BUSTING BEERSHEBA:

AUSTRALIANS IN THE CAMPAIGN TO DEFEAT THE OTTOMAN EMPIRE

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Logistic in hell- Sinai, Palestine & Syria in WWI

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It struck me when I began looking into the logistics for the war in the Middle East during WWI just how difficult the task was. There were many problems compounded by the need to supply a 20thC mass army using 19thC transport and handling through very difficult terrain and climate.

In this story there are boats and trains as would be expected. What was not expected was the huge numbers of camels and native labour pressed into service. Despite being close to the world's great oil fields there is not much petrol driven machinery and what was present was weak and fragile – thus ineffective by today's standards.

Sadly, due to a general lack of interest in logistics there are not all that many descriptions or pictures of the systems of the time. Most of the attention is focussed on the fighting men. This is too bad because the story of logistics is fascinating. That said, there are enough fragments available to put together a reasonable description of the supply situation even if all the photographic examples used in this presentation aren't from the area.

The supply story started at Port Said

Once the Turks were pushed away from Suez, there was never a problem with shipping. Port Said sat on one of the busiest water ways in the world and even if the Mediterranean became blocked by the Central Powers there was always the back entrance in the south allowing ships passage to and from the Indian Ocean.

The main transhipment depot was Kantara, midway along the Suez Canal. A large port was developed there that could berth and unload ocean steamers. A great storage base grew out of the desert with miles of metalled roads, large camps, buildings, workshops, and huge piles of supplies and stores. Rail lines connected to this base. Of most interest was the linkage to the every more distant battle fronts to the east across the Sinai through to Syria.

Fuel for transport made up the greatest tonnage.

If freight is talked about at all, discussion tends to focus on the needs of the men for comfort and survival. As important as that was for the morale and welfare of the men, a lot more than biscuits, tobacco and mail was shipped into Kantara.

A breakdown by type of cargo was not available for the material supplied to the Middle East so data for the BEF fighting on the Western Front will be used as a proxy.

Shipped to France for the BEF in WWI	
Fodder	22%
Coal	16%
Total fodder & coal	**38%**
Ammunition	19%
General supplies	13%
Railway material	9%
Vehicles tanks guns	8%
The rest	21%
Excludes livestock and men	

Fodder made up the greatest proportion of the imports for the Western Front. This ratio probably understates its importance in the Middle East where the proportion is likely to be higher, probably around 30% or more as there was limited opportunity for local supply. It is surprising to learn that there was such a lively international trade in fodder and undoubtedly Australia played a lucrative part in this along with the trade in exported horses and other freight.

Fodder was the petrol of the day – and it being such a slow energy release fuel goes some of the way explaining why progress was so slow in the Middle East during WWI. Fodder fuels muscles whereas petrol fuels machines. Petrol was such a minor factor it didn't merit its own category.

Coal was also important for bunkering steamers and fuelling trains.

Ammunition, vehicles, tanks and guns made up considerably less of the total manifest. The direct supplies to the men are buried in the heading of general supplies and the rest.

The Egyptian Expeditionary Force (EEF) was very tonnage heavy per man compared to the BEF in France

During the peak activity period, an extraordinary 67,000 tons was shipped to Egypt per week or just over a third of that sent to Europe – this is a colossal amount for the secondary front. The tonnage per man was two thirds higher than that sent to the BEF in France. This is a reflection of the fact that little of the army's needs, particularly forage, were supplied locally. It will also reflects the difficulties of climate and terrain and the dispersed low intense nature of the war which required much more energy (fodder and coal) per man to supply and run the fighting forces.

	Tonnage pw	**Max strength**	**kg per person per week**
Peak tonnage EEF October 1918	66,847	467,650	146
Peak tonnage to BEF France	176,707	2,046,901	88
Proportion EEF to BEF	38%	23%	166%

Approximately 4.8 million tons of cargo was unloaded, stored and moved in two years through Port Said.

The port was busy

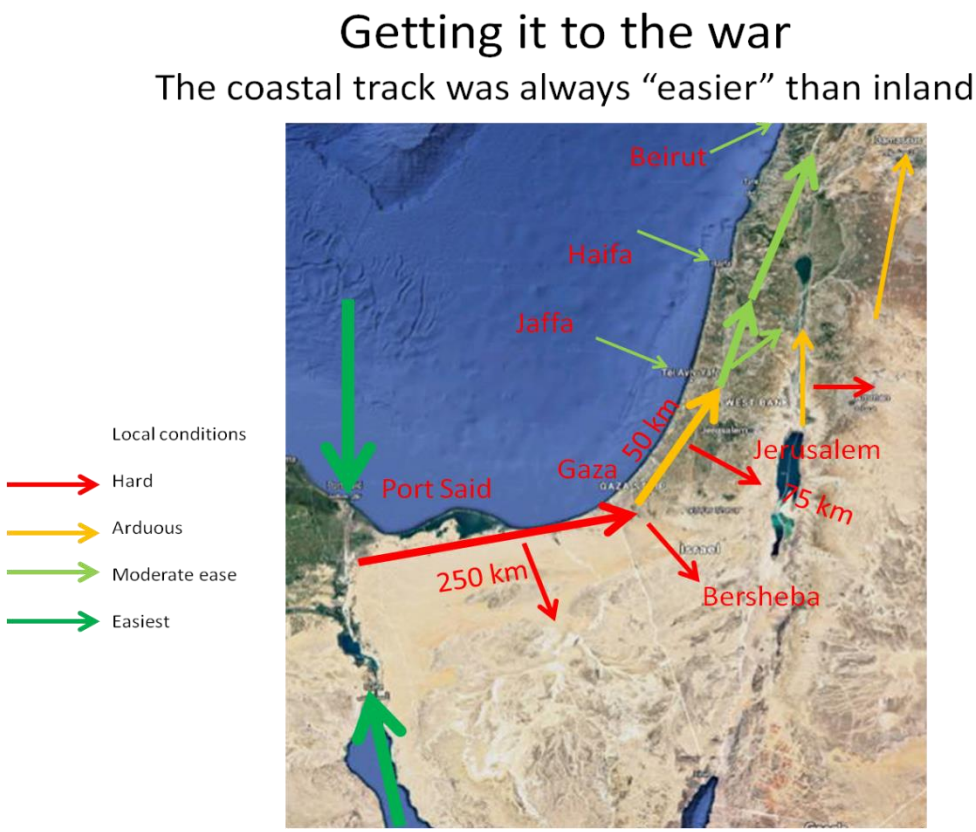
To move all the freight, plus men and animals, 425 tugs, lighters, steamers and 1,600 native craft were employed in addition to the sea going steamers. In addition to the large tonnage already described, tens of thousands of horses, mules and camels were freighted in and then replaced at a rate of 640 per week while over 1.2 million men came and went by ship.

Since there were no pallets or shipping containers, it must have been a study of organised chaos as everything was moved and stored several times by hand.

Movement became really difficult away from Suez – the coastal track was always "easier" than inland.

Crossing the Sinai to Gaza with its soft sand and arid condition was very difficult – even the animals had to be transported. Beyond Gaza to the Megiddo Line around Jaffa there were some local supplies of fodder and water. Once the Megiddo Line was broken fodder, water and enemy rail lines were available sufficient to allow the force to range more or less at will. From that point the war sped up.

Movement was always easier on the coastal line. Any movement inland required huge amounts of effort and great discomfort.



The supply was limited by the power, endurance and flexibility of the delivery systems. The backbone of the system was always rail. Some port facilities were available when the ports of Jaffa, Haifa were taken but these were small ports with limited capability which provided some small amount of relief but was no substitute for the rail.

Advancing across the Sinai – rail was needed.

A trek across the Sinai involved 250 km of soft sand with little potable water – it was too difficult to march across en mass and then supply without rail. There were wells along the way but the water was too saline for the Europeans and the railway engines.

The rail and water systems were built using hard labour by the Egyptian Labour Corps under the supervision of the Royal Engineers. Water was pumped from a lake the Egypt side of the Suez Canal along 300 miles of 12 inch water pipeline capable of taking 600,000 gallons a day. Pumping stations and storage tanks were built along the route. The pipes came from America.

During the peak of activity in June 1918 there were 72,000 in the Egyptian Labour Corps (ELC) involved in all types of labour. There is no record of the total numbers in the ELC during the war. The labourers laid pipelines and rail lines, loaded and unloaded trains, ships and storage centres etc.

The rail system was built at a rate of 1 kilometre a day. By the end of February 1917 it extended 250 km to near Gaza. While notionally built as a single line, nearly three times that distance of standard gauge railway was actually built for sidings, storage facilities and so on.

Much of the line came from pulling up Egyptian branch lines and taking Egyptian rolling stock. The line could take 13 trains a day in each direction. The line was often up to its limit and there were plans to build a second line to reduce congestion but this option may have been circumvented once captured ports were pressed into service.

In addition 325 km of metalled road and 140 km of rabbit wire and brushwood roads was also built to take foot traffic and light vehicles.

Rail road

Walking the rabbit

Away from the rail, camels were the major source of transport

A large proportion of the 67,000 tons per week came off the ships, went into storage at Kantara then was transhipped up the line. The terminal rail head was up to 30 km from the front line where freight was unloaded by hand and either went into vast storage facilities or was delivered to the various fighting units by pack animals, particularly camels.

Loading frozen mutton for the Diggers

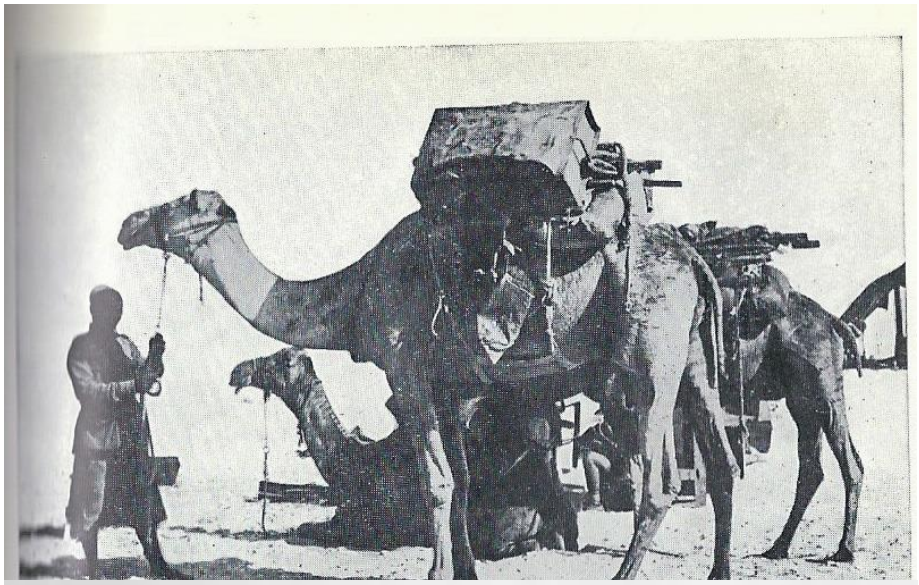
Camels were used for all types of transport including carrying water, fodder, food for the men and the transporting the sick and wounded. During the war there were 170,000 camel drivers and 72,500 camels in the Camel Corps. The peak number was 23,000 camels. From these numbers the turnover of camel drivers was high as was the turnover and/or loss of camels.

Camels were critical for hauling large volumes of water to locations beyond the pipeline. Men need a minimum of 2 litres of water a day while horses need around 40 litres. Each camel carried two 12.5 gallon tanks – a total of 95 litres or 95kg of water so each camel load supplied two horses and their riders for a day. 2,000 water tanks could be filled and loaded on camels every hour.

Camels conserve water and will use as little as 1.3 litres per day so they are obviously ideal for the desert but they aren't particularly useful as fighting mounts as the mounted warrior have to dismount to fight. This explains why horses were the preferred fighting mounts despite their big thirst – horses could on occasion be used as a fighting platform as cavalry where as camels were not so popular.

As the railway was being built across the Sinai, its flank needed protection. A raid on threatening Ottoman positions at Maghara Hills 13-21 October 1916 was launched with the objective of capturing Turkish positions some 80km from the rail line. This raid is a useful demonstration of just how many camels were needed for a mounted desert operation. 1,800

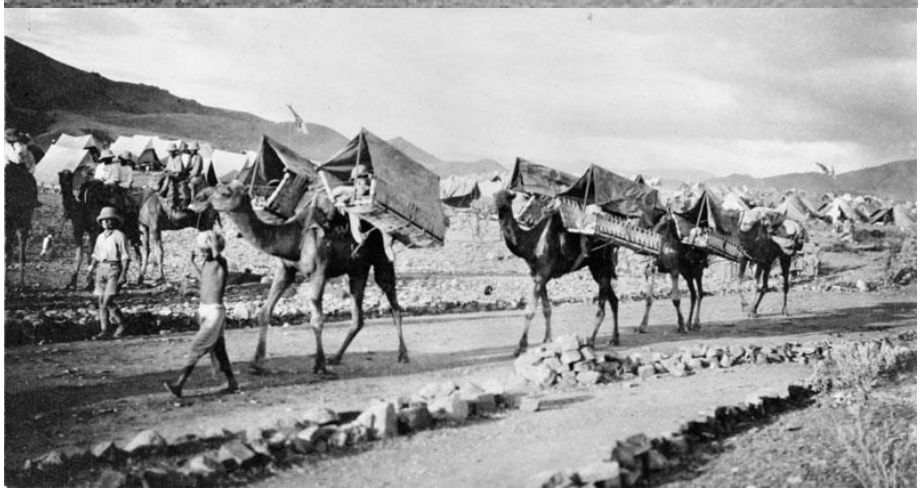
fighting mounts were sent out of which 600 were camels. This force required 4,700 logistic camels of which 200 were for medical purposes. Thus for this raid there was a ratio of 2.6 logistic camels for each fighting mount. The raid failed most likely because the force only had access to water they carried thus the attackers had limited time to engage the enemy before returning to base.



Camels hauling:

Water

Cargo



Wounded

The spear point pump made horse patrolling in the Sinai possible

The spear point pump was developed to assist with patrolling across the arid Sinai desert. This pump was essentially a steel tube with its lower portion covered with small perforations that would allow water to pass but not sand. It had a point at the bottom end which was driven a metre or more into the bottom of a dry well. Water was usually found at a shallow depth. Many days' worth of water could be pumped up and the horses would drink from canvass troughs.

Logistics for the Battle of Beersheba

With almost no roads from Gaza to Beersheba and the need for secrecy, transport depended almost entirely on pack animals to support the 15,000 mounted troopers and 47,500 rifles in the infantry along with ancillary staff.

The total daily water requirement of the striking force was 400,000 gallons, of which about one-quarter (equivalent to a weight approaching 500 tons), had to be carried. A rough calculation indicates that 6,000 one way camel trips per day were required just to carry the water. Given that the camels could only do one leg of the trip a day there would have needed to be at least 12,000 camels virtually nose to tail in a line stretching in both directions. More camels would be required to carry other supplies so the total number of logistic camels servicing the Beersheba force was likely to be closer to 15,000. Given the need for camels to service other forces along the Gaza to Beersheba line most of the camels of the Camel Corps was likely to be used in that area to support that battle.

Beyond Beersheba

There were some metalled roads available after the Gaza line fell. Trucks and heavy equipment could be used in places. This was particularly so between Gaza and Beersheba where trucks took over from camels after the battle was won. But there still many places that were too rough for motorised transport and the trusty camels continued to be used.

The rains set in during December. The road to Jerusalem proved too much for the camels. They suffered in the cold, wet winter weather and on the poorly made Turkish roads. Two thousand donkeys were brought up from Egypt to replace them.

The Enemy's logistics

The Hejaz railway and the system back to Constantinople was made up of a discontinuous multi-gauge line from Turkey. Five substantial transhipments were required before supplies reached the front.

The Turks were always under supplied. "The Turkish rank and file were ill-clothed and ill-fed and very war-weary. Desertion was rife. The transport animals were in a wretched

condition, since the lines of communication were working so badly that forage was often unobtainable. [...] But the Turk fights well even when most miserable."[1]

The British standard gauge rail was incompatible with Turkish narrow gauge lines used in the area. Captured Turkish line most often couldn't be used due to lack of engines and rolling stock until large quantities were captured in September 1918 battles of Megiddo. Some further pressure was taken off the EEF rail system once Haifa was taken. Stores could be landed at the port and sent on via the Turkish railway.

Outside of the rail, the Turks used much the same low power methods as their enemy – camel, horse, mule and human. What they couldn't supply the Turks took from the local population by sending out requisition officers. "It was a land denuded...depredations went beyond imaginings...crops, farm vehicles, and draft animals were seized and hauled away in the name of wartime exigency, their hapless owners indemnified with hastily scribbled receipts that all knew would never be redeemed."[2]

Lawrence & the Bedouins

Bedouin activity was economical in supplies from the British. The only reference to supplies in Wavell's book was that Lawrence bargained for a large quantity of forage when they were at Amman in the lead up to the Battles of Megiddo during September 1918.

Anderson mentioned the increase in supplies after the Arabs took Aqaba where the British supplied the thousands of Arabs camped there and their camels and later landed armoured cars. However once the Bedouin were on the move in hostile territory there was no way to keep the supply up to them and no mentions of how they supplied themselves so it is assumed that they foraged and lived off what they captured from the Turks and local population.

Megiddo and beyond - what a difference "free" water and forage makes.

The British railway line was built up to the Megiddo Line. Until the EEF broke through that line there was limited lateral mobility due to water supply problems. The land beyond the line was fertile with comparatively abundant water. Once through the line, the mounted forces foraged at will and ranged extensively which meant they were far more able to attack the enemy without the months of preparation and supply build up previously required. The Light Horse could fight in the way it was really intended.

In the coastal area north of Megiddo to Aleppo, there was plenty of Turkish narrow gauge rail line, engines and rolling stock left behind for the British to use.

The path to Damascus took an inland route as it followed the ancient pilgrims' road and the Hejaz railway. The land was not as fertile and well watered as the coastal route. The whole of the transport, except ammunition wagons and ambulances, was left behind. The divisions moved light and subsisted on whatever local food and fodder supplies they captured.

[1] Wavell, Kindle Locations 3165-3169.
[2] Anderson, p.83.

This was fairly much the supply situation until the end of the war. The EEF pursued and overtook the Turks along the coastal and inland routes. By then the hostile forces in Northern Syria were a rabble, without artillery, without transport and without organisation. They offered little resistance.

The EEF lived off what they could find and pressed into service any facilities they found. Allenby pushed up the coast to take Beirut. Goods were landed through that port giving a shorter rail and road transport to Damascus and beyond to Aleppo.

Conclusion

As in any war, supply was critical. Due to the difficulty of a war in "hell", the tonnages the EEF consumed were disproportionately large compared with those shipped to the BEF in Europe.

It was relatively quick and easy getting the materials on land at Port Said but from there distribution slowed to a snail's pace because it relied heavily on coal and muscle work for construction, handling and storage. There was huge amount of work carried out labourers and pack animals and almost certainly soldiers. All had a slow conversion rate of fuel to work and motion which was reflected in the rate the front moved – the speed from Suez to Damascus was 0.6 km per day while in WW2 the pace in similar conditions from Alamein to Tunis was 12 km per day.

Thus running a modern industrial war with 19th century transport can be done but it is extremely difficult and slow.

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