can not be foretold. Embankments or dikes are therefore thrown up in oblique lines on the up-slope from the track, so as to guide the floods toward strong culverts under the roadbed. Yet even these safeguards do not always suffice. Not long after we left this part of the country the news overtook us of a destructive flood by which a part of the track near Kizil-Arvat had been washed away.

The irregular structure of the piedmont slope, as exposed in cuts along the railroad line, is well described by Walther (1900, 104). There is a frequent and irregular alteration of stratified or massive loess-like clay, finely stratified sands, and coarse gravel, with many local unconformities; all this being the result of the variable action of floods that sweep suddenly, unguided by channels, down the

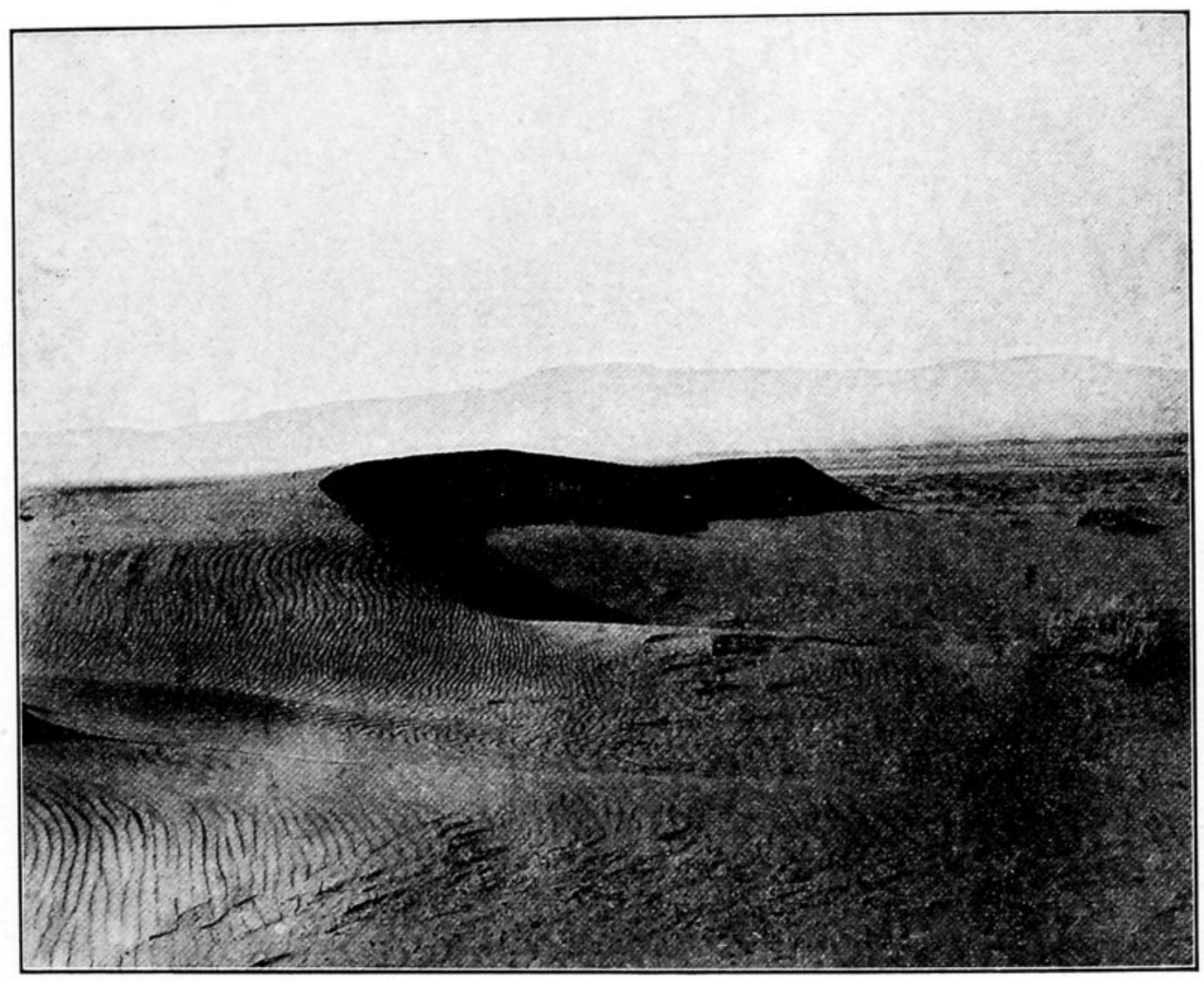

Fig. 24.—A Barkhan near Bakharden, looking south.

piedmont slope; now eroding, now depositing; here sweeping along coarse blocks, there depositing fine silts. Ten miles south of Askhabad, where the railroad station is 819 feet altitude, we saw, when returning by the Meshed road from an excursion in the Kopet Dagh, more abundant piedmont deposits of mountain-waste dissected to depths of several hundred feet. A great thickness of these deposits has been penetrated by the artesian boring in the suburbs of Askhabad, already mentioned, 2,000 feet deep, and therefore with more than half its depth below sea level, but without securing a water supply. The whole depth, as shown in the record quoted by Walther (1900, 105), is in variable layers of clay, sand, and gravel, similar to the deposits seen in the borrow-pits near the railroad embankments, or in the natural