

Lanchester's Laws

Military Example:

The Zulu wars

Based on

The Works of F.W. Lanchester

(1868-1946)



By Paul McNeil

paulmneil@tactica.org.uk

www.tactica.org.uk

Military Example

The Zulu Wars: Small numbers with high E (British), versus large numbers with low E (Zulus).

Introduction

In the later part of the nineteenth century British Colonisation of South Africa was proceeding at a fast pace. On the border of this outpost of empire lay the highly militarised and aggressive and expanding Kingdom of the Zulus under their King Cetewayo. The Zulus were seen as an imminent threat by the British, The White Boer Republics, and the Swazi tribes. Likewise the expanding British Empire was seen by the Zulus as an imminent threat, as were the incursions of the Boer settlers. Given this volatile situation, it was inevitable, despite various promises, treaties, and agreements that the situation would develop into warfare.

After some desultory border skirmishes by the Zulus, some tub thumping rhetoric and unacceptable demands with an ultimatum by the British, the real war started with mobilisation of an army by the British under Lord Chelmsford.

The aims of the British were three fold; firstly to destroy the Zulu Army formations (Impis) in battle, to capture the Zulu capital of Ulundi, and to capture the Zulu King Cetewayo. The Zulus had an army of about 50,000 well trained, disciplined, and brave infantry, but with a low "E" factor by comparison with the British due to being overwhelmingly armed with stabbing spears (Asegais) and shields, a few were armed with firearms but not many. Chelmsford had 5,000 British and other white troops, and 8,000 black Kaffiri troops, some Cavalry, all of these were armed with firearms, they also had 170 sailors and marines from HMS Active with two field guns, one Gatling gun, and two rocket tubes. So the Zulus had the advantage of numbers, the British and allies had the advantage of weapon's technology "E".

Chelmsford split his forces into five columns, three to invade Zululand, two to be held in reserve to defend against any counter attacks into British territory by the Zulus, or opportunistic incursions into British territory by the Boer Republics taking advantage of the British/Zulu confrontation.

Chelmsford leading the central column crossed the buffalo river at Rorke's Drift, and leaving a small detachment of engineers and about 100 men of the 24th regiment, plus a number of wounded in the hospital there, marched on to encamp the majority of his column on Isandhlwana Hill.

The Battle of Isandhlwana

Ignoring the protests of his white South African auxiliary troops, well experienced in border warfare with the Zulus, Chelmsford failed to fortify his camp and further split his forces in half, riding off to support some scouts who had run into Zulu scouts.

Right on cue, after Chelmsford rode off 20,000 Zulus appeared over the hill and descended on the small British force. Although the E of the British troops was considerably higher than that of the Zulus, they were limited to about 50 rounds of cartridges each, whilst the rest were sealed in wooden containers, only two quartermaster sergeants having the necessary tools to open them. This being the case the E advantage of the British quickly dwindled, and was further confounded by the quartermasters refusing to issue cartridges without the correct paperwork!

As the cartridges ran out the E factor dwindled to 1 as 20,000 Zulus armed with assegais were faced by a thousand British armed with bayonets, to top this, the battle became Stochastic as the Zulus broke into the British camp, thereby being able to attack the British from multiple sides simultaneously. The result could not be in doubt. All the officers and all but two of the men of the 24th regiment were killed. It was the single biggest defeat of a regular British force by native troops. The Zulu losses were not recorded, but in proportional terms, were far less than those of the British. So where this battle started as one under Lanchester's first law with a huge advantage in E to the British, once the cartridges had run out and the Zulus had closed, the battle continued under Lanchester's first Law, with an E value of 1, to be followed by the Zulus breaking into the British camp, and turning the battle into one fought under Lanchester's second law with an E value of 1.

Result; overwhelming victory to the Zulus. The British had assumed an overwhelming advantage in E, without accounting for their own systemic weaknesses, which couldn't be compensated for by the grim bravery of the redcoats.

The Battle of Rorke's Drift

Later that afternoon, a Zulu Impi of 4,500 men, fresh from their victory at Isandhlwana, swept down onto the tiny riverside hospital outpost of Rorke's Drift. Initially there were about 400 British and colonial troops there, but when the Impi was sighted, all the native troops fled, leaving about 140 Regular British soldiers of the 24th Regiment, engineers, and the wounded in the hospital. Unlike the troops at Isandhlwana, these troops had plentiful ammunition, and being in buildings with a compound surrounding were able to put up makeshift barricades prior to the Impi's arrival.

They defended their post for a full twelve hours from four in the afternoon till four in the morning, when the Zulus gave up the attack as too costly and withdrew. During that time they fired about 20,000 rounds of ammunition from their rifles, every single British soldier was wounded, and seventeen were killed. Against this the Zulus lost about 500 killed and wounded, plus an indeterminate number of walking wounded who withdrew with the rest of the Impi at the end of the battle, perhaps another 1,000.

Why the difference in this battle to Isandhlwana? Well, the British managed to keep the flow of ammunition to their fighters, thereby sustaining their high E factor, and fighting from behind, albeit makeshift, defences, they held the greater part of the Zulus beyond fighting distance whilst holding their ground and firing volleys into them at a distance, thereby getting a partial stochastic effect under the second law, and even when the defences were pressed, the British still managed to have a much higher E factor under the first law when fighting at close quarters. But it was the British soldiers' ability to fight stochastically at a distance that made the difference to the numbers of casualties; at close quarters the Zulus could inflict some casualties, even if they lost many more than they killed.

Result; a draw. The British could hold their position but could not leave it to exploit the superior E they possessed, the Zulus couldn't take the position without sustaining crippling losses, but could ensure that the British could not leave their position.

The Battle of Ulundi

The turning point of the war came with the battle of Ulundi, 4th July 1879. Lord Chelmsford march on the Zulu Capital with 5,000 men formed in one enormous square, Infantry forming the sides, Gatling guns and artillery at corners and centre of the sides, in the middle of the square were the Cavalry, irregulars, staff officers and supply train.

Slowly, ponderously, but with colours flying and the band playing, the square rumbled forward. There was o sign of the Zulu Impis, so the cavalry rode out and began burning the Zulu Kraals (barracks). After about three miles of the advance 20,000 Zulus appeared from all sides. The square stopped, the infantry closed ranks, the first two ranks kneeling, the second two standing. The cavalry withdrew as the Zulus attempted to surround them and cut them off, they gallop back to the square, the Infantry parted ranks and allowed them into the safety of the centre of the square, then reformed ready to meet the Zulu attack.

The Zulu closed at a run from all sides, only to be hit by volleys of fire, exploding artillery shells, and the steady thump of the Gatling guns. Despite all attempts at bravery, as long as the British could keep up their fire the Zulus couldn't effectively close to more than one hundred yards of the square. It was a hopeless situation, and eventually the Zulu Impis broke and ran; instantly the cavalry issued forth from the centre of the square, and pursued them "...cutting them down like grass before the scythe." according to one eye witness. The battle took 90 minutes. The British lost 82, the Zulus 1,500. Cetewayo fled, his capital was taken, and his army was broken. Shortly after Cetewayo himself and the last of his chiefs was also captured, the submission of the Zulus before the power of British E

At Ulundi the British E factor was vastly superior to the Zulus, the only casualties in the British ranks came from the few Zulu sharpshooters. This meant that the Zulus couldn't close, and the British weapons effectively allowed them to engage stochastically with the Zulus from a distance, there was absolutely no way that the Zulus could win without closing, and the British holding their ground and keeping up their rate of fire made them unbeatable.

Result; an overwhelming British victory. The British not only possessed far greater E than the Zulus, but could fight stochastically, which the Zulus could not unless they could break the British formation.

Summary: What to do

Stage 1 Decide on relative strength and Combat effectiveness

1. Decide if you are numerically stronger than, equal to, or weaker than your opponent.
2. Decide if your E is greater than, equal to, or less than your opponent.

Stage 2 Follow the relevant strategy

1. If you are stronger than your opponent and have greater E, engage in a stochastic engagement as quickly as possible, do not take any risks.
2. If you are stronger than your opponent, but lower in E, adopt the strategy of Numbers.
3. If you are more or less numerically equal to your opponent and equal in E, adopt the strategy of equals.
4. If you are weaker than your opponent, but higher in E adopt the strategy Concentration.
5. If you are numerically weaker than your opponent, and have a lower E, then do not engage at this time.
6. If you are uncertain of your relative numerical strength, and relative E factors, adopt the strategy of equals until a clearer picture is forthcoming.