The simplest case is where a valley contains two moraines, one below the other, as in the valley of Kashga Su, a tributary of the Ulakhol at the southwest end of Issik Kul. Here, at an elevation of 7,400 feet, the lowest altitude at which any evidence of glacial action was seen, the lower portions of an old moraine are buried in valley gravels. The moraine itself consists of bowlders and rock waste of various sizes and kinds, deposited together in the usual glacial fashion. Its higher surface is smooth and rounded to such an extent that the topography peculiar to young moraines is almost obliterated, and the lower portions of the moraine show irregular hillocks and short ridges projecting out of a smooth valley floor of gravel in such a way that a removal of the latter would show the ordinary kettles of a typical morainic topography. Farther up the valley there is another moraine, entirely separated from the first. It has a younger, fresher appearance, and is not at all drowned in gravel; hence it must have been formed at a considerably later date than the other; but so far as the evidence of this valley is concerned the younger moraine might be merely a stage of retreat of the older one.

In other cases the relation is not so simple. The younger moraine lies, as it were, in the arms of the older, and the two appear to have been formed at widely different times, separated by a long period of aqueous erosion during which the ice retreated farther up into the mountains than the position of the younger moraines. One among many examples of this is found in the Tuluk Valley, north of Son Kul. Near the head of this valley and on its north side are two tributary valleys, from each of which projects a large body of morainic material which seems to be of two ages. The older moraine of the western or larger tributary takes the form of a rounded spur with its base at a height of about 10,000 feet. The spur has a long, grassy slope, fairly steep but thoroughly graded, and showing few bowlders. Its morainal character is more distinct on the top at a height of about 10,500 feet, by reason of ridges, imperfect kettle-holes, and other characteristic forms, and also by reason of more numerous bowlders. The topography is not fresh, however; the kettles are all drained, the slopes are gentle, there is a well-developed though circuitous drainage system, and the occasional bowlders are well rounded and decayed. The stream coming from the mountains has cut through the moraine an open flat-floored valley with graded sides. If this open valley is followed up, it comes to a sudden end at an elevation of about 10,000 feet, and above this level it is filled with a moraine that appears to be of much later date. The steep front of the latter has a slope of 30° instead of about 15°, as is the case in the older companion; there are deep, steep-sided kettles, some of them containing pools of water; drainage is but little developed, and the bowlders are mostly subangular. The stream here flows in a narrow V-shaped valley, the sides of which have an average slope of 35°. Yet the same stream, working just below in the other moraine, in what seems to be the same kind of material, has carved out a valley many times as large, with sides that slope at an angle of only 22°. The inner, smaller moraine shows all the signs of youth; the outer and larger all those of age. The two must have been formed at times so far separated that one moraine has had time to be maturely eroded and degraded while the other still remains young. As to what climatic conditions intervened between those times, and as to whether the two moraines represent two