Railway Operations in Afghanistan.

BUILDING A LINE ACROSS A DESERT—A REMARKABLE UNDERTAKING

Before commencing a detailed description of the remarkable operations by which the track of the iron horse has been taken across the fiery plains of the Baluchistan desert, into that portion of Southern Afghan territory lately acquired under the treaty of Gundamuck it will be well to describe in as few words as possible, the topographical and strategic of our Indian western frontier. The true natural boundary towards the west of the smiling plains of Hindustan consists of the river Indus, which course approximately from north to south from the point where it debouches through the Himalayan mountains near Attock, till it fall into the Arabian Sea near the port of Kurrachee. Parallel with this great river, there runs a double chain of mountains popularly known as the Sulleman Range, and above and to the west of this mountain barrier which extends from the Himalayas; also to the sea, there lies a parallelogram of table land mountain, bounded on the east, as we have said, by the Sulleman Range, and on the west by the Persian frontier. To complete a mental picture of this parallelogram, it only remains to add that its northern boundery consists of the HindooKhoosh extension of the Himalayas and of the river Oxus or Amondarya, whilst its southern boundary is the Arabian Sea. *In a political sense this parallelogram is roughly divided into* two equal squares, the northern, or what may be termed the Afghan quadrilateral, and the southern that of Baluchistan The Afghan or northern quadrilateral may be discribed as mountainous, but interspersed with fertile valleys capable of supporting considerable bodies of men. The Baluch or southern quadrilateral is on the contrary much less mountainous and consists mainly of arid deserts sparsley populated. The Southern aquadrilateral has long been associated with the British power under arrangements which, if not fully satisfactory, are at any rate not calculated to give more disturbance than is due to petty cattle lifting raids. It is the Northern quadrilateral which at present absorb the attention of the public and engages the Indian army in the attempt to secure more *permanent safety to the Indian Empire by occupying all the passes* through which serious invasion might otherwise enter. Although the Sutleman Range has been described as running parallel with the River Indus, it will be readily understood that the line of these ranges is an irregular one, and that broad valleys occupy several re-entering angles of the hills and in some instances lead to those historical passes through which the tide of invasion has often swept since the days when Alexander the Great forced his way into India. The more northern of these valleys are as a rule well watered and fertile, whilst those to the south, like the Kachee Plain leading to the Bolan, are not only wildernesses, but at least in the hot season quite unfit for human habitation or in deed animal existence.

Foremost of all the passes is the Khyber, through which the Kabul force and its supporting columns are at present operating. This celebrated series of defiles attacks the north-east corner and northern face of our quadrilateral through the fertile and well watered valley of Peshawur which has now for many years been held by British troops. Circumstances which it would be tedious to relate have entirely precluded the immediate occupation of this line by railroad communication, and although the work is being actively pushed, it can scarcely be completed in time for the present campaign. The same remark applies to the important line of the Kurrum Valley, and indeed none of the numerous passes of the south of Kohat are likely to secure the attention of the railway department in our day until we come down to the famous *line of the Bolan, of which the natural extension through the* Pishin Valley on the line of Quetta, Kandahar, Girskh and Farrash (the two latter between Kandahar and Herat), marks the boundary between the northern and southern quadrilaterals between the turbulent Afghans and more peaceable Baluchees. It should be added that this road has from time immemorial carried the commercial traffic between India and Central Asia *via* Herat and Merve, and whilst successfully turning the more mountainous and unsettled northern quadrilateral, it commands all the valleys running from north to south which form the inhabitable portions of Afghanistan. A warlike and yet commercial nation like the British in India could scarcely fail to appreciate the advantages, whether for peace or war, trade or military operations which such a line of communication naturally presents, and it is, therefore, no matter of surprise that the opening of this first section of a railway into Afghanistan, which is probably destined to connect the east with the west, has been received by all as a great political event. At the time, however, when the Afghan war broke out, in the autumn of 1878, the Government of India discussed and finally negatived as impracticable a project of Sir Andrew Clark's (then Public Works Minister) to construct a railway in six months from a point on the Indus Valley. Railway across the Lind desert, a distance of over 130 miles, to Dadur, at the lower mouth of the Bolan Pass The connection between Ruk (the proposed starting point with Sukkur, on the River Indus), and also with the seaport town of Kurrachee, had already been established by the Indus Valley Railway, with the very serious exception that there is as yet no bridge across the Indus at Sukkur, the railway is connected in Moultan and Lahore with the whole railway system of India. Last year when the massacre of Major Cavagnari the political resident at Kabul rendered a new campaign an Imperial necessity, the railway project was again taken up, and no longer merely to the foot of the Bolan, but with the avowed object of reaching Kandahar and commanding Southern Afghanistan. The object of the present paper being to describe the work of making the first section of the railway across the desert to the foot of Baluchistan Mountains, it will suffice to say that a new and easier defile than the Bolan Pass has been decided on by Sir Richard Temple, Governor of Bombay, for ascending to the plateau of Southern Afghanistan, and the end of this *first* section is therefore not at Dadur, but at Sibi, at the entrance of the gorge of the Nari River. To describe the precise geographical situation of the line, it is necessary to mention that the River Indus runs along the crest of a ridge from which the ground falls into a gradient of about six inches to the mile to a point near Jacobadad, some forty miles or more from the river's bank. Down this slope and along the slight depression at its foot the inundation water of the Indus has of late years flowed to an average depth of some three or four feet. This flood, locally known as the "Kusmore Spill," has proved so destructive to *cultivated land, and has so greatly injured commerce by cut*ting off all communication between the towns, which are only preserved from utter ruin by being encircled by embankments, that the Government a few years ago undertook the costly task of levelling this part of the river in spite of the strenuous opposition of all who were interested in land on the opposite bank. These persons feared, and not without reason, that the prevention of the Kusmore escape for flood water could not fail to increase the damage done to their property by the same cause. Fortunately these fears have not yet been realized, and the Kusmore embankment may therefore be looked on as an accomplished fact, and the first forty miles of the railway is consequently secured, and if the embankment holds the thirteen miles of continuous bridging which *was estimated for this section of the line, reduces itself to some 120* openings, very few of which exceed 100 feet in span over irrigation canals. These works have already been contracted with piles and timber beams, and will shortly be replaced by more substantial structures. In this part of the line there is no lack of either food, water, fuel, forage, or shelter. But beyond the depression at the fortieth mile, three miles north of Jacoobad, the circumstances are entirely changed, as the whole country gradually raises with a gradient of 1 in 2,000 up to the foot of the mountains. From these mountains streams emerge which are at first considerable, but ultimately die out into the deserts, whose greedy sands devour their ordinary supplies of water.

The beds of these streams and those immediate neigbourhoods are very unsuitable for a line of a railway, being liable to extremly heavy floods, which course hither and thither across the plain without having any defined channels suspectible of being bridged in a satisfactory manner. It was therefore decided that to make a railway rapidly, and with any pretensions to safety, it would be necessary to avoid the desert watercourse altogether, and as it fortunately happened that the most direct line lies between two of these desert streams which are from fifteen to thirty miles apart, that alignment was adopted. It will be understood, therefore, that in the last ninety miles the railway line never goes within eight or ten miles of either a running steam or water course, or of even those moist spots in the desert sands at which precarious supplies of drinking water might have been procured by sinking wells or pits; for it will be readily understood that the track which the stream follows is the only place where these pits are and any chance of tapping fresh water. The precision to avoid entirely all possibility of local water supply was not taken without such serious consideration as time would allow, but the engineers having accepted it have never found reason to regret their decision, and it turns out that the water which could have been procured locally in the river beds would never have sufficed for a tenth part of the 5,000 men and 2,500 animals which it was ultimately found to mass at the plate-laying head.

To make this question of water supply more clear it seems desirable to recapitulate the fact that for ninety miles no local water *supply whatever was available, and it should be added that* the supply tank at the beginning of these ninety miles had to be excavated for the purpose, and could only be supplied by closing up all the irrigation canals of the district, except that by which the tank was fed from the River Indus. When it is remembered what this means, and that notwithstanding the work being undertaken at a time when every little cultivation was going on, there was still a great risk at a great many points that local villages might cut the embankment, and draw of the water for their own purpose. When all these risks are considered it will be apparent that the grateful expression of the railway engineers in reference to the services of the irrigation department were no empty compliments. It should further be mentioned that along these *last ninety miles there were no inhabitants, no food supplies what*ever, very little forage for cattle, and positively no shelter, and no fuel, for even the men's cooking arrangements, far less fuel for the engines. It was therefore, necessary, in addition to the above arrangements for water supply to collect large stores of forage, food and fuel, in the latter of which the forest department gave every assistance at Jacobabad. The plain of operations in the desert section was as follows:—Two trains, and two only, left Jacobabad daily, the first of which, in addition to its complement of permanent way material—which latterly averaged a mile and a quarter, and weighing 350 tons in each train—took out also the twenty tons of forage, ten tons of cooking fuel, three or four tons of food, and ten to fifteen tons of material for building fresh tents *for the men as the railway advanced and was time to arrive at* the "Tip" about 11 a. m. daily. Here the unloading of all these stores by a strong body of men occupied a couple of hours, during which time the bullocks which drew the carts and distributed all materials on ahead were being watered by means of troughs supplied from tanks which had been left over night by the evening train of the previous day. By the time, therefore, that the first or morning train was quite unloaded the last drop of water had been drained from the tankwaggons and these being empty were hooked on to the engine, and returned to the nearest station along with the now empty material train of the morning At the first station back, that is to say at the first station at which sidings had been made this returning empty morning train intercepted and *passed the afternoon train from Jacobabad, which in addition to* its load of 350 tons of railway material, contained tank waggons filled with a hundred tons weight of water, or say 20,000 gallons.

To make the evolutions of the second train quite clear, it should be remembered that the railway being only a single track, the vehicles of a train can only return in the reverse order to that in which they went forward, and it was therefore, necessary in order that the water waggons should be left all night for the use of the men's animals that these should be propelled from the last station to the end of the line in front of the engine, which was thus free to return with the empty material wagons for a fresh load. The way in which the water waggons were emptied were renewed by the morning train to make room for another supply by the next afternoon's train has already been described, and it only remains to add that to provide against any mishaps whatever, a small reserve supply was always kept locked up in wagons which were never brought back, but only pushed further on as the track advanced, until a new station and siding being made, now wagons with a fresh supply could be established. Moreover, at the last station, in the rear of the plate layers a further reserve of water wagons was always kept on hand, and besides these tanks were placed on the ground and refilled at suitable intervals for the supply of the maintenance men engaged in perfecting so much of the line as had