greater precipitation. And in the same way a comparison of winter and summer conditions affords no assistance, for the colder winters are also times of relatively large precipitation. Nor does it help us if we compare different years, the colder with the warmer; for we have no statistics as to the growth of vegetation, the length of rivers, and the other factors which affect the problem. If we suppose, however, that the precipitation remains constant and the degree of cold increases, the amount of evaporation must decrease and the size of rivers and lakes correspondingly increase. It would probably require a great decrease in temperature to bring the lakes to the dimensions of even the more recent lacustral epochs. Another effect of increased cold would be an increase in vegetation and perhaps in the rate of weathering of the rocks by reason of the greater amount of moisture which would remain in the ground. Here again we have no means of measuring the effect of any possible increase in cold, and so can not feel any assurance as to the adequacy of this cause to produce the observed effects upon the erosion and deposition of streams.

The influence of an increase of rainfall upon the ungraded slopes of mountains such as those of Turkestan and Persia can be more easily estimated. In the case of young mountains with slopes so steep that they can not possibly become graded, the whole effect of increased precipitation would be to accelerate weathering and thus to increase the load of the streams. In the case of streams which were approaching grade, but were not yet graded, the result of the increased load would be that it would no longer be possible for the streams to cut downward, because they would be so heavily loaded as to cover their beds with débris. Hence they would cut laterally and form flood-pains covered with gravel. Upon the advent of a drier time the load of the streams would decrease, but their carrying power would remain almost the same; for the carrying power of a stream depends upon its maximum size, and the maximum of flood size of streams in arid regions is almost as great as in moister regions. With lessened loads and unlessened capacity the streams would begin to cut downward once more, and terraces would be formed which would show a capping of gravel with solid rock beneath, as is common among the lofty and arid young mountains of the southern border of the Tian Shan range on the northern side of the Kashgar basin.

Among young mountains, where the main streams are graded, the result of increased rainfall and increased load would probably be that streams would build up their flood-plains and the valley bottoms would become filled with alluvium, most of which would be gravel. A drier epoch would allow this to be dissected and terraces composed wholly of gravel would be formed, like those found in the moister parts of the Tian Shan Mountains, and to a certain extent in Persia. Thus among young mountains oscillations between an arid and a moister climate would apparently produce two kinds of terraces; first, ungraded valleys would contain terraces cut partly in rock and partly in stream-laid gravel; second, graded valleys would contain terraces cut wholly in stream-laid gravel.

In these two cases the terraces of young mountains are the result of a *changed* climate, that is, the maximum effects of deposition and of erosion are produced under the extreme conditions of moisture or of drought. Among mature but ungraded