

shown at the end of the ride by the condition of our clothes, which had been carried in a well-wrapped valise, unwisely tied on at the back of our tarentass.

The form and distribution of the drifts by Kara-bulak leaves no doubt as to the recent derivation of the loess from the plains on the west and northwest. Not only does the fan-like flood plain of the Kusak open in that direction, but the great sandy wastes of the lower Ili and Karatal, south of Lake Balkash, stretch for scores of miles beyond. All this gives further support for the supposition that, in this region at least, loess is not derived from mountains, but from the river plains. To be sure, the waste that is laid on the plains comes originally from the waste of the mountains, but in the mountains the slopes are often plant-covered, and are therefore better fitted to gather loess than to furnish it, as seems to be attested in the loess mounds that have been so manifestly laid up on the ridges over the Kok River above mentioned. It is not from ordinary river valleys that loess is best supplied, but from the open plains of aggrading rivers; and, moreover, it is chiefly while the aggrading rivers are wandering over their plains that loess can be furnished in greatest quantity, as was pointed out in the notes on Fergana, above. The former broad valley floor of the Kusak by Kara-bulak, for example, is not to-day in condition to furnish loess, because it has been plant-covered since the river has intrenched itself below the plain, and the river trench is as yet too narrow for the outspreading of silts. Further west, where the same river emerges from its trench to wander upon a broad plain, loess may now be swept off in good quantity by the westerly winds, to settle on the plant-covered hills.

LOESS IN THE (WESTERN) KUGART VALLEY.

The loess drifts of the Kusak valley-sides give me confidence to put on record certain notes made in the valley of the (western) Kugart, in the outer spurs of the Tian Shan, about 20 miles northeast of the town of Jellabad, in northeastern Fergana. The treeless hillsides seemed often to be loess-covered, and in many places the loess had slipped down, leaving a scar. Ravines were worn through the loess, hence it was not of very modern date. The loess and the valley floor were well covered with herbage. But the most significant feature was the drift-like appearance of the loess; it seemed to lie in pillow-like masses (fig. 64), whose lines of modeling were not down-hill, except where the drifts were gashed by ravines, but along the hillsides, as if here it had been wind-swept down the valley to the southwest. We asked our jiggits, who had been detailed by the native chief of the department to accompany us to the head of the pass, from what direction the wind blew in winter; and the answer was, "Strong from the northeast."

The Kugart River is to-day intrenched from 300 to 400 feet below its former valley floor, which was here a mile or more wide. The terraced walls of the trench show the valley to have been heavily aggraded with gravels and sands. It is therefore probable that the loess on the hillsides was largely supplied from the valley floor during the period of aggradation, and that since terracing began the accumulation of loess has ceased.