

It is unusual for the reaction to be positive before the eighth day of the illness, but it is well established by the end of the second week and reaches its peak on the seventeenth day. A positive agglutination as low as 1 : 125 is generally considered as diagnostic.

The last recorded case of typhus in Malaya amongst the military population occurred in 1924 at a small convalescent camp near Kuala Lumpur, when six cases occurred.

The disease is very rarely reported in Singapore Island, though it is endemic in various parts of Malaya.

We have to thank Lieutenant-Colonel O. W. McSheehy, D.S.O., O.B.E., M.B., R.A.M.C., O.C., Military Hospital, Tanglin, and Colonel E. Gibbon, O.B.E., M.B., Assistant Director of Medical Services, Malaya Command, for permission to send these notes for publication.

Since these notes were written, a further case of Japanese river fever in a soldier has been reported. The patient is still under treatment and belongs to a different unit from the case just described.

Echoes of the Past.

WAR EXPERIENCES OF A TERRITORIAL MEDICAL OFFICER.

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(Continued from p. 347.)

CHAPTER XVI.—PREPARATIONS FOR THE ADVANCE.

After our move to Fukhari on September 3, the preparations for the next offensive were seriously set in motion.

A scheme for the resumption of active operations had been drawn up by Sir Philip Chetwode and the Staff of East Force before the arrival of Sir Edmund Allenby in Palestine and received his approval with a few subsequent modifications.

The main idea was to hold the line of trenches opposite Gaza with the 21st Corps, and after a secret concentration of the 20th and Desert Corps on the Wadi Ghuzzeh near Shellal, to make with them a surprise attack on the defences of Beersheba. If this were successful, there was to be a rapid move to the north-west to attack the defences of Hareira and Sheria with the object of crushing and turning the enemy's left flank and by threatening their communications to force them to evacuate Gaza. At the same time the town of Gaza and its defences was to be subjected to a very heavy bombardment, and the 21st Corps was to demonstrate against the garrison so strongly that the latter would be prevented from sending reinforcements

to the left flank. Their attack was not, however, to be driven home until Beersheba was taken and the left flank turned.

The details of the scheme were worked out with great care.

The medical preparations involved:—

- (1) Reconnaissance for the selection of the sites for dressing stations and routes of evacuation.
- (2) Selection of a site for the three casualty clearing stations attached to our Corps.
- (3) Preparation of a scheme for the evacuation of casualties.
- (4) Scheme for the chlorination of all water to be issued to troops during the operation.
- (5) Instructions as to sanitary measures to be adopted by troops during active movements.

Shellal, the starting point of the operation, was seventeen miles from Beersheba. Much of the intervening ground was flat and under direct observation from the enemy's positions at Hareira and Kauwukah. Examination of the ground could, therefore, only be carried out during reconnaissances in force.

Five separate reconnaissances were made between August 24 and October 3. On each occasion a cavalry screen was thrown out in front of our lines to within a few miles of Beersheba and by degrees we explored practically every track in the area suitable for motor ambulances, selecting the best routes for evacuation of wounded from the various parts of the line to be attacked. On the first occasion we went in a motor ambulance in order to make a practical test of its ability to negotiate the tracks, but afterwards the Corps Commander decided that motor ambulances were not to be used for this purpose in case it should be considered a breach of the Geneva Convention.

The Wadi Ghuzzeh at Shellal forms a remarkable geographical feature. From bank to bank it is more than a mile wide, though the stony bed of the stream itself is generally only ten or twenty feet across. The rest of the Wadi is occupied by a confused mass of hillocks and gullies produced by the action of water in storm time on the soft sandy soil. The bed of the stream, which is about thirty feet below the surrounding country, is dry and stony except during the rainy season. There are, however, all the year round patches where springs come to the surface and produce shallow pools from which the water trickles along for a few yards above ground and then disappears again beneath the stones.

At Shellal itself there is a succession of such springs and pools. A small dam had been built here by the Royal Engineers across the bed of the stream just below the most important group of springs forming a reservoir capable of holding about a million gallons. The overflow from the dam formed a small but steady stream which was used for watering animals. A pumping station was erected by the side of the reservoir and a pipe line was carried forward from it to the far edge of the escarpment.

Water from these springs contained about two hundred parts of salt per hundred thousand and was distinctly brackish, so much so that its taste could not be disguised by tea or coffee. However, it was just drinkable and was used almost exclusively by the troops during the early part of the subsequent operations and without any apparent ill-effect. Animals drank it readily when once they had become accustomed to it.

A road bridge was made by the engineers across the bed of the Wadi just below the dam, to be used in case the wet season came on before the operation, but was not needed.

The crossing of the Wadi by a large force was no small undertaking. The steepness of the sides of the escarpment and the friableness of the soil made the maintenance of roads for wheeled transport a troublesome and continuous business. A special road had to be kept for motor cars as those used by horses and transport vehicles soon became impassable for cars.

The country beyond the Wadi, for the first few miles, was a wide undulating arable plain. It had been chiefly used for growing barley, but this year no seed had been sown, so it was sprinkled with ungathered, self-sown crops.

Gradually, as one proceeds in the direction of Beersheba, the country becomes more irregular and within a few miles of the town distinctly hilly. The little town of Beersheba is situated on one of the two main tributaries of the Wadi Ghuzzeh, called the Wadi Saba. It lies in a hollow of the hills which completely surround it except where the Wadi makes its way southwards between them. They rise some three hundred feet above the floor of the basin and completely shut out the view of the town from the south. The southern and eastern defences were on the crests of these hills some two miles from the town.

The country to the east of the Wadi Saba and to the south-east of the town is extremely broken and quite impassable for motor cars, except by a road which goes a long way round through Khalasa. The map of the country used by us was a reproduction of the one made originally by Lord Kitchener, when a subaltern, for the Palestine Exploration Survey. The various tracks were most accurately shown. At the time of reconnaissance, and for the first two days of the operations, the roads and tracks, nowhere metalled, were well defined and quite fit for motor traffic, but the passage of large bodies of mounted troops and wheeled vehicles soon broke up the hard mud surface into loose sand and rendered them almost impassable.

As the main attack was to be on the east side of the Wadi Saba, we made many attempts to find a track on that side fit for motor ambulances, but without avail. It was, however, an immense relief to find that the main routes to Beersheba were suitable for cars. We had been told by the General Staff Intelligence Department that it would be impossible to use motor cars, which would have meant bringing back the wounded fifteen miles in sand carts or on camels—a very serious business. Fortunately,

we found when we went to see for ourselves that their fears were not justified. This was a good example of the importance of administrators in charge of departments making their own personal reconnaissances.

It was decided to pitch the Casualty Clearing Stations on the open plain close to the north bank of the Wadi Ghuzzeh, near the point where the railway reached the top of the escarpment. This point was in full view from the Turkish position at Hareira at a distance of about six miles.

To have erected tents there for three hospitals before the operation began would have given the whole show away. It was decided, therefore, that a railway siding should be constructed, the ground marked out and all the stores put in position beforehand, but that no canvas should be raised until after dark on the evening before the attack. It meant very hard work for the staffs of the hospitals who would have to begin to receive casualties almost as soon as the camps were pitched after working all night. When the time came it was successfully accomplished and one will never forget one's first view on the morning of the battle of the little town of tents standing on what had been an empty plain the previous evening.

The general principle of the scheme of evacuation for the operation against Beersheba was :—

(1) A medical railhead at Imara with three casualty clearing stations and an Egyptian hospital for the reception of Egyptians and prisoners of war.

(2) All the motor ambulances of the Corps were to be massed under the direct control of the D.D.M.S.

(3) Each Division was responsible for the transport of its casualties, by means of camels and sand carts to the main dressing stations whence they would be removed by the motor ambulances to the casualty clearing stations.

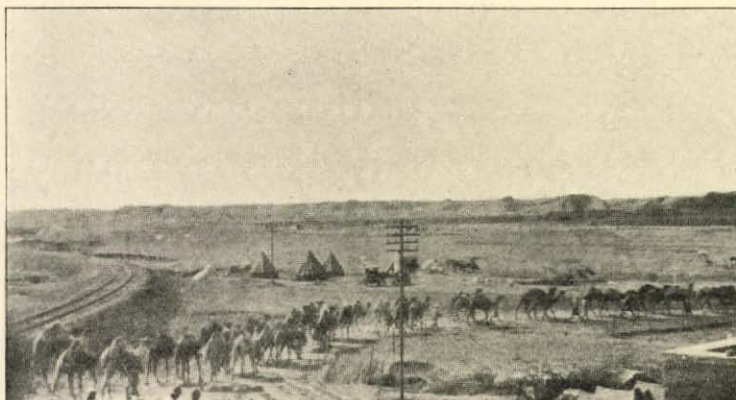
(4) The routes to be used were carefully marked on special maps and the important turnings indicated by signposts erected beforehand.

The officers in charge of the motor convoys were taken over the ground during the reconnaissances and a proportion of the drivers also. The mobile sections of the field ambulances, grouped together for each division, were held in reserve at Imara, ready to be moved forward to Beersheba or elsewhere as required.

A system of communication by means of motor cyclists was established between the A.Ds.M.S. of divisions and the D.D.M.S. who was himself in telephonic communication with the casualty clearing stations.

The country between Shellal and Beersheba was waterless save for a few scattered cisterns. It was necessary, therefore, to arrange for water to be sent out to the troops by camel convoy. During the first period the *fanattis* or water cans were filled from the springs in the bed of the Wadi Ghuzzeh at Shellal, then from a reservoir at Imara, and later still, when the pipe had been carried forward, from tanks at Karm, a new railhead five miles nearer to Beersheba.

Arrangements were made to have the water chlorinated before issue at each of these places by the addition of the necessary quantity of bleaching powder solution to each of the *fanatti* as they were being filled. This arduous duty was carried out by members of the various divisional sanitary sections and went on day and night during the whole period of the operations. A party was also held in readiness to chlorinate the water from the wells in Beersheba as soon as they should come into our possession.



Camel Water Convoy.

As regards sanitation, each unit of the Corps was provided with a portable sanitary outfit consisting of a minimum number of latrine buckets with fly-proof seats to rest on them; a number of urine funnels, the pointed ends of which were sunk into the ground over pits filled with stones to provide a rapid sub-surface absorption; and a portable incinerator for the destruction of the pail contents by fire. One camel was allowed to each unit for the carriage of this equipment. Some units were careless and lost or broke their equipment, but on the whole it proved a great boon and saved much soiling of the ground. The idea of this portable sanitary equipment was worked out by Major Lelean, at this time D.A.D.M.S. of the 20th Corps. It had first been used in the desert campaign of the previous year. When the equipment was not available, units were instructed to use trenches with careful earth covering of excreta.

(To be continued.)