

principal passes in the Tschimen-tagh, with an absolute altitude of 4258 m. The temperature of the air was here, early in the forenoon, — 10°; there was a stiff gale from the south-east and one-fifth of the sky was clouded. On the other side of the pass they went down towards the north-north-east, following the northern transverse glen of Halim Baj for 5 km., this glen being bordered on its right, i. e. east, side by lofty black mountain-masses. It issues, as we have already seen, upon the main Tschimen valley and belongs to the basin of the Ghas-köl. But instead of continuing down this latter valley, they left it at a certain spring and struck up one of its left-hand side-glens towards the west-north-west, and after going 4 km. reached the secondary pass of Gändschuluk-baschi-davan, situated in a northern spur of the Tschimen-tagh that separates the glen of Gändschuluk from the glen of Halim Baj. This pass possesses an altitude of 4067 m. Thence they proceeded 22 km. to the north-north-west down the Gändschuluk-saj, the lower part of which is again choked with detritus and stones, so that there are several difficult passages. Just below camp No. 10 (alt. 3704 m.) there came down from the right, i. e. the south-east, the side-glen of Jajlak-saj and from the left, or south-west, the side-glen of Tschukur-tschap.

On 4th November, shortly after emerging from the glen of Gändschuluk, they again crossed diagonally over the Tschimen valley, marching north-north-west and north until they reached Temirlik. This stage made 47 km. The glen of Gändschuluk starts, I feel sure, from a main pass in the Tschimen-tagh, but it is probably difficult, seeing that the guide preferred to make a detour over the pass of Halim Baj. Outside the lower end of the Gändschuluk glen there is again a belt of drift-sand dunes, which, according to the Cossacks, seems to be broader than elsewhere. Although it is true that we only saw this belt of sand outside the mouths of the glens, it may nevertheless be taken for certain that it runs uninterruptedly all along the northern foot of the Tschimen-tagh.

The most important discoveries made during the course of this excursion were two new passes in the Tschimen-tagh, and two also in the Kalta-alaghan, together with the definite knowledge, that the Basch-kum-köl is only 15 km. long, and not 66 versts as the Russian map makes it out to be; there also it is erroneously called the Tschong-kum-köl. Finally this reconnaissance was also of value, in that it furnishes information as to the situation and configuration of the two mountain-ranges between two of my own routes across them.

During the course of the journey the Cossacks collected a number of geological specimens, which however are of insignificant value owing to the uncertainty as to the localities where they were severally taken. They prove however that both ranges are in these sections built up almost entirely of crystalline rocks, as they are both farther east and farther west. On the way out, that is going from north to south, they took successively light, fine-grained granite, gneiss or striped granite, a fine-grained grey schist, dark porphyry, red porphyry, and crystalline schist; while on the return journey, that is from south to north, they collected crystalline schist, black porphyry, a grey compact rock, mica-schist, dark fine-grained granite, red gneiss, argillaceous schist, crystalline schist, some of it very fine-grained, some of it coarser, and lastly porphyry again, and two or three varieties of granite.