

canal slopes still more slowly and gradually than the surface of the ground. At Hassar-guli a vertical well is sunk, say 16 feet deep, and then a succession of similar wells is carried in as direct a line as possible to the terminus, the depth of the wells becoming gradually less, at the last less than three feet, and then the water flows out into a surface canal, which branches out to the tilled fields. When the row of wells is ready, their bottoms are connected by the almost horizontal tunnel in which the water collects before it flows slowly down to Kerim Khan. In the same way Hassar-guli derives its water-supply from a kanat which begins at Kala-no, a village with a kanat which has its head still farther to the north. Before the heavy work of excavating a kanat is commenced, from the trunk and branches of which a whole village is to draw sap and life, some test wells are sunk. If good water in sufficient quantity filters into the bottom of the first well that is sunk, then it is carried on by a horizontal conduit in the manner described above; such a kanat may also be reinforced by tributary kanats opening into it. The Persians are expert in irrigation works of this kind, which they construct without the slightest help from levelling instruments, though minimal differences of elevation and vanishing gradients are involved. The principal point is to make the water collected come to the surface at the right place; but the usual order of events is that a newly-laid-out kanat causes a village to spring up, and not the reverse. Jaje-rud's conduit ends at the village Khave, but sometimes, after heavy rain, the water flowing on the surface in scattered branches may reach Kerim Khan.

Meanwhile we encamp in the village, and our splendid camels are relieved of their heavy burdens. It is evident that the endurance of the camels has turned out very satisfactory; but they have not yet been tried in the fire, having performed only two short days' marches with two days of rest, besides several idle days before the start, during which they ate their fill of hay, straw, and loaves of barley, all mixed with cottonseed. Even if they had worked hard immediately before they came into my possession, they have had no trying days, and at present