and coincided with the life of the iron culture. The coincidence is thus very marked between the founding and growth of culture on the one hand and the condition of precipitation that permitted the aggrading of this part of the delta. And equally well marked is the relation between the dry periods and the disappearance of cultures.

The record in the Askhabad Well is very interesting, for it gives a section extending 2,200 feet down in the zone of deposition and depression, and reaching down to nearly 1,400 feet below the level of the ocean. Below the upper 60 feet, with the exception of layers of coarse material aggregating less than 7 per cent of the volume, it consists uniformly of a brown loam, which indicates clearly that loess-dust enters into it as an important constituent. Of the upper 60 feet, 50 consist of more or less coarse material in which the brown loam is absent.



Fig. 16.—Starting a Shaft in the City of Anau.

The conditions that permitted the forming of these great thicknesses of brown loam were apparently those belonging with a greater amount of both general and local precipitation. They presuppose, I think, a degree of moisture that does not now obtain, under the influence of which there was a perennial growth of grass sufficient to allow the accretion of intimately mixed alluvial silts and loess-dust.

I imagine that the top of the brown loam at -60 feet in the well is approximately contemporaneous with the similar material under the North and South Kurgans; and that its greater depth may roughly correspond to the depth to which degradation extended before the refilling of the valley occurred, during which the North Kurgan was started. The absence of the brown loess-dust constituent, both from the upper 50 feet in the well and in the sediments deposited at Anau after the starting of the North Kurgan, point, I think, to a diminished precipitation over the piedmont zone, *i. e.*, diminished sufficiently to cause a deficiency in the growth of grass required to retain the loess-dust.

When we compare, further, the upper 60 feet in the well with the whole of the column below, we see that there is evidence of a great change from a long-continued different condition. And when we consider together the apparent