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ARTILLERY IN THE ZULU WAR â\200\224 1879

by Major D.D. Hall

INTRODUCTION

Guns played an important part in the Zulu War, but, as in many colonial wars, their use was one-sided. The Zulus had no artillery, and they made no use of the two guns they captured at Isandlwana.

All the main British columns had their guns, and they played a prominent part in the battles and sieges of the war. Some of the guns were obsolete by British Army standards. Nevertheless, the artillery used in the Zulu War tells an interesting story of the changes then under way from. breech to muzzle loading, in the use of rockets, and of rapid fire weapons as illustrated by the Gatling.

The intention of this article is to outline the use of artillery only, and not to describe any of the battles in detail. A description of the equipment will explain some of the developments taking place in the second half of the 19th Century. The subject will be dealt with in three parts:

1. The deployment of batteries.
2. Artillery in the major battles.
3. The guns.

PART 1 â\200\224 THE DEPLOYMENT OF BATTERIES

In 1879, the Royal Artillery was divided into horse, field and garrison batteries. Batteries were organised in brigades, and it was possible to identify the type of battery by its letter or number designation, or both.

For example, horse artillery had lettered batteries and brigades. Field artillery batteries were lettered whereas their brigades were numbered. Garrison batteries and brigades were both numbered.

N/5 Battery (or N Battery 5th Brigade) was therefore a field battery. 11/7 Battery (or 11th Battery 7th Brigade) was a garrison battery.

The summary which follows outlines the deployment of batteries in the main campaigns of the war. It will be seen that not only the Royal Artillery manned guns in Zululand but the Naval Brigades were also prominent in this respect.

Apart from the guns, all batteries carried rockets â\200\224 one 9 pr trough per section of two guns. The Naval rockets were 24 pr tubes. Finally, there were the Gatlings â\200\224 once again, Army and Naval versions.

The equipments will be mentioned below, and

described in more detail in Part 3. Full designations of guns will only be given in Part 3, and in the sections â\200\230At the outbreak of warâ\200\231 and â\200\230Reinforcements after Isandlwanaâ\200\231 which follow. At other times, for brevity,

guns will simply be described as â\200\2307 prâ\200\231, â\200\2309 prâ\200\231 etc.

At the outbreak of war :
The artillery available consisted of:

N/5 Battery â\200\224 Six 7 pr 200 lb Rifled Muzzle Loading (RML) guns on Colonial or Kaffraria carriages.
Two rocket troughs.

This field battery arrived in the Cape Colony in 1878, and took part in the closing stages of the war against Sandili. The battery then marched to Pietermaritzburg with a column under Col E. Wood VC. Field batteries were normally equipped with 9 prs at this time, but this battery had 7 prs. These were thought to be more mobile and better suited to South African conditions. N/5 only appears to have had two rocket troughs. Rockets are not always mentioned in contemporary accounts when the armament of batteries is detailed, so they will only be mentioned below where accounts of the war have specifically mentioned their presence.

11/7 Battery â\200\224 Six 7 pr 200 lb RMLs, mule drawn.

Three rocket troughs.

Garrison batteries manned coast defence, heavy and siege guns, and, at the other extreme, mountain guns. Some batteries were deployed in such stations as Gibraltar, Hong Kong and the Cape in a coast defence role. 11/7 Battery had a field role and was stationed in Natal. The 7 prs were probably on mountain carriages but there is no specific evidence on this point.

Naval Brigade (HMS Active) - Two 12 pr Armstrongs,
Sea Service (SS)
Two 24 pr rocket tubes.
One Gatling.

HMS Active had supplied a landing party for operations in the Cape Colony in 1877 and 1878, and so was experienced in active service conditions in South Africa. It included a Royal Marine detachment among its numbers. At this time, Naval Brigades were equipped with 9 prs and 12 prs, and some, if not all these guns were experimental guns used in the trials of 1863-65. These trials led to the adoption of Rifled Muzzle Loaders (RMLs) in place of Rifled Breech Loaders (RBLs). Technically, the guns used by the Naval Brigades in South Africa are very interesting - more about them later.

Miscellaneous â\200\224 Two 7 pr 200 lb RMLs
Two 6 pr 3 cwt Armstrong RBLs
One 4 pr Krupp RBL
Three rocket troughs

Other artillery pieces were available in South Africa. Some had been used, and were being used, in military operations in the Cape. Some guns were retained in Durban and other towns in Natal. The annexation of the Transvaal in 1877 had made artillery equipment belonging to the republic available for use by British forces â\200\224 notably the 4 pr Krupps of Battery Dingaan. Gun detachments were often found by infantry or other volunteers. The only guns which need be mentioned here are those which were made available to Lord Chelmsford at the beginning of the war, and which are listed above.

First phase

This artillery had to be spread between the five columns which were formed for the invasion of Zululand. The organisation was as follows:

No 1 Column (Col C.K. Pearson)
Section 11/7 (Lt W.N. Lloyd)
Two 7 prs
One rocket trough
Naval Brigade (Cdr H.J.F. Campbell)
Two 7 prs
Two 24 pr rocket tubes
One Gatling
The Naval Brigadeâ\200\231s 12 prs had been exchanged at Fort Pearson for 7 prs.

No 2 Column (Lt Col A.W. Durnford)
Rocket Battery (Maj F.B. Russell)
Three rocket troughs

Maj Russell of 11/7 Battery was detailed to organise a Rockety Battery. Personnel consisted of Maj Russell and one Bombardier of 11/7, and eight men of 24th Regiment.

No 3 Column (Col R.T. Glyn)
N/5 Battery (Lt Col A. Harness)
Six 7 prs
Two rocket troughs
The rocket troughs accompanied N/5 during the campaign, but they were seldom mentioned in contemporary accounts.

No 4 Column (Col E. Wood, VC)
11/7 Battery (less one section)
(Maj E.G. Tremlett)
Four 7 prs
Rocket Section (Lt A.J. Bigge)
Two rocket troughs
Section (Lt F. Nicolson)
Two 7 prs
11/7 Battery was represented in all columns except No 5.

No 5 Column (Col H. Rowlands, VC)
Detachment 80th Regiment
One 4 pr Krupp
Two 6 pr Armstrongs
In 1878, three Gunner subalterns were specially

selected for service in South Africa, in order to train and command some of the gun detachments provided by infantry or Cape volunteers. They were Lts Bigge and Nicolson (already mentioned), Lt F.G. Slade. Originally with No 5 Column, Lt Slade was then transferred to No 4 Column. His two 6 pr Armstrongs were handed over to men of 80th Regiment.

Reinforcements after Isandlwana
The disaster at Isandlwana produced a rapid reaction in England, and reinforcements were soon on their way to South Africa.
From home
M6 Battery â\200\224 Six 7 pr 200 Ib RMLs
N/6 Battery â\200\224 Six 9 pr 8 cwt RMLs
O/6 Battery - Ammunition Column
Note that N/6 Battery had 9 prs, which most field batteries had at the time. O/6 Battery did not bring its guns, and was employed as an Ammunition Column. In this role, it was concerned with ammunition supply for all arms, not just for the artillery.
rom Mauritius
= Half 10/7 Battery - Three 7 pr 200 Ib RMLs

On arrival, this half battery was re-equipped with four Gatlings, and organized as the British Armyâ\200\231s first mounted Gatling battery. Its commander, Maj J.F. Owen, has recently been a member of the Commission which investigated an accident aboard HMS Thunderer, where a 12 in 38,5 ton RML gun burst, killing two officers and eight men, and wounding ten others. The accident was one of the reasons for the eventual discarding of the RML system, and a final return to breech loading in the British service.

From St Helena
Section 8/7 Battery â\200\224- Two 7 pr 200 Ib RMLs

On hearing of Isandlwana, Captain R. Bradshaw, RN, of HMS Shah, on his own initiative, loaded part of 8/7 and one company of Connaught Rangers, for Durban. At the time, HMS Shah was under orders to return to England. Captain Bradshawâ\200\231s decisive action received the approval of Parliament and the Admiralty.

From HM Ships Shah, Tenedos and Boadicea

Two 9 pr 6 cwt RML (SS) Experimental guns
Four 24 pr rocket tubes
Two Gatlings

This was Naval iaine equipment. A third 9 pr and a more Gatlings were added later. The 9 prs will . discussed at length in Part 3 where the oo qualification will be explained. While it is known t at this Naval force was equipped with 9 prs, it shit a admitted that the specific type of 9 pr quoted above - assumption. Gatlings were on smaller carriages those of Maj Owenâ\200\231s Gatling Battery.

Relief of Eshowe â\200\224
Two brigades were formed for the column which was

to relieve Eshowe. The artillery for this force came

entirely from the Naval Brigades which had been landed from HM Ships Shah, Tenedos and Boadicea, It was allocated as follows:
Ist Brigade - Two 9 prs
Two 24 pr rocket tubes
One Gatling
2nd Brigade ˜ Two 24 pr rocket tubes
One Gatling

Second phase
An impressive amount of artillery was now available to Lord Chelmsford. With the reorganization of the forces under his command, the artllery deployment was:
Commander Royal Artillery â\200\224 Col W.E.M. Reilly, then Lt Col J.T.B. Brown
Ist Division â\200\224- Maj Gen H.N. Crealock
RA â\200\224 commanded by Lt Col F.T.A. Law
M/6 Battery (Maj W.H. Sandham)
Six 7 prs
Half O/6 Battery (Maj A.W. Duncan)
Ammunition Column
Section 8/7 Battery (Maj H.L. Ellaby)
Two 7 prs
Section 11/7 Battery (Lt W.N. Lloyd)
Two 7 prs
Naval Brigade (Cdr J.W. Brackenbury)
Three 9 prs
Four Gatlings
Four 24 pr rocket tubes
O/6 Battery was divided between Ist and 2nd Divisions, to provide ammunition columns for both. Note the increased armament of the Naval Brigade.
2nd Division â\200\224 Maj Gen E. Newdigate
RA - commanded by Lt Col J.T.B. Brown, then Lt Col A. Harness
N/5 Battery (Lt Col A. Harness)
Six 7 prs
N/6 Battery (Maj F.S. le Grice)
Six 9 prs
Half O/6 Battery (Capt R. Alexander)
Ammunition Column

N/5 Battery received a reinforcement of two guns

under Capt Vibart in May 1879, to replace the two lost at Isand]wana.

Flying Column - Brig Gen E. Wood, VC
11/7 Battery (less one section) (Maj E.G. Tremlett)
Four 7 prs
Gatling Battery (half 10/7 Battery) (Maj J.F. Owen)
Four Gatlings ;

After the Battle of Gingindliovu, the Relief of Eshowe, and the Battle of Ulundi, the artillery detailed above was used as required with the various columns in the different skirmishes and engagements which followed until the end of the war.

PART 2 - ARTILLERY IN THE MAJOR BATTLES
There were several engagements in the war. The

major battles are listed below, with some notes on the

artillery participation in each. An interesting point is that 11/7 Battery was represented in all the battles except Gingindlovu â\200\224 a remarkable achievement.

Inyezane â\200\224 22nd January, 1879

Section 11/7 Battery
Two 7 prs
One rocket trough

Naval Brigade (HMS Active)
Two 7 prs
Two 24 pr rocket tubes
One Gatling

Before leaving Fort Pearson on the Tu gela River, the 12 prs of the Naval Brigade were exchanged for 7 prs. On the march, the column was split into two divisions. The two Naval 7 prs brought up the rear of the second division and took no part in the battle.

The two 7 prs of 11/7 Battery and the two Naval Brigade rocket tubes were placed together on a knoll at the foot of the pass and performed well. In his report on the action, Commander Campbell praised Boatswain Cotterâ\200\231s handling of the rocket tubes. Mention is made of one well-directed rocket which exploded in a kraal, instantly expelling the enemy. Eleven rockets were fired in the battle.

Midshipman L.C. Coker, 19 years old, was also praised for the handling of his Gatling, which was further back in the column. He had his problems, and in his report said: â\200\230Through the clumsiness of my driver, my distle-boom carried away. I repaired it as quickly as possible . . .. Owing to the distle-boom I was very much delayed.â\200\231 Colonel Pearson ordered Coker to bring his Gatling into action opposite a hill where the enemy had taken up position. Three hundred well-aimed rounds drove them into the bush.

Eshowe â\200\224 23rd January to 3rd April, 1879
Artillery as for Inyezane.

The Zulus made only one attack on Eshowe during the siege, and that was half-hearted. The garrison made one sortie, in which one of the guns took part.

The guns were well placed in emplacements in the walls of the fort. Ammunition was in good supply (150 rounds per gun), except for case shot. This problem was solved when it was noticed that Mortonâ\200\231s Jam tins exactly fitted the bore of a 7 pr. The men were ordered to give their empty jamâ\200\230tins to the Gunners, who were then able to make more case shot for their guns.

Isandlwana â\200\224 22nd January, 1879
Section N/5 Battery
Two 7 prs
Rocket Battery
Three rocket troughs
N/5 Battery (less one section) accompanied Lord Chelmsford on his abortive reconnaissance in force, and took no part in the battle. The Rocket Battery, with its equipment carried on mules, then accompanied Col

Durnfordâ\200\231s force when it also moved out of camp; but the battery was unable to keep up with the remainder. When firing was heard to their left, the Rocket Battery and its escort turned in that direction, but they were almost immediately engulfed by the Zulus. There was only time to get off one rocket before the enemy was upon them.

Maj Stuart Smith, the Captain (or second in command) of N/5 Battery, returned from Lord Chelmsfordâ\200\231s force before the Zulus attacked, and took command of the artillery left behind. This only amounted to one section of two guns â\200\224and fifty men left in camp.

The Zulus advanced very rapidly when they attacked. The guns opened fire, but it was soon necessary to change to case shot, which is not normally used at ranges greater than 300 m. The two guns were quite incapable of stopping the Zulu masses. After a round or two, the order was given to retire. Maj Stuart Smith was wounded, and there were other casualties as well. There was no time for the men to take their seats on the guns and limbers when the guns moved off, and they had to run alongside the guns. -

The intention was to take up another position at the camp, but the Zulus were there first. The guns went straight through the camp, losing more men on the way. Eventually, they became stuck in a ravine, and the drivers, who now alone remained, were pulled off their horses and killed. There was no time to spike* the guns.

N/5 Battery had lost Maj Stuart Smith, 61 NCOs and men, two guns, 24 horses, 30 mules and 534 rounds of ammunition. The Rocket Battery lost Maj Russell, six men and all its equipment.

Hlobane - 28th March, 1879

Rocket Section (from No 4 Column)

Two rocket troughs
This was 11/7 Batteryâ\200\231s Rocket Section. One report

mentions that Lt Bigge had a rocket tube with him, whereas others state that he had troughs under his command. This is more likely to have been the case. Whichever it was, there is no report of their actually having been used at Hlobane. The Battery Commander, Maj Tremlett, was there â\200\224 and, in the action, he rescued an officer of the Frontier Light Horse.
Kambula - 29th March, 1879

11/7 Battery (less one section)

Four 7 prs
Rocket Section
Two rocket troughs
Section 7 prs
: Two 7 prs
Lt Nicolsonâ\200\231s 7 pr section was in the redoubt, while

the four guns of 11/7 were in action outside. Nicolson was mortally wounded early in the action.

*To spike a gun, a spike (like a nail) was hammered into the vent, thus preventing the firing of the gun.

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With a muzzle loading gun, it was necessary for one of the men to â\200\230serve the breechâ\200\231 by placing his thumb on the vent during the sponging out after each round was fired. This prevented a draught which could cause the smouldering fragments of the previous cartridge to burst into flame. The Zulu attack at Kambula was so fierce and the guns, as they poured forth shrapnel and case, became so hot that water had to be poured over them to allow the breeches to be served.

After his capture, Cetewayo said that it was only with the greatest difficulty that his men could be forced to face the guns. One round of case killed ten headmen of his own regiment, in addition to wounding others.

Gingindlovu - 2nd April, 1879
Naval Brigade (HM Ships Shah,
Tenedos and Boadicea)

Two 9 prs

Four 24 pr rocket tubes

Two Gatlings

The 9 prs, rockets and Gatlings were posted at the

corners of the British camp. Fire was opened by one of the Gatlings at 1000m and, as the Zulus approached, they were engaged by all the artillery weapons. They played their part in winning the battle.

Ulundi - 4th July, 1879
N/5 Battery
Two 7 prs
N/6 Battery
Six 9 prs
Half O/6 Battery
Ammunition Column
11/7 Battery (less one section)
Four 7 prs

This was the artillery of the 2nd Division and the Flying Column, less four guns of N/5 Battery, and two of the Gatlings. One section of two 7 prs was at Fort Marshall, and the other section was at Fort Evelyn. The Gatlings were left at Fort Newdigate.

For the battle, the guns were placed on all sides of the British square, in order to meet the Zulu attack, from whatever direction it might come. They were in action just outside the infantry line, or in gaps left for them. When the Zulus attacked, the cavalry moved clear, and fire was opened at a range of over 2000m. .

Although the action was short, and ammunition expenditure was low, some guns used all their case and had to fall back on reversed shrapnel, which had a similar effect. Later, Zulu dead were counted in groups at less than 30m from N/6 Batteryâ\200\231s guns.

The Gatlings achieved considerable success, although they jammed several times. The London etary reported: â\200\230When all was over and we counted the deac â\200\231 there lay, within a radius of five hundred yards, 473 Zulus. They lay in groups, in some places, of fourteen to thirty dead, mowed down by the fire of the Gatlings, which tells upon them more than the fire of rifles.

The battle was over in half an hour. The mounted troops were sent out in pursuit and, when there were signs of a rally, a section of N/6 soon dispersed the gathering.

PART 3 - THE GUNS
The guns, rockets and Gatlings used in the Zulu War were as follows:
Guns 6 pr 3 cwt RBL
9 pr 6 cwt RML (SS)
(Experimental)
12 pr Armstrong (SS)
7 pr 200 Ib RML
9 pr 8 cwt RML
4 pr Krupp RBL
Trough â\200\224 9 pr and 24 pr
Tube - 24 pr
45 in 10-barrelled
,65 in 10-barrelled (SS)

Rockets

Gatlings

The guns are described in the order of their appearance in the British service. In describing these guns, artillery development of the period will be outlined.

Rockets and Gatlings are also included as, in the Zulu War, they came under artillery control.

6 pr 3 cwt RBL

In 1859, Mr William Armstrong introduced his rifled breech loaders. The 6 pr 3 cwt RBL was originally intended for mountain service, but it was found to be too heavy. 7 prs were accordingly introduced for this purpose, and the 6 pr was restricted to normal colonial service, as opposed to mountain.

In the Armstrong system, guns were loaded through a hollow breech screw. The breech was closed by means of a vent piece, which was dropped into a slot or opening in the top of the breech. The vent piece was then pressed home against the chamber by means of a breech screw.

The shell was lead coated. On being fired, this soft coating was compressed into the 38 rifling grooves of the bore, and these gave it the required spin.

The Durban Volunteer Artillery (later Natal Field Artillery) took two of these guns to Cetewayoâ\200\231s coronation in 1873. 6 pr RBLs were used in the campaigns of 1877 and 1878. Although two were with

Col Rowlandsâ\200\231 column at the beginning of the Zulu War, they do not appear to have been used in the war.

The breech closing arrangement was the weak point of the Armstrong RBL design, particularly with the larger calibres, where the vent piece was unreliable, heavy and unmanageable. Not many years after the introduction of the RBL system, the authorities were looking for an alternative.

9 pr 6 cwt RML (SS) (Experimental)
Trials were held from 1863 to 1865, between Armstrong and Whitworth guns, to find something

more suitable than the Armstrong RBL system. For these trials, Armstrong produced a steel RML gun, rifled with three grooves in the shunt system. The gun illustrated, made in 1864, is such a gun.

The shell had projecting lugs which slotted into three grooves in the bore. In the shunt system, each groove was stepped, with a deeper and a shallower part in the groove. On loading, the lugs of the shell ran easily down the deeper parts of the grooves. At the chamber, the shell was â\200\230shuntedâ\200\231 across to a stepped up part of the grooves which produced a tighter fit. The idea was that this would mean greater accuracy on firing, but it was not a success and was soon discarded.

The guns produced by Armstrong for these trials were â\200\230built upâ\200\231 in construction. In this system, wrought iron coils were shrunk on to an inner tube. The same system was used for Armstrongâ\200\231s earlier RBL guns.

This 9 pr can be seen today in Ladysmith. Its carriage is makeshift, but parts of the original carriage can be identified. It is said to have been used in the Zulu War but, if so, it was definitely not used by N/6 Battery, the only Royal Artillery unit with 9 prs. They had standard 9 pr 8 cwt RMLs, which will be described later.

The only other 9 prs were those with the Naval Brigade which accompanied the Eshowe relief column, and which was present at the Battle of Gingindlovu. A drawing of this column shows the Naval Brigade with a 9 pr which does not appear to be of the standard Army pattern.

The possibility is that the Navy were given some of these â\200\230experimentalâ\200\231 guns for their landing parties. It is understandable that they were not given to the Royal Artillery, who would have received standard equipment, and not experimental models, especially those which were of a rejected design. Nevertheless, being still serviceable, it is reasonable to assume that the authorities would have wanted some use to be made of these guns. Similarly, the Naval Brigadeâ\200\231s 12 prs, to be described next, were also of an old pattern. So guns like

9 pr 6 cwt RML(SS) (Experimental). Par
be seen. The unusual wheels and trail were added later.

this 9 pr could have been used at Gingindlovu. It is
even possible that the Ladysmith gun was one of those
guns. But after Gingindlovu the Naval Brigade
received a third 9 pr â\200\224 is this that third gun? Anyway,
this 9 pr 6 cwt RML is an interesting example of one of
the systems produced as an alternative to RBL guns ata
time of change in Britainâ\200\231s artillery.

12 pr Armstrong (SS)

HMS Activeâ\200\231s Naval Brigade landed with two 12 pr
Armstrongs. They were exchanged for 7 prs at Fort
Pearson before the invasion of Zululand, and took no
active part in the campaign. Records do not show what
type of guns these were - RML or RBL? The
photographs that do exist are not clear. The best is a
drawing copied from a photograph, and this may not be
accurate. It shows a gun ona low carriage, similar to that
of a Naval Gatling. In construction, the gun is of the
Armstrong type, similar to that of the 9 pr just
described. The gun has no vent piece, and looks like a
rifled muzzle loader. However, another drawing shows
a rifled breech loader with the forces at Eshowe, whilst a
despatch published in the London Gazette of 7 Dec
1879 refers to the guns as breech loading.

Details of the armament of HMS Active merely
mention â\200\2302 boat and field gunsâ\200\231 without giving any other
details. All that can be said is that there were two 12 pr
Armstrongs with HMS Activeâ\200\231s Naval Brigade when it
landed, but no details of type and performance can be
given with certainty.

7 pr 200 lb RML

Mountain guns were widely used in India, where 7
prs first saw service in 1865. The 7 pr replaced the 6 pr
cwt RBL which, largely because of its weight, was not
acceptable as a mountain gun.

The gun used in South Africa was the Mk IV steel gun
of 200 Ib, which was introduced into service in 1873. It
was an RML, with three rifling grooves, but these were
plain (the French system), and not stepped as in the
shunt system.

Soe Ta = â\200\234
12 pr Armstrong (SS). This drawing was copied from a photograph taken on
the day the Ultimatum was delivered. No vent price can be seen so, if the
drawing is correct, the gun is a muzzle loader. Note the small carriage. In the
background are men of HMS Activeâ\200\231s Naval Brigade.

The 7 prâ\200\231s mountain carriage was low with a narrow track. This had the disadvantage that it turned over easily on rough ground if towed, but, on the other hand, an advantage was that it was possible to negotiate narrow bush paths which would have been quite impassable for vehicles with a normal track. When towed, the guns were drawn by three mules, tandem fashion. The guns could also be stripped down and carried on mules.

7 pr 200 lb RML on Colonial carriage – a lightened version of the 9 pr 8 cwt RML carnage.

Colonial, or Kaffraria carriages were also introduced for use in South Africa. These were a lightened version of the 9 pr 8 cwt RML carriage â\200\224 that is, the Army's standard 9 pr, not the Navyâ\200\231s â\200\230experimental model. These carriages were suitable for horse-drawn movement. However, it was felt that, as there was little difference in weight compared with the 9 prs, the 9 pr might just as well have been used as its fire was more effective. ;

7 prs saw service on both carriages in the Zulu War but they found little favour. Shrapnel had little effect,

because of the low muzzle velocity. The small bursting charge of common shell made its destructive power insignificant. Double shell could only be carried in small quantities, and its range was short.

9 pr 8 cwt RML

Mention has already been made of the trials which followed the failure of the RBL system, and of the experimental guns produced for these trials. In 1871, the 9 pr 8 cwt RML was introduced as the new field gun of the British Army.

The main characteristics of Armstrong construction had been maintained. The gun was made of wrought iron; it was â\200\230built upâ\200\231 but, in appearance, not at all like the Armstrong RBLs and experimental RMLs. It fired an elongated shell, but it was muzzle loading; and it was rifled with three grooves.

In trials, these RMLs had produced a quicker rate of fire than the RBLs, and the breech problem was eliminated. A 9 pr 6 cwt RML was produced for horse artillery, similar to this new 9 pr 8 cwt RML. This was later adopted for field use as well, and remained the standard British field gun until 1878, but many field batteries still had the 8 cwt model in 1879.

Nothing has yet been said in this article about the horses â\200\224 of vital importance to all, and, in particular, to Gunners. Some comments about N/6â\200\231s English horses may be of interest.

They landed in March 1879 in Durban. From then until the end of hostilities, only eight were lost, of which two were killed in action. When the battery was ordered to embark for India, it marched the 512 km (320 miles)

from Heidelberg to Durban in fourteen days, and was particularly complimented on the good condition of its horses on arrival in Durban. N/5â\200\231s colonial horses were said to be useful and handy for the light 7 pr equipment, and â\200\230could be driven to water in a mobâ\200\231. At the end of the war, N/6â\200\231s guns and horses were left behind when the battery embarked for India. They were taken over by N/5 who later used them in the First Boer War.

9 pr 8 cwt RML - The standard Royal Artillery field gun in the 1870s.
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4 pr Krupp RBL

In 1874, President Burgers bought four Krupp 4 pr guns for the Transvaal Republic. They were the first modern guns which the Republic had possessed, and the artillery unit formed under Captain Otto Ried] was its first permanent artillery formation, and was known as Battery Dingaan.

Britain acquired these guns when the Transvaal was annexed in 1877. One or more were used in the Sekukuni and other campaigns of 1878, Colonel Rowlands had one with his column at the beginning of the Zulu War, but it does not appear to have been used. No details of the gun are available but, from the poceeeen it can be seen that this gun has the standard

rupp wedge or sliding block breech. At this time, there was a 5 cm Krupp mountain gun which fired a 1,85 kg (4 Ib) shell. It may be this gun. The four guns were used by the British garrison in the Defence of Pretoria in the First Boer War.

4 pr Krupp RBL. This photograph was taken during the S iege of Pretoria in 1881. (With acknowledgement to the Africana Museum, Johannesburg.)

Rockets

By the time of the Zulu War, rockets had been in service with the British Army for many years. In 1879, there were two types in use in the British service â\200\224 9 pr and 24 pr rockets of Haleâ\200\231s pattern. These were an improvement on the earlier Congreveâ\200\231s type, which were stabilized in flight by a long stick. Haleâ\200\231s rockets were spin-stabilized by rotation effected by three metal vanes in the exhaust nozzle.

Rockets were fired from tubes and troughs. Troughs were used by both the Army and the Navy, and they fired both 9 pr and 24 pr rockets. Troughs were merely open â\200\230drain pipesâ\200\231 on simple stands. Rockets were fired by means ofa friction tube in one of the exhaust nozzles; or a slow fuze. In South Africa, Army troughs will have been 9 pr.

Tubes were more common with the Navy. They were less dangerous to use aboard ship, where care had to be taken to prevent uncontrolled sparks and flames from setting light to rigging and inflammable stores in confined spaces. Naval tubes fired 24 pr rockets.

The rocketâ\200\231s effective range was not more than about 1200m. The zone in which a rocket might land was large, and accuracy was poor. Rockets were unsafe on firing, and very susceptible to wind. The steadying effect of rapid rotation only appeared some time after firing, by which time the damage was done, as far as accuracy was concerned.

Manuals stated that rockets could be used for bombarding towns, and firing shipping, buildings etc. They could also be used against troops and cavalry, as they frightened the horses. In the same way, they were thought to be useful against â\200\230savagesâ\200\231, and other unsophisticated opponents â\200\224 but Zulus treated them with contempt.

Headlam, in his â\200\230History of the Royal Artilleryâ\200\231 mentions the Navyâ\200\231s enormous 24 pr rockets, fired from tubes which, he said, caused as much anxiety to friend as foe. Rockets were known to turn round in flight, and head back towards the men who had tired them. While possessing great potential, rockets were very unreliable. Before leaving them, though, it is well to remember Boatswain Cotterâ\200\231s well-aimed rocket at Inyezane, and that rockets were used with much success by Germans and Russians in World War II, and that a rocket blasted man to the moon.

9 pr rocket trough and rocket, with a 24 pr rocket below. This incomplete trough

is in the Natal Museum, Pietermaritzburg. The missing arm A is shown on the sketch below. Elevation was altered by moving the upright B along the arm A.

Sketch showing the missing arm of the 9 pr rocket trough.

Gatlings

The Gatling was an invention of an American, Richard Joseph Gatling. His guns were used in the American Civil War, improved afterwards, and sold around the world. If Custer had taken his four Gatlings with him in 1876 the outcome of his battle with Sitting Bullâ\200\231s warriors at the Little Big Horn would have been very different.

Gatlings were considered to be artillery weapons by many, and they therefore came under artillery control in the Zulu War. In this respect, Britain followed the French lead. The French had deployed their mitrailleuses as artillery pieces in the Franco-Prussian War, but with poor results.

In Britain trials had been conducted between Gatlings, 9 pr RML and 12 pr RBL guns, the Montigny mitrailleuse, and infantry sections firing Snider and Martini Henry rifles.

The inclusion of artillery pieces in these trials illustrates the thinking of the time. The Gatling came out of this remarkably well, and in reports dated 1870 and 1871, the War Office recommended that ,65 in

(16,5 mm) Gatlings be adopted for the Navy and for coast defence, and the ,45 in (11,4 mm) Gatling for the Army.

The first Gatlings were delivered by Sir W.G. Armstrong and Co. in January 1874, and by the end of 1875, forty guns had been produced. The Navy took twelve of the ,45 in guns originally destined for the Army, in addition to their ,65 in guns which followed soon afterwards.

Army Gatlings were on carriages similar to those of field guns, and were manned by a Royal Artillery battery under Major J.F. Owen, in the Zulu War. Naval Gatlings were on smaller carriages, but accounts of the war do not mention the calibre of these guns.

Gatlings for British service were destined to take the Boxer cartridge of 1866. These were not suitable, and early trials invariably led to the guns jamming as the empty case stuck in the chamber, and the extractor tore through the rim. Changes were made, but ammunition problems remained.

The nature of the war in Zululand meant that Gatlings were used against massed Zulu charges at close ranges, and they were very effective. Their part in the Battle of Ulundi illustrates this fact.

CONCLUSION

The rockets and guns at Isandlwana were overwhelmed and had little or no effect on the battle. But at Inyezane, Kambula, Gingindlovu and Ulundi, artillery played an important part in the British victories, and consequently, the defeat of the Zulu nation.

TABLE 1

Guns
Weight of i
Weight of
Gun un Ty i at a
g ype Calibre shell Ammunition (ft/sec) Range
6 pr 3 cwt RBL 5 i
2,5 in 5 lb 7 oz Se
te gment 1046 /
(152 kg) (6,35 cm) (2,5 kg) (322 m) a
5lb 9 oz Case a
(2,5 kg)
12 pr 8 cwt RBL i
3 in 10 lb 11 oz Sh
ore rapnel 1239
(kg) (7,62 cm) (4,8 kg) (381 m) ea
11 lb 4 oz Common â\200\224
(5,1 kg)
10 Ib 9 oz Segment
(4,8 kg)
11 lb 8 oz Case
(5,2 kg)
9 pr cwt RMI 33
: . ML 3 in 9 lb 13 oz Shra] _â\200\224
(304 kg) (7,62) in) (4,5 kg) â\200\224- ae
m
9 1b 1 oz Common
(4,1 kg)

9 |b 10 oz Case
(4,4 kg)
7 pr 200 Ib RMI 3 in
ML $ 7 1b 11 0z Shr.]
ik n apne 914 /
(g) (7,62 cm) (3,5 kg) (281 m) Te
7 Ib 5 oz Common a:
(3,3 kg)
12 Ib 3 oz Double
(5,5 kg)
6 lb 4 oz Case
(2,8 kg)
9 pr 8 cut RML 31
} in 9 |b 13 oz Shrapnel
a n pne 1330 5
(g) (7,62 cm) (4,5 kg) (409 m) ae
9 1b 1 oz Common am
(4,1 kg)
9 Ib 10 oz Case
(4,4 kg)
4 pr Krupp RBL 2 in (?) 4lbapprox â\200\224
(5 cm) (1,85 kg) â\200\234 7

Notes:

1. Guns are described in the same order as Part 3

2, 19 pr Armstrong details are not known, as there is doubt w
The details here are for the RBL gun.

hether the guns with HMS Activeâ\200\231s N

aval Brigade were RBL or RML.

TABLE 2
Rockets

Troughs

9 pr

Maximum elevation: 15Â°

Range at 15Â°:

Weight of trough: 27 Ib (12,3 kg)

1371 to 2228 yds
(1265 to 2057 m)

24 pr

25Â°

1546 to 2226 yds
(1427 to 2055 m)

64 Ib 12 oz (29,4 kg)

Note the large zone in which rockets fired at 15Â° elevation could fall.

Tubes

Tube details are not known, but will have been about the same as for troughs.

TABLE 3
Gatlings
Army Naval and Coastal services
Calibre: 45 in (1,14 cm) 565 in (1,65 cm)
Number of barrels: 10 10

Weight of gun complete:
Maximum range:
Effective range:

Rate of fire:

From these details it can be seen that the Naval ,65 in Gatling was much heavier than t
he Army ,45 in version, but Naval Gatlings in-

8 cwt 6 qtr 6 lb (485 kg)
2400 yds (2215 m)
Up to 1200 yds (1108 m)

300 to 400 rounds per minute

14 cwt 4 qtr 27 Ib (775 kg)

South Africa were on smaller and presumably lighter carriages. As explained in Part 3,
the Navy also had some ,45 in Gatlings and

Naval Brigades in South Africa may have been equipped with this version, on the lighter
carriage.

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