

**Slim's Masterstroke –
the Crossing of the Irrawaddy**

by Graham Dunlop

The crossing of the Irrawaddy, and the subsequent advance to Rangoon in the Spring of 1945 must rank as one of the greatest joint manoeuvre battles fought by the Western Allies at army group level during the Second World War. Defending a strong position behind a formidable obstacle, with good routes back to its base, the Japanese Burma Area Army was defeated by a numerically inferior force with extended and tenuous lines of communication, but which could manoeuvre and sustain itself by air, sea and river, overcoming the extreme difficulties of overland movement. For the British Empire and Commonwealth forces in South East Asia it was a fitting culmination to three years of hard, frustrating work creating the means to defeat the Japanese; a task that started from very low point after the loss of Singapore and Burma in early 1942. It is a story of high risk-taking and improvisation in the face of innumerable obstacles and shortages. On the Allied side at least, it was an operation brought about and shaped predominantly by logistic considerations at the strategic, operational and tactical levels. To support that thesis, it is necessary to step back to May 1942 and explain briefly the development of the logistic circumstances in which the battle was fought.

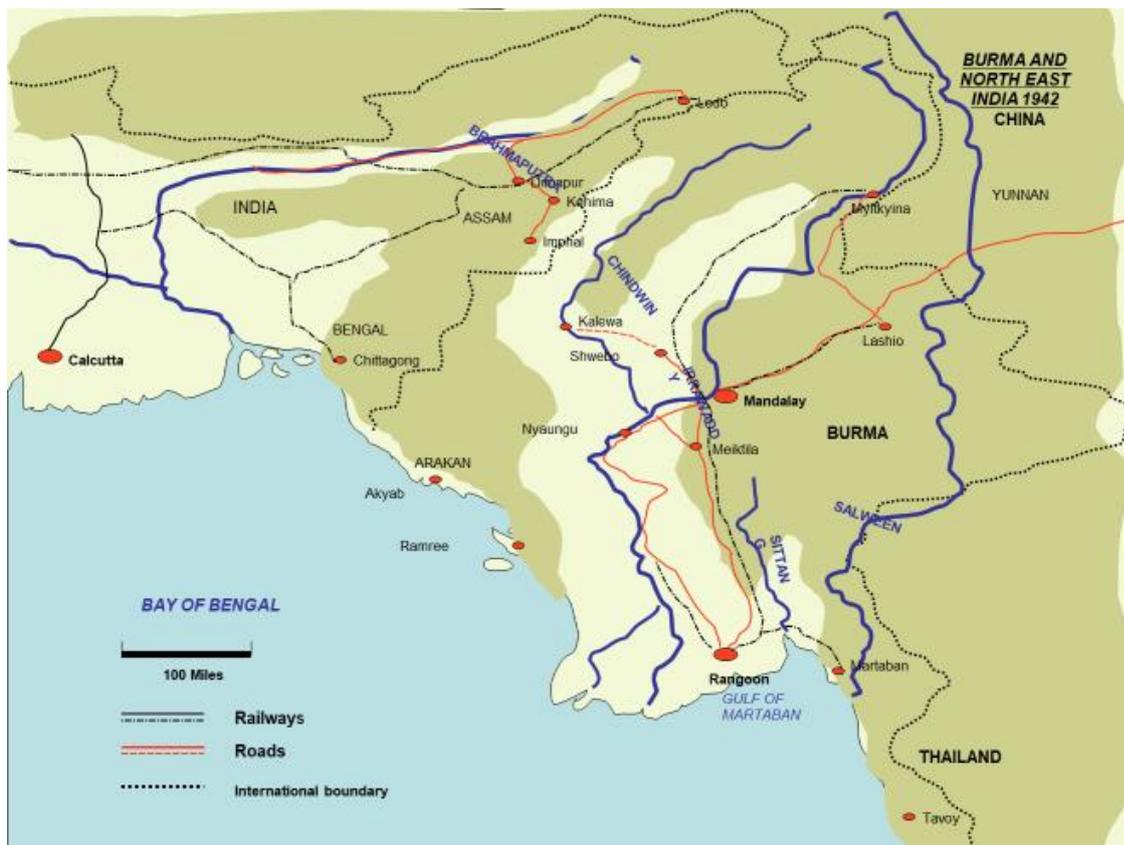
The loss of Singapore and Burma presented the Allies with some very serious problems. India, barely defensible and economically on her knees, found herself on the front line by land, sea and air, and forced to become the strategic base for the theatre; vital sources of foodstuffs and warlike materials had been lost; and the one remaining overland link to China through Burma was severed. The British, smarting from their experiences of failure in the jungle, sought to stand on the defensive in North East India and use amphibious forces to recapture Rangoon prior to advancing on to Malaya by sea. They were motivated principally by the desire to recover their Far East Empire as quickly as possible and to be seen to be involved in the final downfall of Japan. Clearly, it would be some time before adequate amphibious resources could be assembled in the region.

The Americans, on the other hand, hostile to Britain's imperial designs, were motivated only by the need to re-open the link to China in order to keep Chiang Kai Shek in the war, drawing Japanese forces away from the American advance in the Pacific. Controlling the lion's share of war production, they dominated strategic direction of the war against Japan, so re-opening the link to China through North Burma, essentially a logistic purpose, became the over-riding Allied strategic war aim in South East Asia until almost the end of the war. However operational and tactical level commanders may have seen things, at the strategic level of thinking, destruction of the enemy was merely the means to that end. The recapture of the rest of Burma and Malaya were things that could wait until much later, and, even then, the Americans envisaged the true liberation of those countries, not their reversion to British colonial rule. Apart from that, the continued lack of amphibious resources repeatedly scotched British aspirations. Whatever their hopes and plans, the British were forced to work towards taking the offensive in Assam in order to seize sufficient territory for the China link. Quite apart from learning to fight effectively in the jungle, that posed some formidable logistic problems.

First, India had to be transformed into a strategic base capable of supporting the planned offensive into North Burma as well as being the terminus for the supply line to China once the link was established. That, by itself, was a massive undertaking. Burma was at the bottom of

Allied war priorities: a subsidiary front in the second priority war. The allocation of resources matched that ranking and it was to take two years, until early 1944, before India was in a position to sustain major operations of any sort against the Japanese. Achieving even that virtually crippled the Indian economy and contributed to the Bengal famine of 1943, which claimed over a million lives.

At the operational level, the Allies had to contend with overland lines of communication in Assam that were quite inadequate to support the level of operations envisaged. The Indo/Burmese border, where the front settled in 1942, is, to this day, a region of remote, disease-ridden, jungle-covered mountains. Then, it had barely any of the infrastructure required to support an army at war. During the South West monsoon, which blows annually from May to October, ten feet of rain falls, washing out tracks, swamping airfields, causing landslides and creating almost impassable obstacles out of the innumerable jungle streams. In terms of natural environment, it was probably the most difficult battlefield or line of communication area of any encountered in the Second World War.



Assam and East Bengal were separated from the rest of India by the un-bridged Brahmaputra river. The river itself formed an important part of the regional transport infrastructure, but a large quantity of its shipping capacity had been removed to support operations in the Middle East. Up-river movement was, in any case, slow, and its timetable unpredictable, due to the current and constantly changing navigational hazards. Everything bound for Assam and East Bengal by land had to cross the Brahmaputra by antiquated ferry until the port of Chittagong, which had been put out of action in the denial programme during the withdrawal from Burma in 1942, had been restored to working order late the following year.

The Assam Trunk Road, 570 miles long, was, in fact, an un-metalled, fair-weather track, which became virtually unusable in the monsoon. Most of the other roads in the region were barely even up to that standard. A one-way tarmac road did run from the railway station at Dimapur over the mountains, through Kohima, to Imphal, where it terminated. There was no road onward into Burma but a rough jungle track had been cut through to Kalewa by the Indian Tea Association to provide the withdrawing Burma Corps with an escape route into India in early 1942. The single-track, metre-gauge railway system that followed the Brahmaputra valley and down to Chittagong was sufficient only for local tea and oil production, with a daily capacity of 600 tons. One telegraph line followed the railway. There was, to begin with, only one airfield in Assam, at Dinjan, near Ledo, in the far North East.

These tenuous lines of communication had to sustain both the forces required for any offensive into North Burma and the airfields being built in North East Assam from which the Chinese were to be supplied 'over the Hump' until a new road could be made. Two corps were assigned to the planned offensive to secure the new overland route: the British IV Corps at Imphal and the corps-sized Chinese Army in India (later re-titled the Northern Combat Area Command), based at Ledo. However, a massive engineering effort was required to improve the capacity of the lines of communication before these forces could be sustained and the intended operations launched. For example, surfacing a twenty four-foot wide, two-way road to all-weather standard required two tons of crushed stone for every yard of its length, and twice that weight of material if it was to be topped in bitumen. Improving the Assam Trunk road alone required about one million tons of stone and tar. Widening the Dimapur-Imphal road to two-way standard required half a million tons. A 1,600 yard all-weather runway required 50,000 tons of crushed stone and cement, and fourteen all-weather fields were built east of the Brahmaputra, many with two or more runways, let alone the taxiways and parking areas. To cope with the work, an organisation known as the General Reserve Engineer Force was raised in April 1943. Starting with some 35,000 labourers, its strength eventually reached nearly half a million, all of whom had to be fed and housed in addition to the troops. Getting the capacity of the Bengal and Assam Railway up to the level needed to support planned operations required a brigade of 4,500 American Railway troops to be superimposed on the existing civilian organisation. By early 1944, however, the capacity of the Assam line of communication had increased three-fold to 1,800 tons per day. But, even with these improvements, provision of fresh meat and vegetables was so difficult that IV Corps started running its own farms, combing out men with the necessary knowledge from within its own ranks. The farms continued production throughout the forthcoming siege of Imphal and, later in the campaign, as an army-level enterprise, produced all the fresh vegetables for the 14th Army.

Despite the effort committed and the improvement achieved, in competition with the American and Chinese commitments, it was to take until the end of 1943 before IV Corps could be deployed to Imphal at its full strength of three divisions and a tank brigade. Even that force level was to prove insufficient for the defence of the base when the Japanese attacked in April 1944, and a further division had to be flown in, adding to the maintenance liability there. When Imphal became surrounded, it was maintained entirely by air for three months from airfields in East Bengal, which were, themselves, supplied by rail from Chittagong. XXXIII Corps' counter attack to relieve Imphal was made possible only by the capacity thus released on the Assam line of communication.

At the tactical level, the British had to find ways of sustaining forces isolated in the jungle. During the defeats of 1942, they had relied almost entirely on the few roads for maintenance

and their defensive positions had been easily outflanked by the Japanese. The Japanese habitually fixed enemy defences with a holding attack at the front while their main effort went into an encircling movement to cut the defenders' lines of communication. The close country and thin spread of troops on the ground provided ample opportunity for that sort of manoeuvre. Successful defence required troops deployed well out on the flanks to prevent the enemy outflanking movement, as well as strong counter attack forces to recover lost ground or destroy enemy road blocks in rear of the position. When the British first tried taking the offensive on the Arakan coast in late 1942, they found that frontal assault against strong, well-sited Japanese positions, which were largely impervious to artillery or air bombardment, was doomed to failure. They, too, had to outflank enemy defences. Both defence and attack, therefore, required troops to live, move and fight for prolonged periods in the jungle, well removed from any road transport. This was eventually achieved by the extensive use of air, water-borne and animal transport. Nevertheless, roads remained important and much of the fighting was for the control of overland routes. Hence, a great deal of effort went into developing a network of motorable tracks in the forward area. Development of all these means of tactical mobility and maintenance, however, required substantial training and the commitment of resources, which, due to the theatre's low priority in the war effort, were slow in coming. They were only just sufficient to sustain the successful defence of Imphal and the relief operation in early 1944, let alone taking the offensive.

The foregoing gives some flavour of the problems that had to be overcome before the British could take the fight back to the Japanese in Burma, and, against that background, we now focus in on Operation EXTENDED CAPITAL, the crossing of the Irrawaddy. Following the first decisive British victory at Imphal, the 14th Army pursued the Japanese back to the Burmese border through the monsoon of 1944, building a rough, fair-weather road behind it as the front advanced. By the end of that year, the British were finally in a position to mount the invasion of North Burma, long demanded by the Americans and Chinese. The Chinese Northern Combat Area Command, under Lieutenant General Joseph Stillwell, had, by then, already advanced well into Burma from Ledo. Slim's original orders were to seize the line of the Irrawaddy between Mandalay and its confluence with the Chindwin, and to link up with the Chinese advance in order to secure sufficient territory for the new overland link to China. Slim may have harboured private aspirations, but there was no mention then of his liberating the whole of Burma. That was to be achieved, if at all, by a separate future amphibious attack on Rangoon, as and when the necessary resources became available. Thus, at the operational level, the design for battle was still determined principally by the strategic logistic purpose of sustaining China.

At the tactical level, with the number of transport aircraft available to him - estimated then at 316 - and the appalling state of the one usable track from Imphal to the border at Kalewa, Slim's staff calculated that the maximum force they would be able to maintain in Burma, even in the dry winter months, was five and two thirds divisions. In the forthcoming summer monsoon of 1945, even that number was reckoned to be unsustainable with the resources available, despite improvements planned for the Imphal-Kalewa road. It was estimated that the Japanese might be able to field up to eight divisions against the 14th Army. Some of them would still be recovering from their defeat at Imphal, but reinforcements and new equipment were still coming into Burma despite the Allied naval blockade and increasing pressures in the Pacific and Philippines. It was clear to Slim that he had to inflict a second, conclusive, defeat on the Japanese before the monsoon, which was due in May, if he was to guarantee success in his mission. He could not be satisfied with just taking the ground as he would probably not be able to hold it through the monsoon. He sought, therefore, to bring the Japanese to battle on the Shwebo Plain, between the Irrawaddy and the Chindwin, where he could use his superiority in

artillery, armour and air-power to negate the enemy's likely numerical advantage. Even that depended upon his ability to bring forward the necessary ammunition, fuel and spare parts. That plan was named Operation CAPITAL, and it was to involve two corps: IV Corps on the left or northern flank, sustained mainly by air, and XXXIII Corps on the southern, right flank, sustained mainly by road and river transport. The track from the Chindwin to Shwebo was as bad as, if not worse than, that from Imphal to Kalewa, and, unlike the latter, work could not start on it before the offensive began. Consequently, substantial use of the river would be essential to the maintenance of XXXIII Corps. To provide the necessary capacity, a boatyard was established at Kalewa to build barges and tugs, mainly out of local and salvaged materials, but with some components brought in overland or by flying boat.

Even as the 14th Army started crossing the Chindwin in December 1944, it became clear that the Japanese were withdrawing across the Irrawaddy to a strong defensive position on the South East bank of the river astride Mandalay, with good road and rail communications back to Rangoon. If Slim was to destroy the Japanese Burma Area Army, as he calculated he must, he would now have to force an opposed crossing of the Irrawaddy and bring the enemy to battle on the far bank. The river is, in places, over a mile wide and runs at up to four knots, even in the dry season, when navigation is complicated by shifting sandbanks. Once across it, the 14th Army would go beyond the limits at which it could be sustained over the line of communication from Imphal, especially during the monsoon. Having defeated the Japanese on the river, therefore, the 14th Army would have to advance on to seize Rangoon in order to sustain itself during the monsoon. If the port was not seized, the Japanese might well counter attack, finding the British much weakened by the need to withdraw troops because of the conditions, and Slim could fail in his mission. There is little doubt that Slim played on this logic to fulfil his aspirations to liberate Burma, but that does not diminish the strength of the logistic argument.

The 14th Army did not have the forces or the engineer resources needed for a straightforward, head-on assault crossing followed by the conclusive engagement in the time available. The nightmare scenario was of a protracted attritional battle on the far side of the Irrawaddy, with the Japanese able to withdraw gradually towards Rangoon while the British were forced to extend their already tenuous lines of communication across the mountains and two major rivers as the monsoon broke. The battle had to be won quickly and the enemy had to be denied the opportunity to withdraw in good order, so it demanded some radical and bold action. During January 1945, Slim chose to employ the Japanese' own offensive tactics against them in a revised plan known as EXTENDED CAPITAL. Leaving XXXIII Corps to fix the enemy's frontal defence by forcing a crossing either side of Mandalay, he changed IV Corps' role and re-directed it on a covert outflanking movement along jungle tracks down the West bank of the Chindwin to cross the Irrawaddy at Nyaungu, some seventy miles behind the Japanese front. The track was so bad that tanks frequently had to be unloaded to tow their own transporters. It could not sustain the Corps after it had passed so, during the march, IV Corps was maintained by air, for which tactical airstrips were built at intervals along the route. When they reached the river, neither of the two corps had sufficient river-crossing equipment, and what little they did have was badly worn by previous use and the wear and tear of being transported forward on such rough lines of communication. Much use was made of local craft, home made rafts and flotation devices, and salvaged Japanese barges. Without proper diving equipment to raise sunken barges, the engineers improvised breathing sets from gas masks connected to a workshop air compressor by a piece of hose. The lash up was so successful that instructions for it are to be found in a subsequent Royal Engineers Training Memorandum.

The crossings were delayed by up to five weeks by the loss of some of the air transport force to the China airlift, overloading and failures of staff-work in the air maintenance organisation, and the fact that the two Corps' ground logistic 'tails' were spread out over three hundred miles of very poor road from Imphal. Nevertheless, by the end of February 1945, both corps were across. The mechanised 17th Indian Division and 255 Tank Brigade then broke out of the bridgehead at Nyaungu to capture the town of Meiktila, which lay astride the lines of communication between Mandalay and Rangoon, cutting both the Japanese supply line and their withdrawal route. The 17th Division had sufficient transport for only two of its brigades, so the third one was flown in, under fire, when a suitable airfield had been captured outside Meiktila. Still, the Japanese were caught almost completely by surprise by the scale of the attack.

Slim, however, could not spare the troops to secure an overland line of communication to the 17th Division at Meiktila, nor could the tracks sustain the traffic. During both the attack and the subsequent three week defence against ferocious Japanese counter attacks, the Division, then surrounded, was maintained entirely by air from Imphal and Chittagong. Fortunately, the airfield at Meiktila was usable most of the time, though on several occasions aircraft were forced to land, unload and take off while ownership of the airfield itself was being contested. As a modern airfield has to be cleared of foreign object debris at regular intervals, so Meiktila had to be cleared of Japanese, dead and alive, before each day's flying programme. At the same time, XXXIII Corps, once across the Irrawaddy, received much of its daily maintenance by parachute, with the tenuous road and river transport used for especially heavy or bulky items as well as building up a reserve stockpile.

In late March, the Japanese Irrawaddy front broke after a month of fierce fighting and the 14th Army started its final race to Rangoon against little more than semi-organised local resistance. Nevertheless, Japanese survivors could still impose substantial delay and the majority refused to countenance surrender. Substantial numbers of them retreated into the mountainous Shan States of eastern Burma. In order to beat the monsoon, the 14th Army had to complete the 300-mile advance in thirty days with tanks and vehicles that were on their last legs. The required speed of advance demanded that virtually all the 14th Army's engineer effort went into maintaining the mobility of the leading echelons, leaving the bare minimum to develop and maintain the lines of communication. Of the latter, only the Imphal-Kalewa road, the Chindwin barge line and the railway south of Mandalay warranted any attention. In order to save on time and effort, the road was surfaced with bitumen-soaked Hessian cloth, a rapid airfield surfacing material which turned out to be eminently suitable and was actually improved by the steady passage of traffic, surviving much of the monsoon. Nevertheless, the railway was to be particularly important once the rains started and road traffic was inevitably interrupted. Two seventy-ton locomotives and many freight wagons were brought in pieces overland from Dimapur to Kalewa and down the Chindwin by barge. Smaller engines were flown in and jeeps were converted into locomotives. The Kalewa boatyard eventually built nearly 600 craft, including patrol boats, based on a barge hull, armed with Bofors guns and powered by truck engines, to protect convoys on the river.

However, virtually the entire daily maintenance requirement for the 14th Army and 221 Group RAF, some 1200 tons per day, had to be supplied by air. Forward air strips, each 900 yards long, were built every fifty miles and isolated units were supplied by parachute. There were just sufficient aircraft available provided they could operate within their maximum economic radius of 250 miles and exceed the allowance of flying hours between major servicing. South of Meiktila, however, the 14th Army would go beyond the 250-mile radius of existing air bases

at Chittagong and Imphal and the extra fuel required would erode the rate at which supplies could be delivered. New air bases, closer to the 14th Army's front, had to be found. The only suitable options were the Japanese fields at Akyab and Ramree on the Arakan coast, which, if captured, extended and improved, could operate transport aircraft and could, themselves, be replenished by sea from India. This requirement had been foreseen as soon as it became clear that the 14th Army would have to cross the Irrawaddy, and the task of seizing the two airfields was given to the independent XV Corps and the Amphibious Force 'W', whose arrival, at last, in South East Asia was timely. The two airfields were brought into action in time to support the 14th Army's final advance.

Anxious to complete the final destruction of the Japanese Burma Area Army, Slim wanted to pursue those who were retreating into the Shan States. However, that would have put his troops beyond the reach of aircraft operating from Arakan and would have slowed down his race to Rangoon, so he settled for a main effort in the Sittang valley axis by IV Corps, supported by a subsidiary advance in the Irrawaddy valley by XXXIII Corps. In that way he could make best use of the aircrafts' range from Arakan and the most direct route with a good road, while trapping the maximum number of Japanese attempting to escape to the East.

In the event, the advance was brought to a halt some thirty miles North of Rangoon when the monsoon broke two weeks earlier than expected. However, the possibility of that, too, had been foreseen and the port was actually taken from the sea by XV Corps just before the monsoon conditions made a landing impossible. Despite being denied the prize at the end of the race, at least the 14th Army was not forced to turn back by the weather so close to its objective, and its supply lines were then assured - though the troops had been fighting on half rations for over a month.

Whatever the limited objectives given him for the re-invasion of Burma, there can be no doubt that Slim's planning was influenced substantially by his desire to recapture the whole of the country. That, however, was a private aspiration that happened to be fulfilled by the opportunity which Slim grasped when he had to cross the Irrawaddy. It is true also that his design for the crossing of the river was aimed at the destruction of the Japanese Burma Area Army, not just the seizure of territory, and that, in itself, was a tactical objective. Behind it, though, we have seen a series of logistic imperatives, which, by way of conclusion, are now summarised. To begin with, the principal Allied strategic aim of fighting in Burma at all after May 1942 was to re-open a supply line to China. However much the British might have harboured designs to use amphibious forces against Rangoon or Malaya, the resources were not forthcoming until the beginning of 1945 - far too late to have influenced the main operational plans. Consequently, at the operational level, the campaign was designed around an offensive into North Burma to secure enough territory for the China link - no more. That was still the case when Slim was directed to enter Burma at the end of 1944. The operational objective changed to the recapture of Rangoon only when Slim had established that he would have to open the port to sustain the 14th Army after it had crossed the Irrawaddy.

At the tactical level, Slim's conclusion that he had to destroy the Japanese Burma Area Army was not just the natural aspiration of any good commander but was forced upon him also by logistic constraints on the size of the army he could sustain in the country. He calculated that, if he did no more than just seizing the territory, he might not be able to hold it through the monsoon against the anticipated counter attack. The same logistic constraints determined that he could not just force a head-on opposed crossing of the Irrawaddy followed by a battle of attrition on the far side with limited time before the monsoon broke. He had to make his bold,

outflanking movement to cut the enemy's lines of communication and withdrawal in order to destroy him quickly. That, in turn, forced him to go on to Rangoon for logistic purposes, achieving a great deal more operationally – and strategically - than his original orders had intended. However, the logistic influence on the overall design of the battle goes higher yet, to army group level, for, as well as drawing Japanese forces away from the 14th Army, XV Corps' protracted amphibious campaign on the Arakan coast had to be mounted to provide the 14th Army with base airfields to support its final advance. Without that imperative, the Arakan offensive would have been a great deal less ambitious.

To finish off, a brief comparison with the logistic circumstances of the other major British offensive operations of the war is worth noting. In the Mediterranean and Europe the British had the benefit of a sea flank, although, in Europe, they did not make best use of it until both the port of Antwerp and the river Scheldt had been opened. In Italy and North West Europe, there was also an extensive network of roads. In Burma, the 14th Army had to build its own road access from India along a derelict, washed out jungle track, and it had to create its own sea flank by seizing Rangoon. The hills between the Irrawaddy and the Arakan coast were effectively impassable. The Army's subsequent reliance upon air transport was made possible mainly by the fact that a division in action got by in that theatre on a bit less than 130 tons per day of daily maintenance supplies. The equivalent figure for a British division in North West Europe was 520 tons per day. In the Mediterranean and Europe, logistics were, in the opinion of L F Ellis, the Official Historian of *Victory in the West*, 'the servant' of operational and tactical imperatives. In Burma, by contrast, operational and tactical plans were, more often than not, decided by logistic possibilities and demands. The 14th Army had to do without, to improvise and to maximise the art of the possible. In doing so, it inflicted upon Japan the greatest land defeat that country has ever suffered in its entire history.

Graham subsequently published his book:

Military Economics, Culture and Logistics in the Burma Campaign, 1942-1945, Routledge 2015

<https://www.amazon.co.uk/Military-Economics-Logistics-Campaign-1942-1945-ebook/dp/B012W8BW68>

