

duce a pretty considerable effect upon the whole of the lower deltaic region. The Kum-tschapghan arm, which on 10th April had a maximum depth of 1.99 m., dries up entirely. So also do all the large canals which issue through the left bank of the Tarim, and of which the deepest gave a sounding of 1.08 m.; and the same thing is true of the deltaic arms on the right of the river. The only one that continues to carry water is the Tusun-tschapghan arm, which on 10th April had a depth of 4.80 m., though this diminishes in summer to a maximum depth of 2.25 m. Consequently the whole of the volume that then flows down the Tarim, and it is manifestly a minimum, probably not more than half a score cubic meters, must of necessity, apart altogether from any evaporation and infiltration into the ground, make its way undiminished through the Tusun arm into the Kara-koschun, though, as I have already hinted, it is nothing like powerful enough to fill its extensive marsh, and thus preserve it.

Hence not only is the volume of the Tarim subject to great oscillations in one and the same year, being at the time when the ice melts upwards of ten times as large as in late summer, but it exhibits likewise another species of periodicity, in that some years it has a much more copious supply of water than it has in others. The latter periodicity is dependent upon the weather in the border mountain-ranges. It is evident, that a winter which brings but little snow in the mountains, followed by an especially cloudy and cold summer, will result in a small amount of water flowing down to the lowlands and the deepest part of the basin, whereas with a snowy winter in the mountains, followed by a bright, warm summer, the reverse is the case. These circumstances appear to have prevailed in 1900 and 1901.

On 21st April 1896 I obtained at Kuntschekan Bek's Abdal, that is some distance below Jurt-tschapghan, a volume of 60.72 cub.m. It is of course possible, that some canal or other between Jurt-tschapghan and Abdal may have drained the river to a certain extent, and something also must be set down to the 8 days' difference in point of time, as well as to the different methods of measurement employed; still the principal reason why the river in 1896 had a volume 25 cub.m. less than it had in 1900 is that on the whole the supply of water in the former year was less than in the latter. In both cases I have the spring-flood in mind; the winter precipitation is of no moment, it is the degree of cold in the winter that is the determining factor. The colder it is in the regions through which the Tarim flows, the greater the masses of water that are arrested and held up through the winter in the form of ice, and when this breaks up and thaws, it is clear that the volume of the spring-flood at Jurt-tschapghan, as well as at other points, stands in direct proportion to the coldness of the winter. In this respect however the variations in this the most »continental« climate on earth cannot well be particularly great; still a difference of a couple of degrees may be fraught with important and far-reaching consequences. Besides, it was generally agreed that the winter of 1899—1900 was an exceptionally cold winter; and I myself noted an absolute minimum of -32.2° C. as compared with an absolute minimum of -20.8° C. in 1895—96. When the winter is less cold, the ice is not so thick, and larger quantities of water continue to flow down under the ice all the cold season, and the spring-flood is consequently less. Nevertheless the natives at Jurt-tschapghan asserted, that the flood in April 1900