**Napoleon's failure: For the want of a winter horseshoe**

By Saul David

Of all the challenges faced by generals through history, moving armies has been one of the greatest - and Napoleon Bonaparte's invasion of Russia 200 years ago illustrates just how badly things can go wrong when it is underestimated.

It is not enough just to get your forces from A to B - you have to keep them fed and watered as they go. The art of movement, therefore, is one of the most complex and vital that any commander must master, if he is going to win.

In 1812, his armies having swept all before them, Napoleon was at the zenith of his power (shades of another invader of Russia 129 years later). His Grand Armee of 400,000 men was thought to be unbeatable and he himself anticipated a rapid victory.

Yet within six months his huge force had been reduced to a straggling band of ragged fugitives, and fewer than one in 20 of his soldiers would ever see their homes again. How had it come to this?

During previous campaigns in Western Europe, Napoleon had solved the problem of feeding his armies by letting them "live off the land" - either by pillaging or buying up supplies as they advanced.

But aware that such an expedient would not be possible in "the wastelands of the Ukraine", he planned to take his supplies with him.

This was a logistical operation of quite staggering proportions, requiring a wagon train of no fewer than 26 battalions - eight equipped with 600 light and medium wagons each, and the rest with 252 four-horse wagons capable of carrying 1.36 tonnes (a grand total of 9,300 wagons).

To pull these wagons and to transport his cavalry and artillery he had gathered 250,000 horses, all of which required 9kg (20lbs) of forage a day.

And yet the figures did not add up.

Had Napoleon arrived in Moscow in two months, and with only half his original 400,000 men, he would still have required total supplies of 16,330 tonnes, which was almost double the capacity of his supply trains.

Instead he advanced with just 24 days rations. Clearly he was gambling on a rapid victory and a campaign that would not last longer than three weeks. It was wishful thinking.

The Russians refused to stand and fight and destroyed crops and supplies as they withdrew, luring Napoleon ever further across forests, marshes and steppes.

Meanwhile the Grand Armee was losing 5,000 men a day thanks to desertion, disease and suicide and horses perished at a rate of 50 per kilometre (80 per mile) most from eating an unhealthy diet of freshly cut green fodder.

There were only two significant battles - at Smolensk, where the Russians were defeated, and at Borodino, near Moscow, a bloody and inconclusive contest that resulted in combined casualties of 80,000 men (44,000 of them Russian).

As the withdrawal continued, Napoleon entered Moscow in mid-September with only a quarter of his original strength. But Tsar Alexander I's refusal to sue for peace, and the problems of supply caused by his "scorched earth" policy, gave Napoleon little option but to retreat.

His troubles, however, were just beginning. Having entered Russia in June, and anticipating a short campaign, his horses were still shod with summer shoes.

But with the brutal Russian winter fast approaching, this tiny logistical oversight was to cost him dear. Winter horseshoes are equipped with little spikes that give a horse traction on snow and ice, and prevent it from slipping.

"The naked masses of dead and dying men. The mangled carcasses of 10,000 horses which had in some cases been cut for food before life had ceased.

"The craving of famine at other points forming groups of cannibals. The air enveloped in flame and smoke. The prayers of hundreds of naked wretches flying from the peasantry, whose shouts of vengeance echoed incessantly through the woods.

"The wrecks of cannon, powder-wagons, all stores of every description: it formed such a scene as probably was never witnessed in the history of the world."

Without them, a horse can neither tow a wagon uphill, nor use them as brakes on the way down.

In the Russian winter of 1812, this spelt disaster for Napoleon's reduced force. Horses in summer shoes would have "fallen down underneath whatever it was they were towing", in the words of Bernie Tidmarsh, one of Britain's leading farriers.

"They wouldn't have got any grip going downhill any more than they would have going up," he says. "The end result would have been broken legs and mutilated limbs."

Assailed by hunger, the cold and Russian cavalry, the Grand Armee wasted away.

By the time Napoleon abandoned his army to its fate in Poland - arriving back in Paris on 5 December - it numbered fewer than 10,000 effectives. It was a disaster from which he would never recover.

His long retreat from Moscow has gone down in history as one of the greatest logistical disasters of all time. Without adequate horse transport, 2,400km (1,500 miles) from home, his army had no chance.

If a general gets his logistical preparation right, however, he can literally steal a march on the enemy.

 Jeeps replaced horses as a means of military transport in World War II

Perhaps the greatest recent example of this was during the Franco-Prussian War of 1870-71 when the Prussian commander Helmuth von Moltke used the efficiency of German railways to concentrate his troops before the French could.

Having gained the initiative, he did not relinquish it until Prussia had won the war, a victory that would usher in German unification.

Horses, however, remained all armies' chief means of moving men and supplies over difficult terrain until the Jeep was introduced by the United States military in World War II.

Jeeps were durable, reliable and flexible.

They could be used for almost anything - towing, cable-laying, transporting casualties and supplies, and with the right wheels they could even drive on railway tracks.

Every regiment in the US Army was supplied with 145 Jeeps, and 640,000 were built between the years 1941 and 1945 (18% of all wheeled vehicles).

By Vietnam, the Jeep had given way to the helicopter, and it is hard to imagine a modern army fighting a war without this supremely adaptable workhorse.

Yet as recently as the Falklands War of 1982, when helicopters were in short supply, many British soldiers had to "yomp" for three weeks across the barren heath of East Falkland before fighting a battle on the outskirts of Port Stanley. Some things never change.

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