tion of the ground in the Bēsh-toghrak valley. For this purpose I had instructed the Surveyor before our start from Mīrān to carry a continuous series of levels with the Zeiss levelling instrument provided on Sir Sidney Burrard's recommendation, from north of Kum-kuduk to the first dry lake basin crossed by the route eastward of Bēsh-toghrak.

Line of levels.

My instructions were that this line of levels should, as far as practicable, be carried along the lowest ground of the depression separating the foot of the hill range on the north from that of the chain of high sand ridges on the south. But Muḥammad Yāqūb, soon after starting from Kum-kuduk, encountered the great belt of hard salt crust which here marks the eastern arm of the dried-up ancient salt sea, and recognizing the formidable obstacle it presents to prolonged work, decided to commence his levelling on the sandy scrub-covered ground which edges the salt-encrusted belt on the north. Starting from his Camp XCVIII a little to the east of the meridian of Kum-kuduk (Map No. 32. D. 4), his line of measured levels, as marked by the route line past his Camps XCIX–CII, kept first near the northern edge of the salt-encrusted ground and farther on approached closer to the middle of the valley. Owing to a misapprehension, which however does not affect the result, it crossed the valley to the Bēsh-toghrak wells, before it was finally brought with a north-easterly curve to the ' basin with wet sand ' shown in Map No. 35. B. 3. The total length of the line over which the series of levels was measured was 59 miles 6 furlongs, a constant distance of 600 feet being maintained between each pair of the 526 stations.

Datum point at Bēsh-toghrak.

The result of this operation is recorded graphically in the sectional drawing of the levelled ground which is reproduced as Appendix C of my *Memoir on Maps of Chinese Turkistan and Kansu*. In this the height of Bēsh-toghrak (Camp CII), 2,340 feet, as shown in Map No. 35. B. 3, has been adopted as the datum point. This height was derived, at the time of compiling the 1 : 500,000 map, from the mean value of the observations made in 1907 and 1914, and in view of the considerable discordance between the two it can lay no claim to any close approach to accuracy.[13]

Continuous descent of valley bottom.

But this in no way affects the very definite proof which the levelling chart affords of the gradual and continuous descent of the valley bottom from the dry lake basin east of Bēsh-toghrak to the salt-encrusted ancient sea-bed north of Kum-kuduk. The starting-point of the levelled line at the latter point is shown to lie 250 feet below the former, and the descending slope to be a gentle but steady one, with an average fall of about 4·2 feet per mile. Such occasional small breaks in the continuity of the downward slope as the chart indicates nowhere exceed 5 feet, and are such as inevitably occur owing to slight inequalities of the ground wherever levels are measured in a more or less straight line and not along the actual course of the surface drainage.

Geographical interest of levelling.

In view of the uncertainties besetting all height observations made only by aneroid or hypsometer and the impossibility of judging slopes on ground which appears as flat to the eye as does the salt-encrusted bed of the ancient Lop Sea and of its eastern extension into the Bēsh-toghrak valley, the conclusive evidence supplied by the above levelling claims special importance. It proves that the whole of the valley belongs to the drainage area of the Lop basin. The geographical interest attaching to this fact will become clearer in the light of what I have to record below regard-

[13] While in Sheet No. 70 of the quarter-inch map in *Serindia* the height of 2,620 feet is shown for Bēsh-toghrak on the basis of the aneroid reading recorded by R. S. Ram Singh on my second journey, the readings of the aneroid observed by R. B. Lāl Singh on his two successive halts at the same spot, December 22, 1913, and March 14, 1914, are computed as indicating elevations of 2,012 and 2,260 feet, respectively.

In computing the former of these two aneroid readings account has been taken of the correction supplied by the reading of a mercurial barometer observed on the same date (cf. Dr. Hunter's table in *Memoir on Maps*, p. 153). As the air-pressure indicated by the latter differed only by 0·03 inch, corresponding to 32 feet, from the aneroid reading on December 22, 1913, it seems that the lower elevation is likely to be nearer to the true one.