to the northeast side of its former valley floor before the revival of erosion; so that, when the recent downcutting began, the stream became superposed on the limestones, from which it has not yet been able to escape. The spur gives location to a cross-trail, by which the Persian villagers in the headwater valleys of the Atrek system traverse both the limestone anticlines on their way to Askhabad.

Leaving our pack train to make camp on the stream (altitude about 6,100 feet) just beyond the shale spur, Huntington and I, with one of our jiggits, followed the cross-trail to a high pass in the main range, and then climbed on foot to the summit of Chapan (about 9,300 feet), where we enjoyed a grand view in all directions. Riza, the highest summit of the region (9,732 feet, according to the Russian map), lay a mile to the east—a broad dome, in which the limestones were nearly horizontal, as they were indeed all along the mountain crest. The slope toward the Serani Valley was moderately dissected; the slope toward the plains, 8,000 feet below us on the north, was deeply gashed with enormous ravines. Askhabad was clearly in sight, being only about 20 miles distant; the farther plains faded away in the haze of the lower atmosphere. It was difficult to realize, while we were enjoying the fresh, clear air of the mountain top, that the plains were still as hot as we had found them a few days before in the glare of noon on the railroad. The Firuza synclinal basin was reviewed; its inclosing monoclinal range was seen to be of moderate length, perhaps 20 or 30 miles; the syncline of the basin was terminated on the west by a great anticlinal dome, on whose northeastern flank a curious meandering gorge is cut in the slanting limestone, probably another case of structural superposition. The view southward into Persia showed a broad synclinal shale basin south of the Buuzan anticline, and several other limestone anticlines, with which we made closer acquaintance on the following day. What with form and color, it was comparatively easy to sketch the general structure for miles around.

We followed the Serani stream nearly to its head on June 2. A second chasm, due to stream displacement, was passed about 2 miles above the first; then the valley shallowed rapidly, and soon opened in a broad upland, about 7,000 feet in altitude, which we may call the Chibin upland, from a spring that is noted on the map at its southwestern end, and here we came upon some Kurds in their summer camps. On the south rose the narrow and sharply serrate anticline of Giluli peak (9,378 feet), which seems to open and blend with the main anticline farther southeast, and which soon weakens to the northwest, leaving a broad and low ridge between it and the Buuzan anticline. These two ranges are so closely in line that they should be regarded as parts of a single upfolding, the variation in height along the line being probably referable to differences in degree and sharpness of folding, and perhaps in part to faulting.

THE SELSUPARALI BASIN.

Our road led us across the lowest point of the broad ridge, which we approached by gentle ascent from the Chibin upland on the north; but its aspect changed when, on looking down its southern slope, we found there a rapid descent of 1,000 or 1,500 feet into the open basin of the broad Selsuparali shale syncline. This basin is drained through gorges in the Isferanli anticlinal