

double shell had a tendency to shake the wheels to an extent which might be found inconvenient in actual service. I accordingly constructed wooden mortar beds, which were found to answer the purpose admirably. These were hastily constructed, and were not of the best materials or dimensions; but I would recommend that in all future batteries of 7-pounder rifled guns, properly constructed carriages of this nature should form part of the equipment.

The practice carried on at Zoolla was sufficient to show the officers and men that the guns were good and effective beyond what they could have anticipated; they applied themselves to mastering the details of drill and the movements of the

batteries with the utmost zeal and with the best results. I cannot give too much praise to officers and men of garrison batteries, quite unaccustomed to the work, for the rapid progress made and for the degree of efficiency obtained.

The strength of the batteries being quite insufficient, 1 sergeant, 2 corporals, and 25 privates of the 4th (King's Own) Regiment were attached to each battery; these men have since acted as drivers, and have been found most useful and efficient.

After careful consideration I decided on the following distribution of the mules; this arrangement has been maintained throughout, and has been found to work well:—

| Sub-division. | No. 1. | No. 2. | No. 3. | No. 4. | No. 5. | No. 6. | Remarks. |
|--------------------------|--------|---------------|-----------------|-------------------|---------------|--------|---|
| Gun | 1 | 1 | 1 | 1 | 1 | 1 | A small proportion of spare material for artificers will be carried in the mail boxes on the wheel mules. |
| Carriage | 1 | 1 | 1 | 1 | 1 | 1 | |
| Wheels | 1 | 1 | 1 | 1 | 1 | 1 | |
| Ammunition | 4 | 4 | 4 | 4 | 4 | 4 | |
| D. shell | 1 | 1 | 1 | 1 | 1 | 1 | |
| Rockets | 1 | 1 | 1 | 1 | 1 | 1 | |
| Miscellaneous Stores ... | 1 | Spare Wheels. | Spare Carriage. | Spare Cradle, &c. | Spare Wheels. | Forge. | |
| | 10 | 10 | 10 | 10 | 10 | 10 | |

RESERVE.

15 mules, 8 double shell each.
 5 " 16 rockets "
 2 " 16 shrapnel "
 1 " 20 case.
 5 " Spare material.
 1 " Powder in cases.
 1 " Forges, tubes, &c.
 1 " Veterinary stores.

The mules for the reserve will be furnished in equal proportions by the divisions. The reserve will be packed separately under the Conductor of Stores. The mules will be picketed with their divisions.

On the 27th January the A Battery, under Lieutenant-Colonel Penn, marched from Zoolla, reaching Senafé on the 31st January, Addigerat on the 5th February, and Antalo on the 20th February. The excellent manner in which the march was so far completed left nothing to be desired. Antalo was reached without a casualty. No load was even displaced on the road—there were no galls, no sore backs, no sickness. From Addigerat to Antalo the battery was attached to the advanced brigade, the road always very hilly and rough, had been only partially made in many places, and could only have been traversed with great difficulty by animals less perfectly laden. No difficulty however was found which was not overcome by the energy and intelligence of officers and men.

At Antalo, His Excellency the Commander-in-Chief having expressed a desire that a longer range might if possible be obtained with the double shell, I caused a trial to be made with 4 oz. cartridges, and with them I obtained a range of 1,450 yards, without apparent distress to gun or carriage. I therefore made up a few of these cartridges, which were afterwards used with good effect.

Wood tangent scales were also made for use instead of the quadrant when firing at high angles. These were only roughly constructed by the battery artificers, but they were found useful, and I would recommend their adoption in all future equipments.

Marching from Antalo on the 12th March, the A Battery accompanied the advance throughout,—the almost insuperable difficulties of the road were surmounted without accident or loss—the great ravines of the Tacassie, the Jiddah, and the Bashilo, were crossed without casualty; that of the Jiddah with the advanced guard of the army, over a track which might well have been considered impassable, but the only damage was the loss of a foresight broken in the fall of a gun, with the mule which carried it, over a cliff.

Arriving before Magdala on the 10th April, this battery found itself in action with the enemy. On this occasion 19 rounds per gun were fired, at ranges varying from 450 to 1,800 yards, with shrapnel and common shell; the practice was excellent, and caused heavy loss to the enemy. The fuzes acted well, the ranges were changed with ease, and the success in changes of position of the battery were made with the greatest ease and rapidity. I observed with one gun a slight tendency, after firing a few rounds rapidly, to jamming of the shell in the bore; this however was at once removed by a damp sponge, and I would suggest that these should be used invariably when rapid firing is considered necessary.

The B Battery, under command of Captain Twiss, did not leave Zoolla until the end of February, and in the meantime the mules had been almost constantly engaged in heavy transport duty between Zoolla and Senafé. Leaving at so late a date the battery was called upon to march rapidly to the front, and it reached Antalo without a halt—from Antalo to the front the diffi-