

flood. These partake of the steppe character, with broken forest behind. The first abandoned loops that we passed on the left hand had been filled the year before by the high flood of summer. A big hut amongst the poplar woods on the same side was called Arik-aghsi-tallikning-satmasi. On the same side, again, we noted Lanka, and on the right Äschäk-tumschughi. As soon as we passed Bala-kojdi, the river became contracted into a more settled channel, the banks were again distinctly scarped, and big forests accompanied them on each side. The river-bed was narrower, and the alluvial deposits less extensive. The successive names by which the forest is distinguished are Schamal-kirtschin, Tüjang, and Tschingelik, with two or three clay houses. At Tugha-baschi three shepherds' families were living in clay huts, and each had charge of 300 sheep, belonging to merchants of Schah-jar, as indeed did all the sheep-breeding colonies along this part of the river. Between the locality last named and Jimbel-toghvak on the Schah-jar-darja, and 3 or 4 km. north of Tugha-baschi, stands the masar of Sultan Häkim Attam Busrugvar. The great desert was said to begin two days' journey to the south of the river. In the same quarter the natives report there are three distinct watercourses; the one farthest to the south, close to the margin of the desert, being the Atschik-darja; then, a day's journey from the Tarim, the Arka-darja; and, finally, quite close to the same stream, a Kuruk-darja. With regard to the two first named, they have been dry since 1882, except that a little water reached them in 1897, and is stated to be still remaining in a few pools; it is however salt and not fit to drink. All three are said to have their courses almost entirely through the sand; although north of the Atschik-darja there occur stretches of forest. The existence of all these watercourses, new and old, suggests that the Tarim system is here like a deltaic river, and quite as subject to change.

November 12th. In 13 hours a drop of 0.7 cm. Transparency, 4.4 cm. at 7 a. m. and 5.0 cm. at 1 p. m. The height of the banks was 3.87 m.; and the high-water line, 2.65 m. Here the river is extremely sinuous, narrow, and deep, so that our 6 m. punting-poles often failed to reach the bottom. The river-bed is old. The banks are high and sharply cut through the clay soil, and frequently coated with a thin layer of salt. The predominant vegetation is poplar forest, occasionally diversified with kamisch steppe; tamarisks are rarer. On the right bank we had Kum-kotan and Jughan-balik, with old and stagnant lagoons on both sides of the river. Then came Japma-notscha, Paman, Kemi-tschapti, Schor-tegisch, Sor-sure, and At-baschi, the only place during the day where we found shepherds dwelling. The latter part of the day the river was pretty straight, and consequently the current travelled faster; in fact, it may be taken as a general rule, that the more sinuous the river the slower the current, since the more the river winds the greater is the proportion of its total energy which is lost through friction against the winding banks.

November 13th. Drop,  $\pm 0$ ; transparency, 3.4 cm. at 7 a. m., and 5.9 cm. at 1 p. m. The banks were 2.44 m. high; and the high-water level 1.81 m. above the existing level. The windings were not particularly difficult at the start, but got worse as we went on; and the rate of flow was fairly sluggish, though even then the current moved faster than it had done during the preceding stage. Kamisch steppe immediately adjacent to the river, and thick poplar woods a little way back