

Article

Post Print

This article is a version after peer-review, with revisions having been made. In terms of appearance only this might not be the same as the published article.

Author(s)

Title

Original Citation

This version is available at:

Access to and use of the material held within the Brunel University Research Archives, is based on your acceptance of the BURA End User Licence Agreement (EULA)

Logistics and Chaco War: Bolivia versus Paraguay, 1932-35¹

Matthew Hughes

The Journal of Military History, Volume 69, Number 2, April 2005, pp. 411-437

Introduction

Covered with low dense vegetation, the Chaco region (Gran Chaco or Chaco Boreal) that separated Bolivia and Paraguay was a flat roadless wilderness inhabited almost exclusively by indigenous Indians. Since their formation as independent republics in the nineteenth century, neither Bolivia nor Paraguay was able to agree on a common border in the Chaco region. Land-locked Bolivia's desire to push across the Chaco to reach the Paraguay river, from whence it could reach the sea, led to clashes with Paraguayan forces in the 1920s that escalated to full-scale war in 1932. With casualty rates equivalent to those of the powers that fought the First World War, the Chaco War, 1932-35, was South America's bloodiest interstate conflict of the twentieth century. In a war in which both sides fielded armies totalling almost 400,000 men, Bolivia lost *c.*2 per cent of its population (56-65,000 dead) and Paraguay *c.*3.5 per cent (36,000 dead).² It saw the mobilization of war economies, the use of French and German military advisory teams, large-scale battlefield engagements, the development of war-time alliances and the deployment of the sorts of modern weaponry that would become commonplace in the Second World War.³ It was a training ground – a South-American Spanish Civil War – for the Second World War, although it is not clear what lessons, if any, the protagonists of the Second World War drew from the Chaco War. As Pierre Mondain aptly noted in *Revue Historique*, the Chaco War 'possède toutes les caractéristiques d'une guerre moderne pour l'époque.'⁴ It was also a war in which Paraguay, by far the smaller, weaker power, emerged victorious in 1935, in control of the entire disputed Chaco region, and so was able to dictate the terms of the peace signed in Buenos Aires in 1938.

The English-language historiography on the war is minimal. Margarita Kallsen's *Referencias Bibliográficas de la Guerra del Chaco* (1982), published in Asunción, lists some 450 books and articles on the war.⁵ Of this total, only fourteen are in English – some of which are dissertations or government publications – and only the two books by Bruce Farcau and David Zook are military as opposed to diplomatic histories of the war.⁶ A more recent Bolivian bibliography published in 1996 lists 187 books on the war, only one of which is in English.⁷ Of the approximately 350 books on the shelves of the Municipal Library in Asunción dealing with the Chaco War, none is in English.⁸ Some journal articles in English, French and Czech add to our understanding of the fighting of the Chaco war, but these articles compare poorly in both quantity and quality to the scholarship on other conflicts of the twentieth century.⁹ Nor is this gap filled by the more general texts on South American history. Harris Gaylord Warren's *Paraguay: An Informal History* (1949) is atypical in that it devotes two chapters to the war; Leslie Bethell's *Cambridge History of Latin America* (1991), in which the war gets but a passing mention, is far more typical and indicative of historical studies focussed on broader societal, economic and political change in the region.

The extensive Spanish-language literature on the war is dominated by publishing houses based in La Paz and Asunción and ranges from battle narratives and personal memoirs from Bolivian and Paraguayan war veterans, to more general studies – sometimes from a Marxist neo-imperialistic perspective¹⁰ – on the military, economic, political and diplomatic dimensions to the war.¹¹ With the exception of the memoirs of the Paraguayan field commander during the war, Colonel (later Marshal) José Felix Estigarribia, none of this corpus has been translated into English.¹² The Spanish-language sources are not at the cutting edge of military-history study. Often written from a partisan perspective by serving or retired soldiers, many simply recount the military events of the war and ascribe victory to personal or national heroism. 'But to this organized and arrogant power we intended to oppose the virile tradition of our people and the discipline of our courage' was Estigarribia's partial and

contestable assessment of why Paraguay won, and one which can be categorized as an ‘heroic interpretation’ of the Chaco War.¹³ It is difficult in the Spanish-language literature to discern any clear trends in terms of a conceptual, analytical or theoretical framework with a critical, objective core that unpacks the main military aspects of the war, precisely the sort of approach that is becoming commonplace for military studies of the other major wars of the contemporary period. David Zook’s *The Conduct of the Chaco War* (1960) was quickly translated into Spanish by an Argentinean publisher in 1962 (as *La conducción de la Guerra del Chaco*) precisely because his contribution was so unlike the South-American books written on the war. Indeed, the best Spanish-language works on the Chaco War such as Alfredo Seiferheld’s *Economía y Petróleo durante la Guerra del Chaco* (1983) take as their primary focus non-military aspects to the conflict, conceptualizing the war in the context of oil, economic change and global capitalism. The role played by the oil industry in promoting and sustaining the conflict with, it is argued, Standard Oil of New Jersey and Royal Dutch-Shell clashing over the potential oil wealth of the Chaco, has prompted a distinct and distracting strand of analysis of the Chaco War.¹⁴ The idea that oil was the determining factor in the Chaco War even found its way into the 1935 ‘Tintin’ children’s adventure story *L’Oreille Cassée* – published in English as *The Broken Ear* – by Georges Remi, who wrote under the name of Hergé. In fact, there is little hard evidence available in company or government archives to support the theory that oil companies had anything to do with causing the war or helping one side or the other during the war.

This article represents a critical ‘new history’ that aims to develop the scholarship on the Chaco War by presenting a military history of the conflict that will argue that a far superior logistical infrastructure built up before and during the war helped to determine Paraguay’s eventual victory. Effective logistical preparations allowed one land-locked state, Paraguay, to engage successfully a superior opponent, also land-locked, in a war with indifferent tactics and, by December 1933, achieve an operational success that led to victory in 1935 and the

realization of the grand strategy (or policy) objective of ending the Bolivian threat to the Chaco region. Logistics is defined here in broader terms than Baron Jomini's 'the practical art of moving armies' or Martin van Creveld's 'the practical art of moving armies and keeping them supplied' to include the preparation of the supply systems that are used once war starts.¹⁵ This more holistic definition is taken from the *Oxford Companion to Military History* (2001) and underpins the analysis in this article: 'Logistics concerns not only the supply of matériel to an army in times of war, but also the ability of the national infrastructure and manufacturing base to equip, support, and supply the armed forces – the national transportation system to move forces – and its ability to resupply these forces once deployed.'¹⁶

Neither Bolivia nor Paraguay had a domestic arms industry before it went to war.¹⁷ The considerable quantities of matériel needed for the Chaco War – including tanks, warplanes, 750-ton naval monitors (used on the river Paraguay), heavy and light artillery, anti-aircraft guns, flame-throwers, trucks, sophisticated optical ranging devices, clothing, saddles, rifles and automatic weaponry – all had to be sourced, ordered, paid for, imported from Europe and America, and then transported to the flat, desolate waste of the Chaco. The lack of matériel was the decisive factor that pushed back the start of the war to 1932. In the 1920s, especially in 1927-28, there were military clashes in the Chaco, but neither side felt able to escalate these border skirmishes until they had acquired the means to fight a full-scale war.¹⁸ From 1921 to 1932, Bolivia and Paraguay busily prepared for war and the process whereby they acquired arms and equipment helped to determine the outcome of the Chaco War.

This is not to say that logistics was the determining factor in Paraguay's victory. During the war, Paraguay had a superior officer corps, better senior command and a far more favourable grand strategy position surrounded as it was by broadly sympathetic neighbouring states. By contrast, Bolivia had a chaotic internal political system, weak military command at all levels,

a poorly motivated army with low morale and was isolated internationally. The war was also fought close to Paraguay's heartland, aiding its eventual success, and when Paraguay went on the offensive in 1934 Bolivia was then able to check its overstretched forces operating far from home. The argument here is that the logistical focus of this article forms a key element in the matrix of factors that helps to explain Paraguay's successes in the Chaco War.

Moreover, the broad discussion of logistics as suggested in this article dovetails with many of the other factors detailed above, thus adding to any complete examination of the more general planning, course and consequences of an oft-neglected twentieth-century war.

Bolivia

At first sight, Bolivia seemed well prepared for a war over the Chaco. It had three times Paraguay's population, an army three times as big and a rich minerals base with which it could sustain itself and earn foreign currency to buy arms. By contrast, Paraguay was extremely poor, had a very weak economy and the British War Office was not alone in concluding that 'unless the Argentine takes a hand, Bolivia should win' in any war against a pre-war 2400-strong Paraguayan army equipped with outdated weapons and one that the British did not consider to be a 'very serious fighting force.'¹⁹ Moreover, in 1926, Bolivia signed a huge arms deal with the British arms manufacturer Vickers-Armstrong that was to provide it with the means to fight a war for the Chaco.²⁰ Farcau costs the arms deal at £3,000,000, later trimmed, due to a fall in the price of Bolivian tin, to £1,250,000 million; Zook prices the deal at £2,190,000, and lists the arms bought as fifteen warplanes, 65 batteries of artillery, 50,000 rifles, 10,000 carbines, 300 machine guns, 760 automatic rifles and 'an abundance of ammunition.'²¹ In Paraguay's submission to the League of Nations in 1934, it estimated the Vickers deal to be worth £3,000,000.²² None of these figures is exact. From May 1926, Captain F.J. Fairburn-Crawford of Vickers had been in La Paz negotiating with the Bolivian government for an arms deal.²³ Worth £1,870,000, the two sides signed the final contract on 2 October 1926.²⁴ The reduced figure of £1,870,000 – or \$9,030,230 at a

1925 exchange rate of \$4.829 to £1 – is still an impressive sum, and it provided Bolivia with everything it needed for a sustained conflict over the Chaco: 196 artillery pieces ranging from 25mm. anti-aircraft guns to 105mm. heavy guns, 36,000 rifles, 6000 carbines, 750 machine guns, 12 warplanes, 2.5 million rounds, 10-20,000 shells for each of the different type of artillery pieces, 20,000 gas masks, helmets, bicycles, wireless equipment, lances, armoured motor-cycles, medical equipment, tents, water-bottles, bags, spades, wagons, plus much else. Vickers also promised to supply Bolivia with its own ‘Arsenal for War Material Manufacture’ that would produce 150,000 cartridges and 10,000 shells per week. Finally, a Bolivian team of five army officers, six army mechanics, three to four airforce officers and four airforce mechanics would go to Britain to train with the new weapons.²⁵ Although Bolivia also negotiated with other companies such as Škoda²⁶ of Czechoslovakia, the Vickers arms deal was the only major arms contract that Bolivia signed with a foreign arms company before or during the Chaco War. The Vickers deal emboldened Bolivia and without it war was unlikely, indeed probably impossible, as without the Vickers arms Bolivia did not have the matériel to fight anything other than brief border skirmishes in the Chaco.

There were, however, four problems with the arms that Bolivia thought that it had acquired: firstly, Vickers for various reasons never sent the full £1,870,000-worth of equipment; secondly, the matériel that did arrive was often of dubious quality; thirdly, neighbouring states such as Argentina and Chile blocked the trans-shipment of Vickers consignments that had been shipped out for Bolivia; finally, the Bolivians were unable to transport the matériel that did arrive to the Chaco front because of a poor internal transport system. This poor logistical preparation helps to explain the defeat of the Bolivian army in the Chaco in 1932 and 1933.

In December 1927, the Bolivians pressed Vickers to expedite the delivery of the arms promised over a year earlier.²⁷ In 1928, the Bolivians presented the British Legation in La

Paz with a long list detailing what Vickers had sent. Missing from the list was the Vickers artillery that would be so important in any war. Shells had arrived but no guns.²⁸ By 1929, due to financial constraints, Bolivia found that it was having trouble paying Vickers and the Bolivian Minister of Finance went to America to try and float another loan with which to pay the company. Moreover, the Bolivians had insufficient ammunition with which to fight any large-scale conflict and the Bolivian pilots for the Vickers warplanes were still untrained.²⁹ With this in mind, in 1929, the Vickers arms deal was reduced to £1,200,000 with, as the British Foreign Office noted, a ‘considerable amount of these arms’ still undelivered.³⁰ By 1930, of the £1,200,000 that was to be shipped out to Bolivia, £458,000 was still outstanding.³¹ It is unclear from the archival sources just how much of the original 1926 arms contract was honoured, but from July 1932 to December 1934 Bolivia received from Vickers £425,158 worth of arms from contracts dated as early as 1927 that obviously had not been fulfilled.³² It is apparent that Bolivia received a fraction – probably about a quarter, maybe a third – of the original 1926 deal and that much of the reduced figure arrived too late to have any effect on the battlefield performance of the Bolivian army. Even British Foreign Office officials were not sure how much of the Vickers contract was realized, estimating in 1932 that war material to the value of £695,885 had been sent to Bolivia, ‘but I am unable to say whether this is in fulfilment of the 1926 contract or of a later one.’³³ As the correspondence in the Vickers archive shows, the Bolivians, with war approaching, complained repeatedly about the delays in shipment, especially concerning the all-important artillery pieces that had yet to arrive.³⁴ In July 1931, a year before the outbreak of the war, Vickers guns were still being tested in Britain and were not ready for export.³⁵ In September 1932, by which time Bolivia and Paraguay were engaged in full-scale hostilities, the British Legation in La Paz ‘hoped that the rest of the Vickers’ equipment will be ready to leave England by the end of October.’³⁶

There were also concerns regarding the quality of the matériel sent by Vickers, especially the guns. Headed by Colonels Merino and Rivera, the Bolivian team in Britain struggled to sort out mechanical problems with Vickers ordnance.³⁷ The complaints from the Bolivians about the quality of the artillery rumbled on into 1931 and 1932, forcing Vickers to send out to Bolivia a small team of mechanics led by Brigadier-General K.E. Haynes.³⁸ The issue of poor quality workmanship was apparent to the British Legation in La Paz:

In view of the complaints that had been received as to the unsuitability of the material supplied under this contract, Messrs. Vickers sent over towards the end of the year [1930] a small commission headed by General Haynes to endeavour to settle the differences which had arisen. It was admitted by Messrs. Vickers' representative that certain of the material was not up to standard and perhaps not entirely suitable for use in this country, but generally the cause was the ignorance of the Bolivian army officers, and the lack of training in ordnance matters....³⁹

The tiny Vickers team headed by Haynes was still testing and tinkering with non-functioning guns and small arms in the field after the war started in 1932. Indeed, in November 1932, a Major Briggs from Vickers – who was unable to speak Spanish and who was described by the British Legation in La Paz as being totally out of his depth in Bolivia – was dispatched to the Chaco front to try and help resolve the matter.⁴⁰ The two sides were still negotiating the issue of broken equipment in May 1933, exactly the moment when Paraguay was fighting and winning the major defensive battles of 1932-33 against Bolivia.⁴¹ Vickers argued that the reason for the problems was not the quality of the matériel but shoddy maintenance by the Bolivian army:

The whole bother with the Bolivians is their absolute want of knowledge of every technical detail of their equipment. Colonel Merino, who is here [in Britain], states

they have had certain trouble with the recuperators [in the artillery pieces]. Of course they have if they use soft soap and yellow grease in them; they are bound to have corrosion and all sorts of other trouble. Every nation that we sell these recuperators to, who have proper technical staffs, have given us nothing but praise.⁴²

While training for Bolivian gunners was fairly basic – about a month’s training was provided in 1932 – there were also real problems with Vickers equipment.⁴³ Regardless of who was at fault, in March 1933, the Bolivians sent back to Vickers in Britain 160 machine guns and 346 Vickers Berthier rifles for ‘rectification’.⁴⁴ The same inventory noted that only four out of eight 105mm. field howitzers had been delivered; of twelve 105mm. mountain howitzers only four had been delivered; of forty-eight 75 mm. mountain guns only twenty-four had been delivered; of thirty 65mm. infantry guns only six had been delivered.⁴⁵ Moreover, instead of being on the high seas on their way to Bolivia, much of the undelivered artillery was still in Britain and it would take months before it was ready to be shipped out to Bolivia. Financial difficulties compounded Bolivia’s predicament as Vickers prevaricated on the repairs promised, worried that Bolivia was unable to pay.⁴⁶ The results were disastrous for the Bolivian army fighting in the inhospitable and remote Chaco region with seriously flawed logistical support. Without a corps of mechanics, Bolivia was forced to fight a war reliant either on a reluctant Vickers’ workforce in Britain, or a handful of Vickers-appointed British military technicians working in the field trying to service a foreign army with alien traditions and methods.⁴⁷

Even when the arms were paid for and shipped-out to Bolivia, neighbouring states often held up, tampered with or denied passage to the arms shipments. The Bolivians knew that they were reliant on the goodwill of their neighbours for the passage of the Vickers arms being shipped from Britain. The Bolivian government informed the British Legation in La Paz that it was ‘exercised in its mind as to by what route they could receive their arms from Vickers,

being surrounded by neighbours whose feelings were not of the best towards them, and through whose territory the arms would have to pass.’ The conclusion of the Under-Secretary was that Chile would refuse passage through its port of Arica, Peru would steal portions of any cargo going through its port of Mollendo, leaving only Argentina for trans-shipment.⁴⁸ The best route for the import of any arms was, indeed, via Argentina.⁴⁹ In 1927, Vickers did not anticipate any difficulty using Argentina.⁵⁰ But by 1928 an increasingly anxious Bolivia was pressing the British government to facilitate the passage of arms through Argentina, as was noted by the British Legation in La Paz: ‘Bolivian government are anxious to ensure safe transit of armaments through the Argentine and have intimated to me that they would be grateful if His Majesty’s Government could in any way smooth the path for these armaments of British manufacture. I replied that this was a very delicate matter but I would convey the message.’⁵¹ The Foreign Office reply, four days later, was to wait on developments, adding: ‘Can it be because Bolivia is preparing to attack Paraguay?’⁵²

By 1929, both Argentina and Chile were obstructing the passage of Vickers arms destined for Bolivia and the former had impounded some shipments, including some German arms destined for Bolivia.⁵³ Bolivia persisted in trying to use the better import routes of Argentina and Chile but both states vacillated, making it impossible for Bolivia to know whether any given shipment would be allowed to pass or not. The Bolivians put pressure on Vickers who, in turn, put pressure on the British Foreign Office to persuade the Argentineans and Chileans. This policy had some success but was time-consuming and imperfect, especially as the Foreign Office was generally uninterested in helping Vickers, fearful of being accused of helping to sustain a foreign war and aware that Vickers’ main concern in pushing for the passage of arms was the fear that it might not get paid if the arms failed to arrive.⁵⁴ By 1933, matters came to a head, with Chile closing off the port of Arica, and Argentina using the excuse of the formal declarations of war issued in 1933 to close its ports and borders to Bolivia.⁵⁵ The closure of the border with Argentina was especially hard for Bolivia as it

relied on Argentina and the Argentinean railhead at Yacuiba not just as a route for Vickers imports but also for the passage of locally produced food and medical supplies that were needed for the Bolivian army in the southern Chaco (and the Bolivian population generally). Indeed, in the first few months of operations in 1932, the Bolivian army in the Chaco ‘would probably have starved’ without help from across the border in Argentina.⁵⁶ As Farcau rightly concluded: ‘...the Bolivian army had always calculated its logistical requirements on the assumption that it would be able to obtain food from just across the Rio Pilcomayo in Argentina.’⁵⁷ As for Chile, in February 1933, it was holding up £300,000-worth of Vickers consignments that had yet to be delivered.⁵⁸ As the British Embassy in Santiago wrote in January 1933 concerning a Vickers shipment that had arrived in Chile: ‘This would, however, be the last consignment of munitions of war which would be allowed to proceed to Bolivia through Chilean territory. There was another consignment of 1,200 cases on its way. The Bolivian Minister would be informed today that it must be deflected to some other port and that all future consignments must be shipped through some territory other than Chilean.’⁵⁹

In February 1933, the Bolivians were complaining that the closure of Arica meant that they were cut off from the outside world as Argentina was becoming impossible to deal with and Mollendo in Peru was unsuitable. Therefore, Bolivia was unable to take delivery of any more Vickers equipment.⁶⁰ In fact, Mollendo remained open, as the Bolivians noted in April 1933, but, by late 1933, it was the only major entrepôt for Bolivia with the wider world.⁶¹

Consequently, because of the difficulties with Argentina and Chile, Bolivia asked Vickers to send future shipments by way of Mollendo in Peru.⁶² This, however, was far from ideal as passage via Mollendo usually meant that ‘vital parts of armaments’ went missing while on transit through the port of Mollendo or on the Southern Railway of the Peruvian Corporation that snaked its way from Mollendo up to La Paz, the world’s highest capital city.⁶³

The one remaining window with the outside world for Bolivia was Brazil, a country willing to provide trans-shipment facilities before and during the Chaco War. In 1928, the Brazilian Ministry of War had permitted the transit of Vickers munitions of war from the Brazilian port of Santos to the Bolivian border town of Puerto Suárez in the northern Chaco.⁶⁴ The route was, however, a dead-end in that any arms delivered to Puerto Suárez from Santos could go no further as the Bolivians had no railway or metalled road on their side of the border.⁶⁵ Moreover, Bolivia's *schwerpunkt* in the Chaco War was in the south, in the area just north of the Pilcomayo river, and it was impossible to move the arms at Puerto Suárez from the minor war zone in the northern Chaco to the main zone of fighting in the south because of poor internal communications within Bolivia. In effect, the Bolivian war zones in the north and south of the Chaco were discrete, and only the less important one in the north could use Brazil's railway to the port of Santos. Thus, only a fraction of the Vickers arms went to Puerto Suárez, and that which did go there was only of use for fighting in the northern Chaco.

Neither were Bolivia's roads and railways able to transport to the Chaco the matériel that did reach the country from abroad. To feed the main southern front in the Chaco, the Bolivians could use either the Argentinean railway line to Yacuiba or the Tarija/Villazón⁶⁶ railhead in Bolivia; the railheads at Sucre or Arani supplied the northern front. Taking Fortín Boquerón as the main point of fighting in the southern Chaco in 1932-33, the Yacuiba railhead, closed by Argentina in 1933, was 250 miles in a straight line from the front. Once Yacuiba was closed, the Bolivians were left with the Villazón railhead, approximately 400 miles in a straight line from the front, while in the north the railheads at Sucre or Arani were some 500 miles from the northern front.⁶⁷ Unpaved, dirt roads went from the railheads to Puerto Suárez in the north and Fort Muñoz (and the 23rd parallel region) in the south, from whence lesser feeder roads connected with the shifting front lines.⁶⁸ As the London *Times* concluded, the total distance from La Paz to the Chaco was 1000 miles, of which 'only 500 miles are covered by rail. Over the remaining distance runs a narrow and broken road, at first over high

rocky plateaux, and then over wooded mountain slopes down to the flat plains of the Chaco jungle.⁶⁹ The assessment of the British Legation in La Paz was that the roads from the railhead at Villazón to Villa Montes and Fort Muñoz and beyond were ‘sandy and apparently of little use for cars or lorries....Lorries and cars apparently sink in the sand or else their engines are ground out with the dust. The road between Villa Montes and Fort Muñoz is said to be strewn with wrecked cars and lorries and there is supposed to be a fifty-kilometre stretch where motor cars cannot pass.’⁷⁰ The Bolivians’ hasty sequestration of private cars and the establishment of a ‘chauffeurs’ corps’ did little to overcome the more fundamental issue of a lack of a repair service for the automobiles forced into service on unsuitable roads.⁷¹ In December 1932, a report from the La Paz Legation to the Foreign Office spoke of roads strewn with broken-down trucks and it was emphatic that ‘conditions of transport between Tarija and Villa Montes must be appalling; automobiles cannot be driven on account of the depth of the sand....between Villa Montes and Muñoz the road crosses the river twice and the lorries must be taken over pontoon bridges; with the advent of the rains⁷² and the floods these will be impossible, and communication with Muñoz can then only be by air.’⁷³ The consequence of the breakdown in transport was that in July 1932, at the start of the war, the Bolivians were forced to leave behind in La Paz Vickers and Schneider guns that they needed for the front, leaving their soldiers without the necessary fire support for intense battles against a determined, entrenched enemy.⁷⁴

In 1928, the British Legation in La Paz estimated that Bolivian troops would have a two weeks’ march across their own territory to get to the Chaco and that Bolivia’s ‘inordinately long lines of communication’ gave Paraguay a distinct advantage in the Chaco.⁷⁵ There was also the question of the drop in altitude from 12,000 feet at La Paz to 500 feet in the Chaco that increased the wear and tear on both men and transport facilities. By 1932, the estimate for the journey to the front had improved: one-and-a-half days by rail and two days by road to Villa Montes, and a further three days on foot to Fort Muñoz was the usual journey time.⁷⁶

From Fort Muñoz, however, it was still, at least in 1932-3, some distance to the front line. With the exception of limited supply runs by aeroplanes, once the railheads had been passed, everything had to go by these unsuitable dirt roads as river transport via the Pilcomayo river was impossible as it was not navigable to anything but the smallest flat-bottomed craft. Not only a physical but also a psychological distance separated Bolivia from the Chaco. The average Bolivian had never been anywhere near the Chaco and had not the 'slightest expectation of visiting it in the course of his life.'⁷⁷ Moreover, the average Bolivian peasant conscript, acclimatized to conditions on the high lands of Bolivia, suffered badly in the harsh climate of the lowlands Chaco region.

Bolivia's internal transport infrastructure simply could not bear the weight of the Chaco War. The Bolivians knew that their communications compared unfavourably to those of the Paraguayans⁷⁸ but, as with the arms imports, a curious optimism – perhaps fatalism is a better word – drove on their army. Outside military observers commented on the poor staff work of the Bolivians, the improvisation, extemporization and general lack of planning, but, above all, 'It was an army with troops, but no service.'⁷⁹ The consequence of the poor logistical preparation was that, from June 1932 to July 1933, Paraguay was able to check Bolivia's initial assault at the battles of Boquerón, Toledo and Nanawa, before going on the offensive, in late 1933 and 1934, capturing Fort Muñoz, Picuiba and Cañada Strongest, and driving the Bolivians from all the Chaco by 1935.

Paraguay

The interest in Bolivia's Vickers deal rather overshadows Paraguay's attempts at buying arms. Paraguay began acquiring foreign arms – from the French firm Schneider – in 1921 and thereafter embarked on a clever multi-source arms buying strategy that would take it to victory in the Chaco War.⁸⁰ Notwithstanding the abject poverty in which most Paraguayans lived, in 1922, Paraguay spent some \$200,000 in gold on arms, worth approximately

£40,000.⁸¹ As Zook noted, the turning point for Paraguay came in 1925 when its President, Eligio Ayala, ‘launched a program of arms acquisition for Paraguay designed to equip a modern army of 24,000 with the latest equipment.’⁸² Zook’s estimate was that Paraguay paid \$4,730,733 for arms from 1926 to 1932, a figure that represented some 60% of Paraguay’s national income, and one confirmed by Spanish-language secondary sources.⁸³ The Bolivian estimate was that Paraguay in 1931-32 was spending 32% of its total income on its army.⁸⁴ The plan was to create a 24-30,000-strong army: four combat groups of 5820 men each with organic engineers, artillery, etc.⁸⁵ According to Zook, Paraguay’s arms contracts in 1926-27 in Europe ‘exceeded \$2,000,000 and included rifles, pistols, sabres, ammunition, 24 Schneider 75 mm. guns, shells, aircraft engines, 7 Wilbault pursuit planes, 7 Potez “25s”, saddles, blankets, uniform equipment, mule harnesses, tents, and the like.’⁸⁶ Also included were two Italian-built gunboats, 7,000 Belgian Mausers, 200 Madsen automatic rifles, ammunition and 24 Stokes-Brandt mortars (the mortars costing \$67,581).⁸⁷

If Zook over-estimated Bolivia’s deal with Vickers, he under-estimated the scale of Paraguay’s arms buying. Marcial Samiengo used the Paraguayan Ministry of Defence archive in Asunción (the Departamento de Archivo del Ministerio de Defensa Nacional) for his book entitled *Las FF. [Fuerzas] AA. [Armadas] de la Nación en el Decenio de la Pre-Guerra del Chaco hasta la Victoria de Boquerón* (1979). In it, he shows that Paraguay was thinking of buying arms from 1923 but the key turning point was Executive Order 21.211 of 29 July 1925 – dated 9 July by Jorge Antezana Villagrán⁸⁸ – that authorized the expenditure of 1,810,000 gold pesos, equivalent to £348,715, on arms acquisition in Europe.⁸⁹ However, the actual sum expended on arms greatly exceeded this total. Samiengo records that by 1932 Paraguay had spent \$5,926,890 on arms – equivalent to a sum of between £1,227,354 and £1,244,677 – and, using the relevant government files, he details the purchases that make up this figure.⁹⁰ This total of almost £1,250,000 compares favourably to the c.£400,000-worth of often poor-quality Vickers equipment that eventually found its way to Bolivia.

The Ministry of Defence archive in Asunción confirms the extent of Paraguay's arms buying strategy both in terms of money spent and matériel purchased. The Paraguayans appointed General Manlio Schenoni to head up their arms-buying team that went to Europe in the late 1920s. When Schenoni came home in 1929, to become Minister of Defence, his team, based in Belgium, remained in Europe, helped by the Argentinean General Manuel Costa of the 'Comisión Técnica Argentina de Adquisiciones en el Extranjero.'⁹¹ The range of European and American arms companies used by Paraguay is impressive. In 1926, the Paraguayans bought \$300,756-worth of Mauser rifles and cartridges from Spain's Fábrica Nacional de Oviedo and 176 Madsen machine guns from Denmark's Dansk Rekylriffel Syndicat valued at £47,775 (worth some \$230,000).⁹² After 1927 the arms buying increased exponentially and, from 1927 to 1932, the Paraguayans, led by Schenoni, negotiated for multiple orders of military equipment from America, Argentina, Belgium, Britain, Chile, Denmark, France, Germany, Holland, Italy, Spain, Sweden and Switzerland.⁹³ Seiferheld lists thirty-three contracts from February 1927 to February 1929.⁹⁴ This is probably an understatement. The range of orders placed and companies used was extensive, as the following indicative list shows:

- In February 1927, the Paraguayans signed a contract with the Belgian Établissements Jules Fonson of Brussels for 400 cavalry sabres;⁹⁵
- In February-March 1927, the Paraguayans bought eleven million 7.65 mm. Mauser cartridges from Fabrique Nationale d'Armes de Guerre of Liège;⁹⁶
- In April 1927, the Paraguayans bought from the same Fabrique Nationale d'Armes de Guerre 304 Browning pistols and 25,000 cartridges;⁹⁷
- In August 1927, Schenoni bought military clothing from the Spanish as the Paraguayan army was changing its uniforms from khaki to green to match the terrain of the Chaco;⁹⁸

- In 1927-28, the Paraguayans negotiated with the Dutch company, Nederlandsche Instrumenten Compagnie of Venlo, for range-finding equipment (Telémetros) for their artillery;⁹⁹
- On 26 March 1928, Schenoni was in Germany buying equipment, including clothing and saddles, a trip for which he spent \$77,000;¹⁰⁰
- On 6 November 1928, the Paraguayans bought £15,759 of uniforms from Germany (equivalent to \$77,000) with the Bank of England providing the finance and transferring the money;¹⁰¹
- From 1927-29, the Paraguayans bought Colt weaponry from Colt Patent Firearm Company of USA (and shipped to Paraguay through Buenos Aires);¹⁰²
- On 7 January 1929, Schenoni was back in Denmark at the Dansk Rekyllriffel Syndicat Copenhagen buying more Danish Madsen automatic weaponry;¹⁰³
- From 1930-31, the Paraguayans bought aerial photography equipment (that could be used for map-making) and binoculars from the French; also Schneider-supplied rifles and cartridges from France;¹⁰⁴
- On 17 January 1931, the Fabrique Nationale d'Armes de Guerre of Liège recorded that the Paraguayans had \$134,634 (£27,880) yet to pay, with \$177,414 (£36,739) already paid.¹⁰⁵

The Paraguayans drained their economy to raise the hard currency needed to pay for these arms, including, in 1929, an internal loan of £470,000 (100 million Paraguayan pesos), 70% of which was used to buy arms.¹⁰⁶ The result was a thorough preparation for war that, while it caused some difficulties in terms of equipment standardization, overcame the potential problem of one arms company dispatching poor-quality equipment. The policy adopted by the Paraguayans allowed them to buy the best from each European country and meant that they could play one company off against another to get what they wanted at the best price.

Having wisely sourced their arms abroad, Paraguay had three additional advantages over the Bolivians: firstly, Paraguay's neighbours, notably Argentina, trans-shipped matériel before and during the Chaco War; secondly, it established a workable internal transport network to take matériel to the Chaco front; finally, Paraguay made intelligent use of local Mennonite communities in the Chaco to help its war effort.

Argentina was the key state for the import of arms to Paraguay. Its position vis-à-vis Paraguay was neatly summed up in a British Legation annual report from La Paz that compared the Chaco War to Europe in 1914 with Paraguay as Serbia, Bolivia as Austria-Hungary and Argentina as Russia.¹⁰⁷ Fearful of Bolivian expansionist claims in the region, and seeing Paraguay as a vassal state, Argentina provided Paraguay with consistent support before and during the Chaco War. Not only did imported arms enjoy free passage on Argentinean rivers and railways that connected with Paraguay, Argentina also supplied Paraguay with arms and munitions from its arsenals and helped with political and military advice.¹⁰⁸ Argentina provided the arms free or on very favourable financial terms.¹⁰⁹ It also gave Paraguay the use of various domestic facilities such as the Córdoba aircraft factory in Argentina that repaired the motors of Bolivian warplanes downed in the Chaco so that the Paraguayans could reuse them.¹¹⁰ Meanwhile, the Argentinean army deployed on the right bank of the Pilcomayo river, ostensibly for reasons of national security, but this served as a flank protection for the Paraguayan army and simultaneously exposed the Bolivian flank.¹¹¹

The help afforded by Argentina was not lost on local diplomatic staff. In August 1932, the British Chargé d'Affaires in Asunción wrote to the Buenos Aires Embassy:

More important, however, is the fact, which seems to be undoubted, that Paraguay has been drawing supplies of war material, including ammunition, from the Argentine arsenals, and I have even been assured that Paraguay has practically carte blanche to

draw thereon whatever she may require. There is no doubt that goods consigned to the Paraguayan Government have arrived both by rail and by river not appearing on any manifest, while other material arrives in even less orthodox fashion from unnamed places in Argentina, on the opposite bank of the River Pilcomayo. The concentration of Argentine troops on the southern bank of the Pilcomayo, which is also reported, is, of course, quite legitimate in order to maintain Argentine neutrality. It is expected, however, that this neutrality will be extremely benevolent as far as Paraguay is concerned.¹¹²

Not only did equipment pour into Paraguay from the south but Argentinean air force pilots were also said to have been allowed to ‘retire temporarily’ so that they could fly for Paraguay.¹¹³ The Argentineans even helped in the field of intelligence, with the Argentinean Legation in La Paz providing Paraguay with the keys to Bolivian general staff ciphers. This act is said to have been a determining factor in Paraguayan military successes in the Chaco in 1934.¹¹⁴

While Chile was unable to provide Paraguay with the same level of direct support as Argentina, its long-standing dispute with Bolivia over its northern littoral around the town of Arica, which Bolivia had lost in the nineteenth century and wanted back, meant that its sympathies lay with Paraguay.¹¹⁵ Certainly, strategy dictated that Chile provide support for Paraguay against a potential enemy keen to gain access to the sea – be it through Paraguay or Chile. After all, if Bolivia gained an outlet to the sea in the Arica desert region, Chile would lose the profitable and politically influential control that it had over Bolivia. Finally, even Brazil and Uruguay seem to have helped Paraguay.¹¹⁶

Matériel that arrived in Paraguay from Argentina came either via the Paraná and Paraguay rivers or by Argentinean railways to the southern Paraguayan town of Encarnación on the

Paraná river. The river route was capable of taking large ships as far as Asunción. The Central Railway of Paraguay (the Ferrocarril Central del Paraguay), completed in 1909, with a link with Argentina established in 1913 by a ferry-boat service across the Paraná river at Encarnación, took goods into Paraguay to the terminus at Asunción.¹¹⁷ Using either the railway or the river network, goods could be brought via Argentina quickly and safely to Asunción. From the Paraguayan capital, men and matériel for the Chaco front were then dispatched by ship up the Paraguay river. In 1926, Paraguay had been careful to order from Italy two 750-ton monitors, both of which arrived in 1931.¹¹⁸ These warships, the Cañonero Paraguay and Cañonero Humaitá, provided the next link in Paraguay's logistical system, and were part of a naval expansion program that saw an increase in naval personnel from 650 in 1925 to 10,000 in 1935.¹¹⁹ Supplemented by the Paraguayan merchant fleet, five cargo vessels and two passenger ships converted to hospital ships, the Paraguay and Humaitá ferried the Paraguayan army in speed and comfort to Puerto Casado, upriver from the Paraguayan capital, each ship capable of taking a full battalion of men.

Unlike Bolivia, Paraguay had a railway network in the Chaco. In total, five private narrow-gauge railways, with a combined length of 425 kms (266 miles), stretched out west into the Chaco from the banks of the Paraguay at the following river ports: Puerto Casado (160 kms or 100 miles), Puerto Pinasco (130 kms or 81 miles), Puerto Sastre (90 kms or 56 miles) and smaller lines at Puerto Guaraní and Puerto Palma Chica.¹²⁰ These lines had been built to exploit the resources of the Chaco, in particular the Quebracho 'axe breaker' tree used for the production of tannin. Once the war started, the Paraguayan government rented the Chaco railways from the private logging companies. The railway at Puerto Casado, that stretched 100 miles into the Chaco, was the main line used by the Paraguayan army. Troops from Asunción, ferried up river to Puerto Casado, would make the journey into the Chaco by rail. From the railhead, it was a short 70 kms (44 mile) march to Isla Poi, the central base for the Paraguayan army in the Chaco.¹²¹ This became a rapid means of moving around men and

equipment. For example, Estigarribia, the Paraguayan commander, was able to leave his GHQ at Villa Militar in the central Chaco and, travelling by rail to Puerto Casado and then ship up the Paraguay river, reach Bahía Negra in the far north of Paraguay early in the morning of the next day.¹²² Obviously, as a senior commander Estigarribia had priority on travel but the speed with which he moved from one war zone to another suggests that Paraguay had a flexible and efficient internal transport system. All of the key battles of 1932 and 1933 were fought within a reasonable distance of the Puerto Casado railhead, giving the Paraguayans a logistical edge over their Bolivian opponents.

The final factor working in Paraguay's favour was the presence in the central Chaco of friendly settler colonies of Protestant (Anabaptist) Mennonites. There are now three Mennonite colonies in the Chaco, with the town of Filadelfia as their administrative centre. The first colony arrived from Canada in 1926 and established Colonia Menno at Loma Plata in April 1928; the second colony was established by Soviet/Russian settlers at Fernheim from 1930 to 1932; the third colony at Neuland was established after the Chaco War in 1947.¹²³ In July 1925, the Paraguayan parliament passed Law 514 that granted the Mennonites a *Privilegium* exempting them from military service and giving them local religious and civil autonomy. Following the passing of Law 514, there 'came a most cordial invitation to the Mennonites to make Paraguay their home' and Mennonites from Canada and the Soviet Union, whose way-of-life was under threat, subsequently moved to the Chaco.¹²⁴ For the Paraguayans, the Mennonites represented a hard-working frontier settler community that would help them stake their claim to a wilderness area inhabited only by indigenous peoples. The irony was that the Paraguayans were using the pacifist Mennonites as their 'weapon' to secure the Chaco: 'Mennonite ploughshares would function as "swords".'¹²⁵ The advantage for the Paraguayans extended beyond that of staking a claim to the Chaco: the heavy fighting in 1932-33 in the Chaco occurred just to the south of the Loma Plata and Fernheim colonies and the agriculturally minded Mennonites supplied the Paraguayan army with various fresh

foodstuffs, thus supplementing the cattle brought on the hoof for the army.¹²⁶ While the Chaco War was a dangerous time for the Mennonites – munitions and body parts from the Chaco War are still being turned up by Mennonite farmers, some of which is deposited in the Museo Unger in Filadelfia – it was also a beneficial period as the Paraguayan army was a local market for their surplus food production.¹²⁷ As with the arms-buying strategy initiated in 1925, the Paraguayans were pro-active and forward-thinking in settling the Chaco with Mennonites, providing for themselves a local source to help with logistics.¹²⁸ The Bolivians tried to start a similar scheme with 400 German settler families before the First World War but before they could settle the Chaco the Great War broke out and the scheme collapsed.¹²⁹

Conclusion

While Paraguay's victory in the Chaco War was a function of a combination of factors, as this article has attempted to show, better preparation and planning for war were key dynamics that facilitated the triumph of a financially and economically weak state over its larger Bolivian adversary with its German-trained and British-equipped army. When full-scale war started in 1932, Paraguay had the logistical train in place to fight a long war. Its shrewd policy of multi-sourced arms buying before the war provided the right mix of weaponry that equipped the men who went rapidly by river, rail and foot to the Chaco front. Although land-locked, throughout the conflict, Paraguay kept open its international supply lines through Argentina, allowing it to nourish its army in the defensive battles of 1932-33 and then build up its forces for the grand offensive of 1934-35. Bolivia, meanwhile, had been poorly served by the Vickers company, whose arms never arrived in sufficient quantity or quality to allow its army to overcome the disadvantage of fighting at the end of ridiculously over-extended supply lines with few local allies willing to provide the transit facilities for the importing of the matériel needed for a long war. Victory and defeat in the Chaco War was the result of a combination of reasons but logistics was a key element in this, and the Bolivians' misplaced hope that their German-trained army would be able quickly to overcome the smaller

Paraguayan reinforces the old maxim: amateurs talk tactics, professionals talk logistics. Or, as Field Marshal Erwin Rommel put it, ‘the battle is fought and decided by the quartermasters before the shooting begins.’¹³⁰

¹ For help in the production of this article the author would like to thank: Enriqueta Garrido of University College Northampton; Colonel Agustín Olmedo Alvarenga, Director of the Instituto de Historia y Museo Militar, Asunción; Ramón Flores Gaona, Deputy Director of the Instituto de Historia y Museo Militar, Asunción; Lieutenant Rafael Alberto Ruiz Ferreira, Ministerio de Defensa Nacional, Asunción; the staff of the Museo Histórico Boquerón, Fortín Boquerón, Gobernación de Boquerón, Paraguay; the staff of the Museo Unger, Filadelfia, Paraguay; the staff of the Departamento de Archivo del Ministerio de Defensa Nacional, Asunción; the Vickers Archive, Cambridge University Library, for permission to reproduce material from the Vickers papers; the British Petroleum Archive, University of Warwick, for permission to quote from its collection; Paul Ledvina and the Public Affairs Section of ExxonMobil (formerly Standard Oil Company New Jersey), USA; and Veronica Davies and the staff of the Shell Group Archive, London. Crown copyright material in the National Archives London (incorporating the Public Records Office) is reproduced by permission of the Controller of Her Majesty’s Stationery Office.

² Paul H. Lewis, “Paraguay since 1930,” *The Cambridge History of Latin America. Latin America since 1930. Spanish South America*, ed. Leslie Bethell (Cambridge: Cambridge University Press, 1991), 8: 234; Paul Robinson, “Forgotten Victors: White Russian Officers in Paraguay during the Chaco War, 1932-5,” *The Journal of Slavic Military History* 12/3 (September 1999): 178.

³ For information on the foreign military missions, see Extract of Report on Paraguay by Acting Consul F. W. Paris (Asunción), 10 January 1920, in FO 371/4542, f.9, National Archives London (formerly the Public Records Office) [hereafter NA]; War Office to Under Secretary of State at Foreign Office, 24 August 1920, in FO 371/4429, f.393, NA; British Legation Santiago to Curzon, 25 February 1921, in FO 371/5532, f.213, NA; Frederick M. Nunn, *Yesterday’s Soldiers: European Military Professionalism in South America, 1890-1940* (Lincoln and London: University of Nebraska Press, 1983), 304-5; and Robinson, “Forgotten Victors,” 178, 180.

⁴ Pierre Mondain, “La guerre du Chaco: Paraguay contre Bolivie (1932-35),” *Revue Historique* 267/1 (January-March 1982): 43.

⁵ See also David Lewis Jones, *Paraguay: A Bibliography* (New York and London: Garland, 1979), 171-190, and R. Andrew Nickson, *Paraguay* (Oxford: Clío, 1999).

⁶ Bruce W. Farcau, *The Chaco War: Bolivia and Paraguay, 1932-35* (Westport, CT and London: Praeger, 1996) and David H. Zook *The Conduct of the Chaco War* (New Haven, CT: Bookman, 1960). Zook's volume was translated into Spanish as *La conducción de la Guerra del Chaco* (Buenos Aires: Policarpo Artaza, 1962).

⁷ Delma Sejas de Torrico and Beatriz Bozo Jivaja, *Bibliografía tema Guerra del Chaco* (La Paz: Honorable Senado Nacional Biblioteca del Congreso, 1996).

⁸ Of this total of 350 many are multiple copies of the same book.

⁹ G. H. N. Larden, "The Chaco War," *Journal of the Royal United Services Institute* 79 (1934): 139-44; Adrian English, "The Chaco War," *Army Quarterly and Defence Journal* 109/3 (1979): 350-58; Ronald Stuart Kain, "Behind the Chaco War," *Current History* (August 1935): 468-74; J. W. Lindsay, "The War over the Chaco," *International Affairs* 14/2 (March-April 1935): 231-240; Robinson, "Forgotten Victors," 178-185; John Hoyt Williams, "The Chaco War, 1932-35," *Strategy and Tactics* 110 (1986): 7-10; Mondain, "La guerre du Chaco," 43-64; Yves Salkin, "Action des attachés et conseillers militaires français en Amérique Latine de 1919 à 1940," *Mondes et Cultures* 46/3 (1986): 521-30; Bohumil Bad'ura, "Československé zbrane a diplomacie ve válce o Gran Chaco," *Sborník historický* 24 (1976): 137-185; and Tomáš Jiránek, "Českoslovenští důstojníci ve válce o Gran Chaco," *Historie a vojenství* 43/4 (1994): 40-49.

¹⁰ Such as Julio José Chiavenato, *La Guerra del Chaco: petróleo* (Asunción: Schauman, 1989). First published in Portuguese as *Guerra do Chaco (leia-se petróleo)* (São Paulo: Editoria Brasiliense, 1979).

¹¹ For military accounts, see Roberto Querejazu [or Queregazu] Calvo, *Masamaclay: historia, política y militar de la Guerra del Chaco* (La Paz: Editorial Los Amigos del Libro, 1975); Roberto Querejazu [or Queregazu] Calvo, *Historia de la Guerra del Chaco* (La Paz: Librería Editorial Juventud, 1990); Demetrio Canelas, *La guerra del Chaco: documentos* (Cochabamba, Bolivia: Editorial Canelas, 1987); Pedro Medina, *La Guerra del Chaco* (Asunción: Dirección de Publicaciones de las FF AA NN, 1985) two volumes; Salustio Selaya Peláez, *Documentos y Memorias de la Guerra del Chaco* (La Paz: Empresa Editora Urquiza, 1972); Guido Chase Sardi, *La guerra del Chaco: preparación militar del Paraguay antes de la Guerra* (Asunción: Editora Litocolor SRL, 1992-6); Jorge Antezana Villagrán, *La Guerra del Chaco: análisis y crítica sobre la conducción militar* (La Paz: Editorial Calama, 1981-2), two volumes; Luis Vittone, *La guerra del Chaco* (Paraguay[?]: n.p., 1986[?]), three volumes. For wider aspects to the war, see Elio M. A. Colle, *El drama del Paraguay* (Buenos Aires: Editorial Claridad, 1936); Justo Rodas Eguino, *La Guerra del Chaco: interpretación de política internacional americana* (Buenos Aires: Bernabe, 1938); and Alfredo M. Seiferheld, *Economía y petróleo durante la Guerra del Chaco* (Asunción: Instituto Paraguayo de Estudios Geopolíticos e Internacionales, 1983).

¹² First translated by Pablo Max Ynsfran, ed., *The Epic of the Chaco: Marshal Estigarribia's Memoirs of the Chaco War, 1932-35* (Austin: University of Texas Press, Institute of Latin American Studies, Latin American Studies 8, 1950).

¹³ Ynsfran, ed., *The Epic of the Chaco*, 14.

¹⁴ In English, see Michael Gillette, "Huey Long and the Chaco War," *Louisiana History* 11/4 (1970): 293-311; Herbert S. Klein, "American Oil Companies in Latin America: The Bolivian Experience," *Inter-American Economic Affairs*, 18/2 (Autumn 1964): 47-72; and Standard Oil Company of Bolivia, *Confiscation: A History of the Oil Industry in Bolivia* (New York: Standard Oil Company of Bolivia, 1939). In Spanish, see Chiavenato, *La Guerra del Chaco* and Seiferheld, *Economía y petróleo*. The dust jacket of Peláez's *Documentos y Memorias* has an image of three oil derricks above some oil storage tanks next to a hand holding a rifle, a reflection of the unproven assumption that the Chaco War was fought over the supposed oil deposits of the Chaco.

¹⁵ Martin van Creveld, *Supplying War: Logistics from Wallerstein to Patton* (Cambridge: Cambridge University Press, 1977), 1.

¹⁶ Richard Holmes, ed., *The Oxford Companion to Military History* (Oxford: Oxford University Press, 2001), 513.

¹⁷ Minutes of Evidence taken before the Royal Commission on the Private Manufacture of and Trading in Arms. First day (1 May 1935) in *Royal Commission on the Private Manufacture of and Trading in Arms (1935-36) Report* (London: HMSO, 1936), 4, 12-3, in Royal Commission on the Private Manufacture of and Trading in Arms. Evidence Submitted, Findings of Commission and Documents Compiled at London Office for the Use of the Witnesses of the Vickers Group, 1935-1936, in File 60, Vickers papers, Cambridge University Library [hereafter CUL]. See also Margaret Le Foy, *The Chaco Dispute and the League of Nations* (dissertation, 1941; published, Ann Arbor, MI: Edward Brothers, 1946), 80; Editorial, "Feeders of War," *The Spectator* (18 May 1934): 764-5; and *League of Nations. Dispute between Bolivia and Paraguay. Report of the Chaco Commission 1934*, C.154.M.64.1934.VII.1, 28, 54, 57.

¹⁸ For clashes in 1921, see FO 371/5574, ff.100-106, NA; for clashes in 1927, see William L. Schurz, "The Chaco Dispute between Bolivia and Paraguay," *Foreign Affairs* 7, 1/4 (1928-29): 654.

¹⁹ War Office (M12) Assessment entitled "Appreciation of the situation between Bolivia and Paraguay," 27 July 1928, in FO 371/12730, NA.

²⁰ Wiswould (Department of Overseas Trade) to Torr (FO), 9 January 1928, in FO 371/12738, NA; Michell (British Legation La Paz) to Austen Chamberlain, 5 January 1928, in FO 371/12738, NA.

²¹ Farcau, *Chaco War*, 20; Zook, *Conduct*, 48. The £1.25 million figure is corroborated in FO 371/13451, f.97, NA.

²² *League of Nations. Dispute between Bolivia and Paraguay. Memorandum from the Bolivian Government dated 12 February 1934 and Memorandum from the Paraguayan Delegation dated 8 March 1934. 11 June 1934 (C.255.M.104.1934.VII.5)*, 9.

²³ British Legation La Paz to Austen Chamberlain (FO), 3 May 1926, in FO 371/11114, ff.5-6, NA.

²⁴ Michell (La Paz) to FO, 2 October 1926, in FO 371/11114, f.14, NA. Some British Foreign Office correspondence gives the date for the contract as the 7 October 1926.

²⁵ Copy of agreement made between Messrs. Vickers Ltd. and the Bolivian government for a supply of armaments, [October 1926], in FO 371/11114, ff.31-60, NA.

²⁶ War Office (M12) Assessment entitled "Appreciation of the situation between Bolivia and Paraguay," 27 July 1928, in FO 371/12730, NA.

²⁷ FO to Scott (Santiago), 16 December 1927, in FO 371/11962, f.258, NA.

²⁸ Bolivian Ministry of War to Michell (British Legation La Paz), 20 October 1928, in FO 371/12741, ff.208-9, NA.

²⁹ Robertson (British Legation La Paz) to Austen Chamberlain (FO), 18 May 1929, in FO 371/13465, ff.28-9, NA.

³⁰ Minute/note by T. M. Snow (FO) on Memorandum on Paraguay-Bolivia border clash, 22 November 1929, in FO 371/13451, f.97, NA.

³¹ Fountain (Board of Trade) to Under-Secretary of State (FO), 19 February 1930, in FO 371/14197, f.13, NA.

³² Minutes of Evidence taken before the Royal Commission on the Private Manufacture of and Trading in Arms. Thirteenth and Fourteenth days. 8-9 January 1936 in *Royal Commission on the Private Manufacture of and Trading in Arms (1935-36) Report* (London: HMSO, 1936) 425-6, appendix 15, in Royal Commission on the Private Manufacture of and Trading in Arms. Evidence Submitted, Findings of Commission and Documents Compiled at London Office for the Use of the Witnesses of the Vickers Group, 1935-1936, in File 60, Vickers papers, CUL.

³³ Memorandum by Kelly (FO) 17 May 1932, in FO 371/15788, ff.76-8, NA.

³⁴ See the correspondence in File (microfilm) NB K606, Vickers Archive, CUL.

³⁵ Correspondence in File (microfilm) NB K606/190ff, Vickers Archive, CUL.

³⁶ Vaughan (British Legation La Paz) to John Simon (FO) 30 September 1932, in FO 371/15789, ff.291-303, NA.

³⁷ Letter dated 20 October 1930, in File (microfilm) NB K606/115, Vickers Archive, CUL.

³⁸ See the correspondence in File (microfilm) NB K606/122ff, Vickers Archive, CUL

-
- ³⁹ Hobson (La Paz) to Henderson (FO) enclosing Annual Political Report on Bolivia for 1930, 19 March 1931, in FO 371/15058, f.201, NA.
- ⁴⁰ Major F. W. Briggs (La Paz) to Vickers GB, 3 November 1932, in File (microfilm) NB K606/312-6, Vickers Archive, CUL. For Briggs's inability to speak Spanish and comments generally, see Nosworthy (British Minister, British Legation, La Paz) to Birch (UK), 14 November 1933, in File (microfilm) NB K607/15-18, Vickers Archive, CUL.
- ⁴¹ In File (microfilm) NB K606/410-12, Vickers Archive, CUL
- ⁴² Birch (UK) to Nosworthy (British Minister, British Legation, La Paz), 31 July 1933, in File (microfilm) NB K607/6, Vickers Archive, CUL.
- ⁴³ Vaughan (British Legation La Paz) to John Simon (FO), 30 September 1932, in FO 371/15789, ff.291-303, NA.
- ⁴⁴ Bolivian Contract Position as at 27 March 1933, in File (microfilm) NB K606/351-7, Vickers Archive, CUL.
- ⁴⁵ Ibid.
- ⁴⁶ Notes of Conversation with Urriolagoitia by Wonfor, 31 March 1933, in File (microfilm) NB K606/358-9 (and correspondence thereafter), Vickers Archive, CUL.
- ⁴⁷ Vaughan (British Legation La Paz) to John Simon (FO), 30 September 1932, in FO 371/15789, ff.291-303, NA.
- ⁴⁸ Michell (British Legation, La Paz) to Austen Chamberlain (FO), 27 October 1927, in FO 371/11962, ff.260-3, NA.
- ⁴⁹ Colonel Russell [?], Military Attaché to British Ambassador (British Embassy Rio de Janeiro), 18 August 1928, in FO 371/12730, NA; G. Nemsley (Vickers-Armstrong) to Director, Export Licensing Section, Board of Trade, 17 February 1928, in FO 371/12741, f.192, NA.
- ⁵⁰ FO to Robertson (Embassy Buenos Aires), 27 October 1927, in FO 371/11961, f.240, NA. For use of Argentinean route, see also Materials Shipped to Bolivia, 1928, in File (microfilm) NB K606/32-4, Vickers Archive, CUL.
- ⁵¹ Michell (La Paz) to FO, 17 January 1928, in FO 371/12738, NA
- ⁵² FO to Michell (La Paz), 21 January 1928, in FO 371/12738, NA
- ⁵³ Minister in Paraguay (Kreeck) to the Secretary of State, 5 January 1929, in *Papers Relating to the Foreign Relations of the United States, 1929* (Washington, DC: US Government Printing Office, 1943) 1: 834.
- ⁵⁴ Noel Birch to Colonel Neilson and Commander Craven, 14 February 1933, in File (microfilm) NB K606/331-2, Vickers Archive, CUL. See also Wonfor to Noel Birch, 13 February 1933, in File (microfilm) NB K606/334, Vickers Archive, CUL.

-
- ⁵⁵ Letter to Noel Birch of Vickers, 25 January 1933, in File (microfilm) NB K606/329, Vickers Archive, CUL.
- ⁵⁶ Larden, "Chaco War," 140.
- ⁵⁷ Farcau, *Chaco War*, 124.
- ⁵⁸ Letter entitled Bolivian Shipments, Bridge [?] to Birch, 13 February 1933, in File (microfilm) NB K606/335-6, Vickers Archive, CUL; Birch to Foreign Office, 14 February 1933, in File (microfilm) NB K606/346 (copy in FO 371/16545, f.117, NA), Vickers Archive, CUL.
- ⁵⁹ British Embassy (Santiago) to John Simon (FO) 26 January 1933, in FO 371/16545, ff.112-3, NA.
- ⁶⁰ Wonfor to Noel Birch, 13 February 1933, in File (microfilm) NB K606/334, Vickers Archive, CUL.
- ⁶¹ Bentincto (Lima) to FO, 13 April 1933, in FO 371/16545, f.156, NA.
- ⁶² Memorandum by T. M. Snow (FO), 31 January 1929, in FO 371/13465, ff.6-9, NA; see also correspondence from 1928 in File (microfilm) NB K606, Vickers Archive, CUL.
- ⁶³ Michell (British Legation La Paz) to Austen Chamberlain (FO) 22 February 1929, in FO 371/13465, ff.24-6, NA.
- ⁶⁴ B. Alston (Rio de Janeiro) to FO, 16 August 1928, in FO 371/12738. See also Colonel Russell [?], Military Attaché to British Ambassador (British Embassy Rio de Janeiro), 18 August 1928, in FO 371/12730, NA.
- ⁶⁵ The appalling communications in the northern Chaco are detailed in Julian Duguid, *Green Hell: Chronicle of Travel in the Forests of Eastern Bolivia* (London: Jonathan Cape, 1931).
- ⁶⁶ The railhead seems to have been at Villazón but some maps extend it to Tarija: "Mapa general de la República de Bolivia. Edición auspiciada por: Sociedad de Ingenieros de Bolivia Centro de Propaganda y Defensa Nacional Sociedad Geográfica de La Paz. 1936," in FO 925/12365, NA.
- ⁶⁷ Ibid. See also the map entitled "Las Comunicaciones de Bolivia con el Atlántico y con el Pacífico," in FO 371/15789, f.275, NA on which the nearest railhead for the Chaco is at Arani.
- ⁶⁸ Memorandum by Burbury (FO), 28 January 1928, in FO 371/13540, ff.162-5, NA.
- ⁶⁹ "The Chaco War. Battles of Hide and Seek. A Story from the Front Line," *The Times*, (28 October 1933).
- ⁷⁰ Vaughan (British Legation La Paz) to John Simon (FO), 30 September 1932, in FO 371/15789, ff.291-303, NA.
- ⁷¹ Ibid..
- ⁷² The rainy season in the Chaco extends from January to June.
- ⁷³ R. L. Nosworthy (La Paz) to John Simon (FO), 21 December 1932, in FO 371/16519, NA.
- ⁷⁴ Vaughan (British Legation La Paz) to John Simon (FO), 30 September 1932, in FO 371/15789, ff.291-303, NA (discussing the report dated July 1932).

-
- ⁷⁵ Michell (La Paz British Legation) to FO, 22 July 1928, in FO 371/12730, NA; Robertson (Buenos Aires) to Austen Chamberlain (FO), 19 December 1928, in FO 371/13465, ff.53-60, NA.
- ⁷⁶ Vaughan (British Legation La Paz) to John Simon (FO), 30 September 1932, in FO 371/15789, ff.291-303, NA.
- ⁷⁷ Nosworthy (La Paz) to John Simon (FO), 14 April 1932, in FO 371/15788, ff.83-7, NA.
- ⁷⁸ Tottenham Smith (British Legation Asunción) to Macleay (Buenos Aires), 8 October 1932, in FO 371/15789, ff.280-5, NA.
- ⁷⁹ Nosworthy (La Paz) to John Simon (FO), 21 December 1932, in FO 371/16519, NA.
- ⁸⁰ Internal Political Situation in Paraguay, Report for September 1921, enclosed in Paris (Asunción Legation) Despatch No.28, 8 October 1921, in FO 371/5604, ff.72-6, NA.
- ⁸¹ Internal Political Situation in Paraguay, Report for November 1922, enclosed in Paris (Asunción Legation) Despatch No.55, 5 December 1922, in FO 371/8476, ff.3-4, NA.
- ⁸² Zook, *Conduct*, 45.
- ⁸³ *Ibid.*, 63, 66-7. For Spanish-language sources, see Calvo, *Masamaclay*, 177 and Villagrán, *La Guerra de Chaco*, 96.
- ⁸⁴ *League of Nations. Dispute between Bolivia and Paraguay. Statement of the Bolivian Government's case Communicated in Virtue of Article 15, Paragraph 2, of the Covenant* (Geneva: League of Nations Publication Department, 1934), 1934.VII.9, 24-5.
- ⁸⁵ Zook, *Conduct*, 67.
- ⁸⁶ *Ibid.*
- ⁸⁷ *Ibid.*
- ⁸⁸ Villagrán, *La Guerra de Chaco*, 1: 96.
- ⁸⁹ Marcial Samiengo, *Las FF. [Fuerzas] AA. [Armadas] de la Nación en el Decenio de la Pre-Guerra del Chaco hasta la Victoria de Boquerón* (Asunción: Imprenta Militar, 1979), 92. The author is grateful to the Business History Unit of the London School of Economics and Political Science (LSE) for help in converting the gold peso figure to pounds sterling.
- ⁹⁰ Original statistics from Samiengo, *Las FF. AA. de la Nación en el Decenio de la Pre-Guerra del Chaco*, 107. The lower pound sterling figure is the one provided by the Bank of England Information Centre; the slightly higher figure is the one provided by the Business History Unit of the LSE.
- ⁹¹ Samiengo, *Las FF. AA. de la Nación en el Decenio de la Pre-Guerra del Chaco*, 92.

⁹² Seiferheld, *Economía y petróleo*, 36. For more on the deals with Dansk Rekyrliffel Syndicat, see Tottenham-Smith (Asunción) to Macleay (Buenos Aires), 28 December 1932, in FO 371/16519, ff.90-1, NA. For lower figures than Seiferheld, see Villagrán, *La Guerra de Chaco*, 96.

⁹³ See archival sources listed below in Dpto. de Archivo del Ministerio de Defensa Nacional, Asunción [hereafter MDN]; Seiferheld, *Economía y petróleo*, 36-40; Minute by A. V. Burbury, 11 December 1928, in FO 371/12730, NA; and Harris Gaylord Warren's *Paraguay: An Informal History* (Norman: University of Oklahoma Press, 1949), 303.

⁹⁴ Seiferheld, *Economía y petróleo*, 36-40. For attempt to buy Bristol fighters from Britain, see Minute by A. V. Burbury, 11 December 1928, in FO 371/12730, NA.

⁹⁵ In Dpto. Archivo Contratos Reservado Época 1927-1929, MDN.

⁹⁶ Ibid.

⁹⁷ Contract dated 26 April 1927 between Schenoni (Head of the Paraguayan Mission to Europe) and G. Joassart (Fabrique National d'Armes de Guerre, Liège), in Dpto. Archivo Contratos Reservado Época 1927-1929, MDN. There are further contracts in this file between Schenoni and the Fabrique National d'Armes de Guerre from 1927-8.

⁹⁸ In Dpto. Archivo Contratos Reservado Época 1927-1929, MDN. Information on the change of uniform courtesy of Colonel Hugo Ramón Mendoza Martínez (Comando en Jefe de las FF AA, Republica del Paraguay).

⁹⁹ In Dpto. Archivo Contratos Reservado Época 1927-1929, MDN.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ In Dpto. Archivo Notas Contratos Ofertas Época 1927, 28, 29, 30, 31, MDN. For more information on the Danish arms deal see also FO 371/16519, f.90, NA.

¹⁰⁴ In Dpto. Archivo Notas Contratos Ofertas Época 1927, 28, 29, 30, 31, MDN.

¹⁰⁵ Ibid. Exchange rates by the author at \$4.839=£1.

¹⁰⁶ Bird (British Legation Asunción) to Austen Chamberlain (FO), 15 January 1929, in FO 371/13450, ff.192-4, NA.

¹⁰⁷ Nosworthy (La Paz) to John Simon (FO) enclosing Annual Political Report on Bolivia, 27 January 1932 (received 3 March 1932), in FO 371/15802, f.348, NA.

¹⁰⁸ Chairman of the Commission of Neutrals (White) to the Minister in Switzerland (Wilson) in Geneva, 2 February 1933, in *Foreign Relations of the United States, 1933. The American Republics*, 4: 265. See also British Consulate (Rosario) to Macleay (Ambassador, Buenos Aires), 1 March 1933, in FO 371/16585, f.150,

NA; Vaughan (La Paz) to John Simon (FO), 28 July 1932, in FO 371/15789, f.214, NA; and Zook, *Conduct*, 193.

¹⁰⁹ FO Memorandum by Roberts entitled “Dispute between Bolivia and Paraguay in the Chaco,” 16 September 1932, in FO 371/15789, ff.252-6, NA.

¹¹⁰ British Consulate (Rosario) to Macleay (Ambassador, Buenos Aires), 1 March 1933, in FO 371/16585, f.150, NA.

¹¹¹ FO Memorandum by Roberts entitled “Dispute between Bolivia and Paraguay in the Chaco,” 16 September 1932, in FO 371/15789, ff.252-6, NA.

¹¹² British Chargé d’Affaires (Asunción) to Macleay (Buenos Aires) passed to FO, 31 August 1932, in FO 371/15789, f.261, NA.

¹¹³ British Air Attaché [Group Captain Maycock?] to British Ambassador (Buenos Aires), 18 December 1933, in FO 371/16585, f.143, NA (see also FO 527/15, NA for more information on French warplanes exported to Paraguay).

¹¹⁴ Tottenham-Smith (British Legation Asunción) to Lecke [FO?], 11 January 1934, in FO 527/16, NA.

¹¹⁵ Clark Kerr (Santiago) to FO, 21 December 1928, in FO 371/12731, NA. See also Kerr (British Legation Santiago) to Austen Chamberlain (FO), 3 August 1928, in FO 371/12733, NA.

¹¹⁶ Warren, *Paraguay*, 303; FO 371/16528, f.454, NA.

¹¹⁷ From Encarnación it was 370 kms (231 miles) to Asunción and 1154 kms (721 miles) to Buenos Aires. The Paraguayan railway no longer functions but at the deserted Encarnación station a large sign details the distance in kilometres north and south to Asunción and Buenos Aires.

¹¹⁸ Seiferheld, *Economía y petróleo*, 35; H. A. Cunard Cummings (British Legation Asunción) to Robertson (Buenos Aires) (passed to FO), 12 December 1928, in FO 371/13450, ff.183-90, NA.

¹¹⁹ R. Andrew Nickson, *Historical Dictionary of Paraguay* (Metuchen, NJ and London: Scarecrow Press, 1993), 413. The Cañonero Paraguay is still in service with the Paraguayan navy; the Cañonero Humaitá is moored at Asunción as a Navy Museum.

¹²⁰ Andrew Nickson, *Historical Dictionary of Paraguay*, 440-1, 493-4.

¹²¹ Farcau, *Chaco War*, 48.

¹²² Ynsfran, ed., *The Epic of the Chaco*, p.123.

¹²³ For more information on the Mennonites, see Annemarie Elisabeth Krause, “Mennonite Settlement in the Paraguayan Chaco” (Ph.D. Dissertation: University of Chicago, 1952).

¹²⁴ Cornelius J. Dyck, *An Introduction to Mennonite History: A Popular History of the Anabaptists and the Mennonites* (1967; Scottdale, PA: Herald Press, 1993), 325. A copy in Spanish of Law 514 can be found in Rudolf Plett, *Presencia Menonita en el Paraguay* (Asunción: Instituto Bíblico Asunción, n.d.), 69-72.

¹²⁵ Edgar Stoesz and Muriel T. Stackley, *Garden in the Wilderness: Mennonite Communities in the Paraguayan Chaco 1927-1997* (Winnipeg, Manitoba, Canada: MBC Publication, 1999), 22.

¹²⁶ Information from the staff of the Museo Unger, Filadelfia, Paraguay.

¹²⁷ Stoesz and Stackley, *Garden in the Wilderness*, 12, 85.

¹²⁸ Information from the staff of the Museo Unger, Filadelfia, Paraguay.

¹²⁹ A.T. Cook, report entitled "The Petroleum Fields of Bolivia," c. January 1925, in File 71972, Reports on Bolivian Oilfields, June 1922-October 1923, British Petroleum Archive, University of Warwick, UK.

¹³⁰ Quoted in John A. Lynn, ed., *Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present* (Boulder, Co: Westview, 1993), ix. See also van Creveld, *Supplying War*, 231.