

tributaries of the Yeshil Irmak or Iris, and along the steep mountain torrent which flows from the lofty Pontic range northward to the Black Sea at Trebizond. These phenomena are probably due to the same cause as the similar phenomena farther east in Persia and Turkestan.

TERRACES IN NORTH AMERICA.

The southwestern part of the United States is not unlike large portions of Central Asia, and among its higher mountains we should naturally look for gravel terraces if our conclusions concerning climatic changes are correct. As a suggestion of the sort of phenomena to be looked for, I shall cite a few examples which I saw in Utah and Arizona during the summer of 1902.

The first example is the Kanab Canyon, in Southern Utah, which has been described by Professor Davis (*b*, pp. 10-11). This steep-sided young canyon contains "two terraces of well-stratified alluvium, usually of fine texture and containing lateral unconformities such as are to be expected in the deposits of aggrading streams. The higher terrace is 80 or 100 feet over the stream-bed. It is less continuous than the lower one, which stands from 40 to 75 feet over the stream. The channel below the lower terrace is the work of a series of floods, beginning in the summer of 1883. A great part of the alluvium then accumulated along the valley was swept rapidly away." In external appearance and scale these terraces are like many of those found in Persia and Turkestan, and the character of the surrounding mountains is the same in both parts of the world. The sudden sweeping away of the alluvium from the canyon and the formation of the lower terrace in the course of a few years may be compared with similar action taking place in Asia. At Nauruzabad, a few miles south of Serakhs on the Heri Rud (Tejan River), my guide pointed out a place where, during the great flood of the preceding spring, whose appearance at Tejan has been described by Professor Davis, a mass of alluvium half a mile long and nearly a thousand feet wide was washed away, leaving a bluff a hundred feet high. Among the mountains of Persia it frequently happens that if a terraced valley be followed toward its head, points will be found where the terraces, one after another, come to an end. Often this ending, especially in the case of the lowest terrace, is very sudden, and it is manifest that in every great flood the inner channel cuts headward and the terraces are prolonged upstream.

A less marked, though distinct, example of the same process of valley-filling and terracing is found along Le Verkin Creek, near Toquerville, 50 miles west of Kanab. The bottom of the young valley of the creek is filled with from 10 to 20 feet of alluvial gravel, which the stream has now dissected, forming a rude terrace.

These few examples of terraces in Turkey and North America are not supposed to lead to any definite conclusion, but are presented merely with the purpose of showing that if our conclusions as to the terraces of Central Asia are correct, these features in other lands are what we should expect. Prolonged study is necessary before we can correlate facts so widely separated. The glacial period was a world-wide phenomenon, and to understand it fully we must take a world-wide view.