

tumn minimum, and would slowly begin to rise. The ice first makes its appearance in the lower part of the river, and thence gradually advances upstream. It would begin to show in about a month; but during the first week it would thaw again every day, and thereafter would remain permanent for the winter. As soon as it breaks up in the spring, it gives rise to a spring-flood, and after this has passed, it is possible in many places thereabouts to ride across the Tarim.

November 4th. The rise amounted to 4.8 cm. in 12 hours. The transparency reached 5.6 cm. at 7 a. m. and 5.9 at 1 p. m. The containing banks were 4.05 m. high, and the high-water mark was 3.21 m. above the existing level. During the first third of the day's journey, through the district known as Kumuteluk, the river presented its wonted appearance; but afterwards its aspect became totally changed. The most casual glance was enough to satisfy one, that it was no old channel we were drifting down: the bed was narrow and deep, and the current rapid, while the containing banks were steep and high, and totally destitute of poplar forests. Here the velocity was as much as 1.45 m. in the second. Kamisch steppe prevailed all day, interrupted at intervals by tamarisks growing on small sand-dunes, a sort of transition stage to the characteristic cone on which the tamarisk is usually wont to rear itself. The only poplars we saw, two or three in number, stood very wide apart, and were either stunted in growth or completely withered. After flowing for some distance perfectly straight, the river described three very similar curves, and thereupon several others of a more irregular character. In other words, the river was here something intermediate between a *kona-darja* and a *jangi-darja*; it was neither old, nor yet perfectly new. In fact, an older bed, called *Kök-tschal-darjasi*, which was deserted in 1891, breaks away from the left side of the Tarim immediately below Kumuteluk; but it rejoins the main stream a day's journey lower down. The tract between the two river-beds, designated *Kök-tschal-arali*, is overgrown with kamisch. Hence the present stream, to the south, is flowing through a new channel, beside which the woods have not yet been able to establish a footing. The only poplar wood we saw all day long was situated at the upper end of the *Kök-tschal* arm; but similar woods accompany the older bed throughout. During the last two summers no water had found its way into the *Kök-tschal*, though it had always previously done so; and except for a few isolated pools, it was quite dry.

Now it is a characteristic fact, that these old abandoned portions of the Tarim are almost invariably found to the north of the existing river; or in other words, the river tends persistently to shift its course to the right. The *Arka-darja* or *Atschik-darja* appears to be an outstanding exception to this rule; but then it is to be remembered, that we do not yet know whether this is an old river, or whether it is not possibly the first attempt at the formation of a new channel. The latter assumption is however unlikely, because the entire country intermediate between the *Atschik-darja* and the Tarim abounds in ancient forest. However that may be, the Tarim does undoubtedly manifest a decided tendency to flit to the right, a tendency which we shall find illustrated in a most convincing and irrefragable manner, when we get to the lower course of the river. If however the *Atschik-darja* really is a newly-formed arm, we may expect to find the entire river traversing it at no very distant date.