

ATTEMPT AT CORRELATION OF RECENT GEOLOGY OF THE MOUNTAINS AND PLAINS.

The following suppositions seem to account for the various land forms observed along the route from Kizil-Art pass north to the lowland plains, but it should be added that generalizations, such as block movements, can not be definitely established without a study of several other profiles across the ranges in question.

(1) Floor A of the Taldic Valley profile, the great extent of which was seen from prominent points above the valley, is evidence that in earlier Quaternary time the Alai Mountains had been degraded till a waste-covered piedmont plain had formed on the north side to within 25 versts of the core of the range.

(2) When this stage had been reached, there seems to have taken place a dislocation, essentially parallel to the range axis, and some 75 versts to the north of it, while either the plains to the north sank or the mountains were raised by a block uplift. Whichever happened, it appears that the mountains with a belt some 50 versts in width of the old piedmont to the north were raised at least 1,500 feet relatively to the plains north. As this movement took place, the Taldic darya, as an example, cut down through the raised piedmont and formed a valley increasing in depth from about 500 feet near the crest to 1,500 feet at the dislocation, while its various tributaries dissected the mass on both sides, leaving portions of the old plain, some of which still exist as floor A, recording its former extent. The floor of the trunk valley thus formed is the one lettered B in the profile.

(3) The great width of floor B in the lower half of the Taldic Valley, and the considerable thickness of alluvium on its old ledge bottom there, are evidences of prolonged meandering of the stream and filling back of waste. In other words, there was a decrease, or possibly a cessation, of relative uplift at the B stage.

(4) There seems, then, to have begun a block tilt of the belt lying between the northern base of the Trans-Alai range and the old dislocation zone, about 75 versts to the north of the Alai range axis, the rotation taking place about a line somewhere under the present Alai range axis, raising that part to the north and lowering that to the south. As a result, those streams flowing north in the Alai Mountains cut their way down through that part which was raised, leaving numerous terraces to record the transition. At the same time, the head of the Taldic valley, being south of the rotation axis, was tilted back, decreasing its grade, which explains the preservation of floor B in the broad grass-plain of Ak-Busa-Ga. The lower portions of valley systems south of the crest were being tilted down below their Alai Valley base-level, and consequently choked with waste. Another consequence of this tilting down, suggested by Professor Davis, was the increase of grade of slope from south of of the Alai crest, aiding the transportation of loose material and a rapid sharpening of the peaks which to-day project as pinnacles from the talus slopes (fig. 119). A block tilt seems to be the only way to explain the rapid increase of height above stream of terraces in valleys running north and the deeply filled up character of valley systems running south from the supposed rotation axis. Moreover, the old piedmont, or floor A, now lies horizontal, although it must have formerly inclined to the north.