firmed by many features noted afterward. The south slope of the range had a hackly surface, due to the erosion of many small branching valleys among its varicolored crystalline ledges; but when seen in profile a few days later from the west end of Issik Kul, the smaller irregularities of the slope were lost in a remarkably simple outline, sketched in figure 42. The crest rose above the snow patches of mid-July; one of its highest parts, isolated between two encroaching valley heads, had an obliquely truncated summit in line with the long back (south) slope. The northeastern face of the range was much steeper and more sharply dissected by the side streams of the Chu. It was therefore concluded that the Alexander range is a faulted block of a peneplain, of which the former lowland surface is now uplifted, tilted to the south and moderately dissected, while the steeper northern faulted face is deeply carved in great spurs and ravines. The Kach-kar basin is apparently an aggraded area on the relatively depressed southern side of the block, as will be again considered farther on.

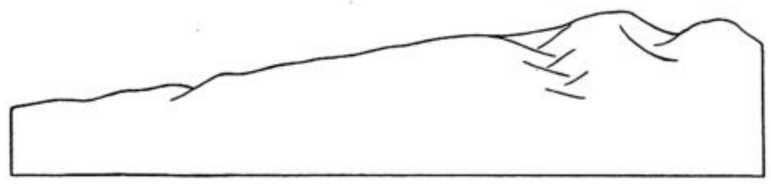

Fig. 42.—Distant Profile of the Alexander Range, looking west.

Three small mountain masses (A, B, C, fig. 43), between the Alexander range and Issik Kul, had much the appearance of tilted and dissected blocks, sloping to the south and facing to the north. If this be true, their displacement ceased longer ago and their dissection has progressed farther than is the case in certain parts of the Wasatch range of Utah which I examined in 1902; for the spurs on the faulted face of the ranges by Issik Kul do not possess terminal facets, and the ravines between the spurs on both the front and the back slopes have open mouths. On the other hand, the back slopes of these ranges still have general profiles of greater regularity than those of the Utah ranges that I have seen. This may be because the Issik Kul ranges were more smoothly worn down in the pre-faulting cycle than were the Utah ranges. The only sure indication of recent dislocation among these ranges was a fault scarp, 10 to 50 feet in height, more than a mile in length, and trending northwestward across the gravel fans at the northeastern corner of range B. It should be stated that this scarp was only seen at a distance of a mile or more; but it was closely examined through a good field-glass from different points of view and in different lights. The manner in which it was crossed by the gullies radiating from the mountain ravines left no doubt in my mind as to its meaning and origin, A large fan, spreading into the Urta-takoi basin on the south side of the same range.

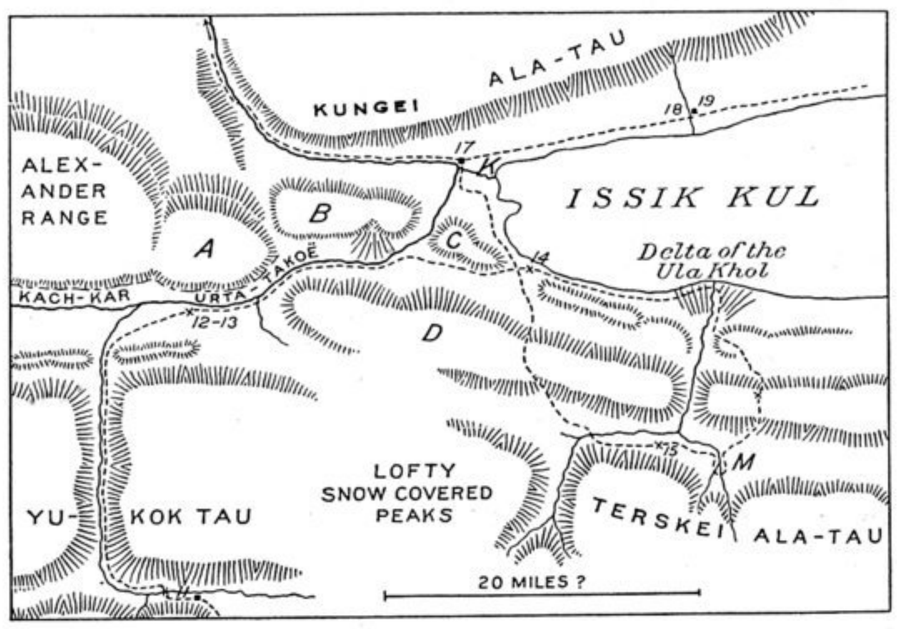

Fig. 43.—Rough Sketch Map of the Ranges southwest of Issik Kul.