

*The Maritime Way in Munitions: The Entente and Supply in the
First World War*

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The First World War marks a watershed in political, social and military terms. In a political sense, it brought an end to the long nineteenth century and caused the collapse of four empires, ushered in Bolshevism and set the stage for both fascism and Nazism. It also upset the existing social order, bringing about a revolution in the relations between ruled and rulers. All of this occurred due to what has been termed the first 'total war', a conflict that involved all aspects of society at an unprecedented level.

Such remarks are commonplace (and to some extent debatable).¹ However, what is undeniable is that the First World War was fought on an industrial scale, and that munitions of war were consumed at an unprecedented and formerly impossible rate. At

¹ For the problems with the term 'total war', see Roger Chickering, 'Total War: The Use and Abuse of a Concept', in Manfred F. Boemke, Roger Chickering and Stig Förster, eds: pp. 13-28, *Anticipating Total War. The German and American Experiences, 1871-1914*, Washington, DC and Cambridge: German Historical Institute/Cambridge University Press, 1999.

the simplest level, this was possible because of the industrial revolution. However, such a statement, while true, is to simplify and homogenize what occurred. A deeper-level analysis demonstrates that it was not the industrial revolution as such, but the surrounding changes that accompanied it, that made possible the actual conflict as it was fought and the consumption of articles of war at the level that occurred. Further, such an analysis shows that the two sides – the Entente and the Central Powers – fought the munitions war in different fashions, styles dictated by their geography and their pre-war economic and financial circumstances. A comparative study of both coalitions would entail much more than can be attempted in a limited space. However, the broad outlines of how the Entente provided itself with munitions during period from 1914 to 1918 suggests that its activities with regard to supply during the conflict had a particular, maritime, style, quite different from that of its Continental opponents.

Before this can be considered in any detail, it is necessary to expand upon the nature of the pre-1914 global economy. In the nineteenth century, the economic dominance granted to Europe (and its transatlantic derivatives in North America) by its technological and manufacturing advances, gave it a global economic hegemony that is only now beginning to wane.² Accompanying this advantage was the development of a new style of trade, most prominent in the north Atlantic region.³ The new trading system linked the new manufacturing techniques of the industrial revolution with the revolutions in transportation and communications – primarily the railroad and steam-powered iron ships with regard to the former and the telegraph (both locally and trans-oceanic) with respect to the latter – to produce an integrated global trading system. This first globalisation centred upon Britain.⁴ As the centre of the international banking world and possessing the bulk of the world's ocean-going mercantile marine, Britain was the hub of the new order. International commerce flowed through Britain: British banks provided capital for overseas investment to an extent well beyond that of any

² For an introduction to this topic, see Daniel R. Headrick *The Tools of Empire. Technology and European Imperialism in the Nineteenth Century* (Oxford: Oxford University Press, 1981) and, particularly, Ronald Findlay and Kevin H. O'Rourke, *Power and Plenty. Trade, War and the World Economy in the Second Millennium* (Princeton and Oxford: Princeton University Press, 2007), pp. 365-428.

³ In addition to *Ibid.*, see Kevin O'Rourke and Jeffrey G. Williamson, *Globalization and History. The Evolution of a Nineteenth-Century Atlantic Economy* (Cambridge, Mass. and London: MIT Press, 1999).

⁴ For the central role of Britain, see Martin Daunt, 'Britain and Globalisation since 1850: I. Creating a Global Order, 1850-1914', *Transactions of the Royal Historical Society* (Cambridge: Cambridge University Press, 2006), Sixth Series, XVI, pp. 1-38.

other country and supplied the short-term funding necessary to facilitate trade. In the transatlantic economy, orders were placed in and from London by telegraph – the British also controlled the bulk of the global communication system⁵ – and British ships moved the contracted goods (insured against the perils of transport by British insurance firms) to their various markets.⁶ Commodities ordered from and through London were shipped to Europe from around the world, often without any definite final destination, and were directed to the most lucrative markets upon arrival. The speed of telegraphic communication and rapid, reliable transportation made possible a just-in-time economy not seen again until the late twentieth century.

How did this new economy affect the Great Powers, particularly with respect to armaments? In some ways the arms industry was quite similar to other aspects of the new economy. Large European firms were at the centre of the global arms trade.⁷ Companies such as Krupp (Germany), Schneider-Creusot (France) and Vickers (Britain), dominated the production of arms not only in their own countries but also around the world. The way that this was done was remarkably modern. Vickers, for example, not only built armaments in Britain for other countries, but also built large-scale munitions plants abroad in cooperation with foreign governments. In these activities, Vickers provided high-end technology (and occasionally a share of initial funding) to the contracting governments, in exchange for long-term shares of the profits derived from the orders placed in the new factories.⁸ However, these firms were solidly rooted in their own domestic markets, and their capacities (particularly for the Continental Powers) were based on the demands of their own governments. Thus, the pre-1914

⁵ Daniel R. Headrick, *The Invisible Weapon. Telecommunications and International Politics 1851-1945* (Oxford: Oxford University Press, 1991), pp. 11-137; Jonathan Reed Winkler, *Nexus. Strategic Communications and American Security in World War I* (Cambridge, Mass.: Harvard University Press, 2008), pp. 5-33.

⁶ The best concise description of the workings of all this is Nicholas Lambert, *Planning Armageddon. British Economic Warfare and the First World War* (Cambridge, Mass.: Harvard University Press, 2012), pp. 111-16.

⁷ Jonathan A. Grant, *Rulers, Guns, and Money. The Global Arms Trade in the Age of Imperialism*, (Cambridge, Mass.: Harvard University Press, 2007) is a good introduction to the topic.

⁸ Clive Trebilcock, *The Vickers Brothers: Armaments and Enterprise, 1854-1914* (London, 1977), pp. 119-41; *idem*, 'British Multinationals in Japan, 1900-41: Vickers, Armstrong, Nobel and the Defense Section', in *Foreign Business in Japan before World War II*, eds., T. Yuzawa and M. Udagawa, pp. 89-100. Tokyo: Tokyo University Press, 1990; E. Goldstein, 'Vickers Limited and the Tsarist Regime', *Slavonic and East European Review*, 58 (1980): pp. 561-71;

European arms races provided the major impetus for the munitions trade, while the extra-European aspects affected it only to a lesser extent.⁹

Despite this, as we shall see, the munitions industry was not divorced from the wider trends of the globalised economy. Munitions firms were dependent on such raw materials as coal and iron; these were not always sufficiently abundant domestically and were not the exclusive property of the armaments industry. The latter had to compete with other sectors of the economy for access to these sinews of industry and the cost of them fluctuated with supply and demand. Thus, for example, Spanish and Swedish iron ore were essential to, respectively, the British and German armaments industries, while the latter was integrated into the Franco-German iron and coal consortium that was a typical feature of the pre-1914 transnational economy.¹⁰

When the war began, the globalised economy began to come apart. This was most noticeable on the Continent, where pre-1914 trading patterns were shattered by the advance of armies. Globally, the British implemented a course of economic warfare designed to crash the German economy (and, incidentally, with it the entire global trading system).¹¹ As a result of this, although the plans for economic warfare soon turned into the blockade, a lesser, if still effective, manifestation of economic pressure, Germany and the Central Powers were largely excluded from the global trading system, except by indirect means involving neutrals.¹² While even this limited access was

⁹ On the arms races, see David Stevenson, *Armaments and the Coming of War. Europe 1904-1914*, (Oxford: Clarendon Press, 1996) and David G. Hermann, *The Arming of Europe and the Making of the First World War* (Princeton: Princeton University Press, 1996). The best examination of an individual case is Peter Gatrell, *Government, Industry and Rearmament in Russia, 1900-1914. The last argument of Tsarism*, (Cambridge: Cambridge University Press, 1994).

¹⁰ Carl Strikiwerda, 'The Trouble Origins of European Economic Integration: International Iron and Steel and Labor Migration in the Era of World War I', *American Historical Review*, 98, 4(1993), pp. 1112-1120; for a discussion as to Germany's participation in pre-1914 globalisation, see Sebastian Conrad, *Globalisation and the Nation in Imperial Germany*, (Cambridge: Cambridge University Press, 2010).

¹¹ This is the essence of Lambert, *Planning Armageddon*.

¹² For some examples, see Thomas Otte, "'Between Hammer and Anvil': Sir Francis Oppenheimer, the Netherlands Overseas Trust and Allied Economic Warfare, 1914-1918', in *Diplomats at War. British and Commonwealth Diplomacy in Wartime*. eds. Christopher Baxter and Andrew Stewart, pp. 85-108, Leiden: Martinus Nijhof, 2008 ; B.J.C. McKercher and K.E. Neilson, "'The Triumph of Unarmed Force': Sweden and the Allied Blockade of Germany, 1914-1917', *Journal of Strategic Studies*, 7 (1984): pp. 178-99; M. Frey, 'Trade Ships, and the Neutrality of the Netherlands in the First World War', *International History Review*, 19, 3(1997): pp. 541-62; *idem*, 'Bullying the Neutrals: The Case of the Netherlands', in *Great War, Total War*.

important, the Central Powers were thrown back on an earlier, semi-autarkic economic system for the duration of the war.¹³ Not so, the Entente. While the global trading system was deformed by the war, the Entente retained its access to the wider world. It is to how this worked that we now turn our attention.

Prior to 1914, there were no plans as to how the Entente as a group would provide munitions for its forces. This reflected a number of things. The first, and often overlooked, issue is that prior to the war there was no such thing as the Triple Entente in any formal sense. What had existed since 1894 was a Franco-Russian Alliance of the traditional sort entered into by the Great Powers. It was replete with clauses outlining the *casus foederis* and supplemented by on-going military talks. However, Britain's relationship to both France and Russia was limited at best. The Anglo-French Entente Cordiale of 1904 was a colonial agreement designed to lessen tension between the two countries and in no way obliged Britain to any particular military action in defence of France, still less to declaring war unless the Cabinet sanctioned it in the particular circumstances of the time.¹⁴ While the British army had held talks with the French about sending a British Expeditionary Force (BEF) to the Continent and an agreement had been reached in 1912 wherein the Royal Navy (RN) would defend the Channel while the French navy patrolled the Mediterranean, these were contingent upon Britain's entry into the war and by no means binding. Britain's ties to Russia were even more tenuous. The Anglo-Russian Convention of 1907 was also a colonial agreement, one designed to eliminate the perpetual friction between the two states with regard to Persia, Afghanistan and Tibet.¹⁵ There were no military or naval clauses in the Convention, and, due to the recrudescence of Russia's strength after 1910 and her subsequent more aggressive foreign policy in Persia, Anglo-Russian relations remained

Combat and Mobilization on the Western Front, 1914-1918, eds. R. Chickering and S. Förster, pp. 227-44, Cambridge: German Historical Institute/Cambridge University Press, 2000 and Maartje M. Abbenhuis, 'In Fear of War: The First World War and the State of Siege in the Neutral Netherlands', 1914-1918', *War in History*, 13, 1(2006): pp. 16-41.

¹³ For a good overview of the Central Powers' industrial mobilization generally see Hew Strachan, *The First World War. Volume I: To Arms* (Oxford: Oxford University Press, 2001), pp. 1014-1048.

¹⁴ For the British position generally, see Keith Neilson, 'Great Britain', in *War Planning 1914*. eds, Richard F. Hamilton and Holger H. Herwig: pp. 175-97. Cambridge: Cambridge University Press, 2010.

¹⁵ For this, see Keith Neilson, *Britain and the Last Tsar. British Policy and Russia, 1894-1917* (Oxford: Clarendon Press, 1995), pp. 267-88.

fraught with the possibility of a reversion to the enmity that had characterized them for most of the nineteenth century.¹⁶ Thus, when the war broke out, Britain was uncommitted, joining the conflict only on 4 August, with no joint military or naval plans, and certainly no plans for the common productive of armaments.¹⁷

The second reason why there was no plan among the Entente for providing munitions resulted from the sort of war that was expected. While not everyone believed in a short war, the bulk of planning revolved around the idea that matters would be decided on land by battles on the frontiers and, on the sea, by a clash in the North Sea between the German High Seas fleet and the RN.¹⁸ Plans with respect to munitions were made accordingly. Basing their estimates concerning usage on the Franco-Prussian, Boer and Russo-Japanese Wars, the military establishments in all the countries accumulated reserves that were deemed sufficient for a war lasting approximately six months. With these assumptions in place, the Entente began the war without considering that there would be a need for a concerted plan dealing with munitions.

This pertained particularly to the acquisition of supplies from abroad. This issue was the first of the questions surrounding inter-allied munitions for which some solution was sought. On 18 August 1914, at the suggestion of the French government, the *Commission Internationale de Ravitaillement* (CIR) was created.¹⁹ Its task was

to co-ordinate the purchase of food supplies, munitions of war, and field equipment by the two Allied governments; to prevent harmful competition in the same markets and a consequent inflation of prices; to

¹⁶ In addition to *Ibid.*, pp. 317-40, see also, Jennifer Siegel, *Endgame. Britain, Russia and the Final Struggle for Central Asia* (London and New York: I.B. Taurus, 2002) and Christopher M. Wyatt, *Afghanistan and the Defence of Empire. Diplomacy and Strategy during the Great Game* (London and New York: I.B. Taurus, 2011).

¹⁷ For the lack of coordination, see Keith Neilson, 'The Anglo-Russian Alliance, 1914-1917: Lessons for the Present?' in *Future Wars. Coalition Operations in Global Strategy*, ed. Dennis E. Showalter, pp. 63-78. Chicago: Imprint Publications, 2002.

¹⁸ For the hesitations about a short war, see Strachan, *First World War*, pp. 1005-1010; Stig Förster, 'Der deutsche Generalstab und die Illusion des kurzen Krieges, 1871-1914. Metakritik eines Mythos', *Militär-geschichte Mitteilungen*, 54 (1995): pp. 61-95; Holger H. Herwig, 'Germany and the "Short-War" Illusion: Toward a New Interpretation', *Journal of Military History*, 66 (2002): pp. 681-94.

¹⁹ 'Commission Internationale de Ravitaillement: Constitution and Function', ns, nd; 'CIR Establishment and Function', R.F. Duke (secretary, CIR), nd, both The National Archives, Kew (hereafter, TNA, formerly the Public Record Office), Mun 5/7/17170/25; 'Note on the Constitution and Functions of the Commission Internationale de Ravitaillement', ns, December 1916, TNA, Mun 4/1293.

place the French government in communication with firms known to be capable of carrying out orders satisfactorily and at a reasonable price; and to spread the orders in such a way as to distribute employment and thus accelerate delivery.²⁰

Other Allies soon joined the CIR. Of particular importance was Russia, which became part of the organisation on 22 September.²¹ The CIR existed throughout the war; by the time that the United States entered the war in April 1917, the CIR had become a substantial body. By that date, it had 350 British members and some 2,000 Allied members.²² Its initial head was Ulick Wintour, of the Board of Trade, but in October 1914, he was replaced by Sir Edmund Wyldbore-Smith, another official from the pre-war Board of Trade.

However, the CIR did not have any purchasing capabilities of its own; it merely served as a coordinating body for matters as outlined above. Initially, British purchasing from the United States rested with the service departments themselves. The Admiralty, whose activities will not be discussed here, had its own purchasing department; the War Office worked through the Director of Army Contracts (DAC). However, there was no set means of doing so, and this led to anarchy. As Wintour, who became DAC when he left the CIR, wrote in June 1915: 'The policy followed in the early months of the war of negotiating with American manufacturers directly or through their London representatives was found to result in great confusion and waste of funds.'²³ This had been evident earlier to the British ambassador in the United States, Sir Cecil Spring Rice. 'From various sources', he wrote on 9 October 1914, 'I hear that British, French and Russians are competing in United States markets against each other'. He suggested 'some common line of action' be taken by the Allies in order to prevent such overlap and keep cost down.²⁴ Nor was this the only source of confusion. The flamboyant Canadian Minister of Militia, Sir Sam Hughes, had appointed several of

²⁰Untitled memorandum, Sir Edmund Wyldbore-Smith (head, CIR), 12 February 1915, TNA, Mun 4/5262.

²¹Buchanan (British Ambassador, Petrograd) to Grey (British foreign secretary), telegram 65, 28 August 1914, TNA, FO 368/1077/443234; FO to Buchanan, telegram 84, 11 September 1914, TNA, FO 368/1077/47816 and Benckendorff, (Russian Ambassador, London) to Grey, note, nd, TNA, FO 368/1077/52115.

²²Untitled memorandum, Wyldbore-Smith, nd (but April 1917), TNA, Cab 27/189.

²³'Purchase of Army Supplies in U.S.A.', U.F. Wintour, June 1915, TNA, Mun 5/167/1141/2

²⁴Spring Rice to FO, telegram 73 urgent, 9 October 1914, TNA, FO 371/2224/57870.

his business cronies, most notoriously, 'Colonel' J. Wesley Allison, to 'aid the allies in every way possible in purchases' in Canada and the United States.²⁵ Allison's activities in the United States quickly became a scandal. Spring Rice soon noted that 'from many good sources I hear of corrupt dealings' concerning Allison, and the British Consul-General in New York, Sir C. Bennett, warned the War Office that Allison's 'record is deplorable'.²⁶ With Russia purchasing in the United States and keeping its representatives on the CIR 'entirely ignorant' of the orders, it was not surprising the Spring Rice called for ensuring that 'there should be one neck to the bottle' respecting Allied purchasing in the United States.²⁷

Spring Rice was also concerned about cost. The entire international economy had been dislocated when war broke out, causing particular difficulties for the maintenance of the exchange rates since the stoppage in trade had caused banks to call loans and withhold funds. This liquidity crisis also affected the Russians, particularly as they could no longer export to maintain the value of the rouble. Nonetheless, Petrograd continued to purchase munitions in the United States to a greater extent 'than might have been supposed possible'.²⁸ In the opinion of two British Treasury representatives, Basil Blackett and Sir George Paish, Russia would be unable to pay for its orders. In Blackett's view, Britain and France 'will be compelled eventually to finance practically the whole of Russia's expenditure on the purchase of war stores outside Russia'; thus 'there is much to be said a comprehensive scheme for co-ordinating the finance of all the Allies' purchases in America'. Augmenting this observation, Blackett argued that it

²⁵ E. Macadam (private secretary to Hughes) to Russian ambassador Washington, 13 October 1914, Library and Archives Canada (hereafter, LAC), Borden Papers, MG 26, H1(a), volume 47, OC 210-216. Hughes to Kitchener, telegram, 21 September 1914, LAC, Borden Papers, MG 26, volume 90, OC 446(2). For an example of Allison's activities, see Keith Neilson, 'Russian Foreign Purchasing in the Great War: A Test Case', *Slavonic and East European Review*, 60, 4(1982): pp. 572-90.

²⁶ Spring Rice to FO, private telegram, 20 October 1914, TNA, FO 371/2224/61688 and Sir C. Bennett to FO, tel 197, 17 October 1914, TNA, FO 371/2224/60763.

²⁷ Llewellyn Smith (Permanent Secretary, Board of Trade) to FO, 20 October 1914, TNA, FO 371/2224/69615.

²⁸ Spring Rice to Grey, letter, 28 October 1914, TNA, FO 371/2224/69910.

was wrong that the Allies 'should be bidding against each other in the American money market', and he wanted all purchasing and borrowing to be coordinated in London.²⁹

The first attempt to do this came about in early 1915. After negotiations, the British signed an agreement with J.P. Morgan & Co. making that banking firm the sole purchasing agent for London in the United States, although the War Office insisted that a separate account be maintained for its Remount Commission that had been operating in the United States since early in the war.³⁰ As a result, in theory at least, Morgans became the purchasing agent for the entire Entente for all allied orders should have passed through the CIR. With branches in London (Morgan, Grenfell) and Paris (Morgan Harjes et Cie), Morgans in New York were an ideal conduit for ensuring that there was 'one neck to the bottle'. However, in practice, the Russians continued to make American purchases through Russian agents in the United States and directly from Petrograd, thus bypassing the CIR and ensuring that Allied coordination was limited.³¹ In February 1915, a French attempt to ensure closer cooperation about purchasing abroad came to naught 'owing to the difficulty of bringing the Russians into line'.³²

Despite this, the need for better organisation was clear. The push for it came from the war itself, where the unprecedented demands for munitions led to shortages. For the British, this manifested itself in the so-called 'shells scandal' in the aftermath of the failed Neuve Chapelle offensive. The commander of the British Expeditionary Force (BEF), Sir John French, alleged that the offensive would have been successful except for the shortages of shells experienced by the BEF.³³ The public furore surrounding this event, was one of the things that led to the formation of a coalition government in June. As a result of this political tsunami, a new department of state, the Ministry of

²⁹ Paish to Spring Rice, letter, 27 October 1914 and Blackett to Spring Rice, letter, 27 October 1914, both TNA, FO 371/2224/69910. Blackett expanded on this view later, see his 'British Loans to France & Russia', TNA, T 171/107.

³⁰ Burk, *Sinews of War*, pp. 15-22; R.H. Brade (WO) to Morgan Grenfell, confidential letter, 28 January 1915, Bodleian Library, Oxford, MS Addison dep. c.45.

³¹ See Keith Neilson, *Strategy and Supply. The Anglo-Russian Alliance 1914-1917* (London: Allen & Unwin, 1984): 205-07; Wyldbore-Smith to J.A.C. Tilley (FO), letter, 27 January 1915, TNA, FO 371/2583/3291/10969.

³² Tilley's minute, 27 February 1915, on the correspondence dealing with this matter, TNA, FO 371/2583/3291/21927.

³³ For this and the context, see David French, 'The military background to the "Shells Crisis" of May 1915', *Journal of Strategic Studies*, 2, 2(1979): pp. 192-205.

Munitions, was created under the leadership of David Lloyd George, formerly the Chancellor of the Exchequer and one of the most trenchant critics of the government's efforts to provide munitions.

What was the situation regarding the purchase of supplies in the United States (and Canada) when the new ministry was formed? According to Wintour, now one of the two DACs, the situation was quite unsettled. Despite the Morgans agreement the War Office had 'continued to place contracts through other channels for forage and foodstuffs and for certain articles, e.g. special types of motor vehicles'.³⁴ Further, Morgans had its hands full in the United States attempting to separate the wheat from the chaff with regard to possible contractors:

The enormous demand [for munitions] had tempted into the American armaments trade many firms with no previous experience of the work and brought into being a number of new undertakings, some of them of a very dubious character. These untried firms could not safely be employed on War Office contracts without careful enquiry into their antecedents and technical capacity.

A number of 'commercial adventurers' had attempted to corner the market on various items, something that had 'forced up prices by the buying and selling of options on war materials which were eventually offered to the War Office at prices covering a whole series of middlemen's commissions'.

To deal with this, Morgans had set up a separate purchasing department under E.R. Stettinius, the president of the Diamond Match Company.³⁵ Stettinius had a large staff 'specially qualified for dealing with the purchase various classes of war material', but utilised the War Office's inspection officers for knowledge of 'military requirements'. In Britain, Stettinius liaised with C.F. Whigham of Morgan Grenfell. The latter 'keeps in close personal touch with the officials of the [War Office] Contracts Department' and Whigham corresponded by telegraph with Stettinius.³⁶

³⁴ This and the following paragraph, except where otherwise noted, is from 'Purchase of Army Supplies in U.S.A.', Wintour, June 1915, TNA, Mun 4/167/1141/2.

³⁵ For the practices of Stettinius' department, see Morgan Grenfell to War Office, 11 May 1915, *ibid.*

³⁶ The details of how this was done are in Morgan Grenfell to War Office, 14 May 1915, *ibid.*

Under this regime, a large number of contracts had been let. The nature of such contracts is important for an understanding of the way in which munitions were procured. A typical contract was one negotiated in March 1915 with Bethlehem Steel for 5 million 3-inch artillery shells and 250 field gun batteries.³⁷ The price per shell was \$22.00, while each of the field gun batteries cost \$100,000, making the total cost \$135 million. This was a substantial sum, but the terms of payment are even more interesting. Upon signing the contract, Bethlehem was to receive 20% (\$27 million) of the total, 5% (\$6.75 million/month) of the total for each of the 12 months beginning September 1915 and the remaining 20% when the shells were finally delivered (delivery beginning in January 1916 and ending in December of that year). Bethlehem was not doing all of this work itself: the 'plan also involves co-operation and use of a large number [of] plants other than [those of] Bethlehem Steel Co. but for this business would be more or less under their direction.' Much of the money given to Bethlehem was for the construction of new plant, both for it and its subsidiaries.

This use of sub-contractors also requires some examination. When the demand for shells arose, two groups were formed in the United States.³⁸ The first was the Washington Ordnance Group, organised by Pierpont Morgan. The second was the Bethlehem Steel Company Group, organised by Charles Schwab of Bethlehem Steel. Of the British orders placed with the Washington Ordnance Group, 'ninety percent ... is being provided by firms who have never made shells before'. The Washington Ordnance Group acted mainly as an organising and overseeing body. The Bethlehem Group had much more experience; however, when British orders with these two groups, which were doing the bulk of the work for Britain in America, were combined about '33 per cent to 40 per cent' of the orders were being done by firms with no experience. None of the companies involved were making whole shells; instead each was making a component, while assembly was done by another firm.

When the Ministry of Munitions was formed, one of Lloyd George's principal concerns was to discover how to increase production in the United States, particularly as he had been one of the severest critics of the existing system and his political

³⁷ The details of this contract are in Morgan to Morgan Grenfell, telegram, 9 March 1915, TNA, Mun 4/207.

³⁸ What follows is based on 'Notes on the Steps Taken in America to Increase the Output of Munitions of War', M.C. 5, secret, Wintour, 17 April 1915, Bodleian Library, MS Addison dep. c. 45.

credibility would be judged by how quickly he could effect an improvement in deliveries. To this end, he sent his political crony, D.A. Thomas (later Lord Rhondda), to the United States and Canada in July 1915 to ascertain the lay of the land.³⁹ Once in New York, Thomas determined that it was necessary to create an Advisory Committee, under Lieutenant-General L.T. Pease (who had been in the United States for some time carrying out an investigation of American production capabilities for the War Office).⁴⁰ Thomas was quite appreciative of the work of Stettinius and Morgans in general. He was impressed by the 'generosity' of Morgans' volunteering to reduce the commission that they charged on transactions. The Advisory Committee was designed to provide Morgans with a greater expertise than the firm possessed and was cobbled together from the various British representatives already in the United States. A key member of the Advisory Committee was Henry Japp of S. Pearson and Son, a major British engineering firm. Japp had been in charge of building the East River tunnels in New York from 1909 until 1915 and so well understood the American manufacturing and engineering scene. Another important figure was Lieutenant-Colonel Phipps, the head of the British inspectors in the United States who made his headquarters at the Bethlehem plant, and became the deputy head of the Advisory Committee.

During his time in the United States (Thomas did not return to England until December 1915), the work of the Advisory Committee grew to include finding new firms to carry out British contracts and 'follow up work', and its title was changed to the British Munitions Board on 5 September. Thomas also advocated maintaining 'one neck to the bottle' for orders, insisting that the practice of dealing with American agents in London rather than through Morgans only undermined the latter and did not result in better prices. The division between the British Munitions Board and Morgans was clear. The former dealt with the production, transport and shipment of munitions; the latter carried out the negotiation of new contracts and served as paymaster.

Thomas also spent a considerable amount of time in Canada, where political controversy swirled about the purchase of munitions from the Dominion. The Shell

³⁹ See Lloyd George to D.A. Thomas, letter, 8 June 1915 and the reply, 12 June 1915, both Parliamentary Records Office, London, Lloyd George Papers D/12/1.

⁴⁰ My account of the Thomas mission, except where otherwise noted, is from 'Report of Mr. D.A. Thomas to the Minister of Munitions on his Mission to Canada and the United States', confidential, Thomas, 9 December 1915, TNA, Mun 5/167/1141/5

Committee set up at the outbreak of war by Sir Sam Hughes, the Minister of Militia, was widely (and, in Thomas' view, incorrectly) believed to be corrupt. More broadly, there was political discontent as a result of a belief that the United States was getting preference for orders over Canada, doubly galling to a country that was part of the British Empire and a co-belligerent. The result was that, at the suggestion of the Canadian Prime Minister, Sir Robert Borden, created a Canadian branch – the Imperial Munitions Board (IMB) – of the Ministry of Munitions to act for Britain in the Dominion.

By the autumn of 1915, then, the Entente had established a rudimentary system for the coordination of munitions production. This centred on Britain. Russia's pre-war munitions industry had proved itself inadequate to the task, at least until the orders belatedly placed in the early summer of 1915 bore fruit.⁴¹ The French fared much better, but they, too, required assistance from abroad, working both through the CIR and through the Hudson's Bay Company, which acted as France's separate purchasing agent in North America.⁴² However, the need to coordinate matters more effectively and broadly was evident.

This occurred at an inter-allied conference held in London 23-25 November 1915, paralleling the attempt at Chantilly to set a common Allied military strategy after the fragmented campaigns of 1915.⁴³ The 'Conference of the Big Four' as it was referred to at the Ministry of Munitions made evident the difficulties in coordinating the needs of the Entente.⁴⁴ While all the Allied representatives lauded the joint effort, it was evident that there were differences of view among them. The French Munitions Minister, Albert Thomas, lauded France's achievements in munitions, but called for a centralized planning effort for the Entente with respect to the acquisition and production of arms.

⁴¹ The seminal work is Norman Stone, *The Eastern Front 1914-1917* (London: Hodder & Stoughton, 1975), pp. 144-64, supplemented by Neilson, *Strategy and Supply*.

⁴² For an introduction to the French case, see Elizabeth Greenhalgh, *Victory through Coalition. Britain and France during the First World War* (Cambridge: Cambridge University Press, 2005), pp. 109-12; 265-81; and for France's economic effort, John F. Godfrey, *Capitalism at War: Industrial Policy and Bureaucracy in France 1914-1918* (Leamington Spa/Hamburg/New York, Berg, 1987).

⁴³ The minutes of the conference are in TNA, Mun 4/5068 on which my account is based, except where otherwise noted.

⁴⁴ Addison diary entry, 9 November 1915, MS. Addison, dep. C.1, Bodleian Library, Oxford. Addison was the Parliamentary Secretary at the Ministry of Munitions.

This raised some difficulties. The Russian representative, Admiral A. I. Rusin, accepted the idea, but only 'in principle', because 'he was afraid that it might result in delaying the execution of orders. It was important', he contended, 'that the new body should not interfere with the work done by the Russian Mission in England'. Lloyd George and Thomas, both politicians with their careers tied to the successful production of munitions, continued to push for better coordination. However, Lloyd George was quick to note that any coordinating body would not have the power 'with regard to distribution' of the munitions produced. The new body, the Minister concluded, 'would be purely and simply a medium for the collection of information, and it would be for the General Staff of the respective countries to decide what action should be based on the information collected.' The final result was anodyne: a Central Munitions Office for the Allies was created to gather and collate information with regard to manufacturing programmes, production schedules and statements of orders placed both at domestically and abroad and the raw materials required (and available for all these matters). It was agreed that representatives of the Allies should meet every two months to discuss these matters.

This conference revealed the difficulties of the Entente's cooperation with regard to munitions. While the British were 'immensely struck with the Frenchmen – they are able and businesslike, with any amount of self-sacrifice and only too willing to play the game', London did not have the same positive view of the Russia, as '[b]lackmail and commissions' were seen as the 'curse' of that country.⁴⁵ But there were other, political, issues. None of the belligerents were willing to look at the munitions issue from an Entente perspective. If the allocation of munitions were made on an over-all basis, this would have involved making assumptions about which fronts and military operations were deemed most important and which were not. This meant, in the absence of any over-all command on the military side, that the prerogatives of each nation's military commanders would be infringed upon, with obvious ramifications in the political sphere. Equally, if the resources of the Entente were put into a common pool, then those nations holding the greatest resources would lose exclusive control of them.

This matter was of particular concern to the British. By the end of 1915, Britain had become the Entente's financier. London's immense network of financial

⁴⁵ Addison diary entry, 25 November 1915, *ibid.*

connections in America, its credit-worthiness and its own financial strength allowed it to borrow abroad at rates unavailable to its Entente partners.⁴⁶ However, British credit was not infinite. In August 1915 there had been an exchange-rate crisis, and by the end of 1916, British credit (which meant Allied credit) in the United States was stretched to the breaking point. A similar situation existed in Canada, where the IMB found itself increasingly dependent upon the Canadian government for funds as the British government had to focus its financial attention on the United States.⁴⁷

These financial difficulties put a strain on the maritime munitions programme of the Entente. All of Russia's purchasing in the United States was dependent upon Britain's providing the monies for materiel, while France, although initially able to provide its own financing in the United States, had also become reliant by the end of 1916 on London's ability to raise funds in the United States.⁴⁸ The limited amount of finance available (plus, as will be discussed below, shortages of shipping) meant that an unlimited amount of materiel could not be provided from abroad. This was reflected at the inter-Allied conference on munitions held in London, 8-10 November 1916.⁴⁹ The requests of the Allies for munitions were enormous. Lloyd George termed the Russian demands 'formidable', but felt that their needs could be met if all the members of the Entente 'determined to make sacrifices of their own requirements'. Unlike the previous year, the French were unwilling to pool resources if this meant depriving the French troops of munitions. Instead, they contended that 'Russia should organise more adequate her own production of ammunition'. The Russians rejected such strictures, but

⁴⁶ What follows is based upon the following sources, except where otherwise noted: Kathleen Burk, *Britain, America and the Sinews of War 1914-1918* (London: Allen & Unwin, 1985). This should be supplemented by George Peden, *The Treasury and British Public Policy 1906-1959* (Oxford: Oxford University Press, 2000), pp. 73-127; *idem.*, *Arms, Economics and British Strategy. From Dreadnoughts to Hydrogen Bombs* (Cambridge: Cambridge University Press, 2007), pp. 49-97. For Burk's second thoughts, see 'Financing Kitchener's (And Everyone Else's) Armies', in *The British Way in Warfare: Power and the International System, 1856-1956. Essays in Honour of David French*, ed. Keith Neilson and Greg Kennedy: pp. 257-76. Farnham and Burlington, VT: Ashgate Press, 2010.

⁴⁷ For the Canadian experience, see Keith Neilson, 'Canada and British War Finance, 1914-1917', in *Forging a Nation*, ed. Bern Horn: pp. 109-22. St. Catherine's, Ontario: Vanwell, 2002) and *idem.*, 'R.H. Brand, the Empire and Munitions from Canada', *English Historical Review*, 126, 523(2011): pp. 1430-1455.

⁴⁸ Martin Horn, *Britain, France, and the Financing of the First World War* (Montreal and Kingston: McGill-Queen's University Press, 2002), pp. 117-41.

⁴⁹ What follows, except where otherwise noted, is derived from 'Summary of the Proceedings of the Inter-Allied Munitions Conferences, held in London November 8th, 9th, and 10th, 1916', TNA, Mun 4/5068.

it was made clear to them that the Allies could not provide an endless amount of munitions if for no other reason than the limitations of available tonnage to ship goods to Russia.

This issue of tonnage spoke directly to another aspect of Britain's maritime approach to munitions. Before the war, the British had looked carefully into the likely needs for shipping during a conflict, with a particular concern about being able to maintain a supply of food – given that 60% of Britain's calories were imported.⁵⁰ The dislocation of international trade caused by the war, the changed shipping routes dictated by the need to move munitions across the Atlantic and the inefficiencies caused by congestion at ports put a real strain on British shipping capabilities (which were, in effect, the capabilities of the Entente).⁵¹ This was exacerbated by the impact of the German submarine campaign. By the beginning of 1917 (even before the Germans began their unrestricted submarine warfare campaign), there were such shortages of tonnage that the British were restricting imports of food and considering the possibility of nationalizing the entire shipping industry.⁵² However, the issues concerning shipping were overcome, and, by the end of the war, it was not surprising that the British Admiralty contended that, while 'the war has been fought, and the final decision reached, on land' this had been 'rendered possible only by reinforcements and supplies from oversea'.⁵³

By the time of the entry into the war of the United States, the Entente had created a particular, maritime approach to the problem of providing munitions for use in the Great War. It was based on the fact that the vital elements of the global economy that

⁵⁰ For this, see David French, *British Economic and Strategic Planning 1905-1915* (London: Allen & Unwin, 1982); Avner Offner, *The First World War: An Agrarian Interpretation* (Oxford: Clarendon Press, 1989).

⁵¹ The most comprehensive short examination of this is Keith Neilson, 'Reinforcements and Supplies from Overseas: British Strategic Sealift in the First World War', in *The Merchant Marine in International Affairs, 1850-1950*, ed. Greg Kennedy: pp. 31-58. London and Portland, OR: Frank Cass, 2000, on which the following is based.

⁵² 'Restrictions of Imports', Curzon (Lord President of Council), 9 January 1917, TNA, Cab 24/3/G-105; Restriction of Imports, Curzon, 14 February 1917, Curzon, 14 February 1917, TNA, Cab 24/3/G-124; 'Report by the Food Controller on Bread, Meat and Sugar', Lord Devonport (Food Controller), 11 January 1917, TNA Cab 24/3/G-108; and 'Nationalisation of Shipping', Sir J. Maclay (Shipping Controller), 25 January 1917, TNA, Cab 24/3/G-122.

⁵³ 'The British Naval Effort, 4th August 1914 to 11th November 1918', Admiralty, 24 December 1918, secret, TNA, Cab 29/2/P-81.

had come into existence before 1914 were controlled by the Allies, particularly by the British. The latter held the keys to global shipping, banking and communications. The strength of the RN ensured that the Central Powers were unable to challenge this supremacy. At the beginning of the war, German commerce was swept from the seas, German banks found it difficult to obtain credit abroad and Germany's communication links with the extra-European world were literally severed, except for those routes travelling along British-controlled lines and hence subject to disruption and interception.⁵⁴ The Central Powers, faced by the blockade, found it difficult to import the essential elements of munitioning and were thrown back on their own resources.

On the other hand, the Entente was able to tap global resources. British ships carried 45 percent of imports to France during the war and a similar percentage of Italian imports. The British merchant marine, on the military side alone, moved 23.7 million people, 2.24 million animals and 46.5 million tons of British military stores.⁵⁵ Some five million tons of war materiel was shipped to Russia.⁵⁶ The bulk of this was paid for by Britain, which lent some £1,852 million to the Allies and Dominions during the war.⁵⁷ In 1916, this amounted to a total of some £600 million per month, of which one-half went to Russia.⁵⁸ But, the fact that Britain was able to do this reflected its ability to borrow abroad, something based on its financial strength. In the United States, Britain was able to borrow some \$1.3 billion from the American public and spent an additional \$4,834,947,287.96 in money borrowed from the American government.⁵⁹

As to the functioning of the coalition, and examination of munitions points out that the pre-war lack of agreements among the Allies, particularly between Britain and her two major partners, led to *ad hoc* solutions to difficult issues. There was a lack of agreement about military priorities, which in turn led to a lack of priority for the allocation of munitions. This latter was exacerbated by the fact that the primary matters involved in Allied munitions – finance and transport – were dominated by the British,

⁵⁴ See Winkler, *Nexus*, pp. 5-33.

⁵⁵ See the discussion in Neilson, 'Reinforcements and Supplies', pp. 47-48.

⁵⁶ See Neilson, *Strategy and Supply*, pp. 317.

⁵⁷ The figure is from E.V. Morgan, *Studies in British Financial Policy, 1914-1925* (London, 1952), p. 317, table 48.

⁵⁸ Horn, *Britain, France*, p. 121.

⁵⁹ Burk, *Sinews*, appendices II and IV, pp. 264 and 266.

who had no wish to give up control of them, since these two factors were central to both the British domestic economy and Britain's position in the global economy. This had its political dimension as well. Lloyd George had hitched his political future to the wagon of being able to provide munitions to the British army, not the Allied ones. Surrendering control of finance and transport to the Allies could mean that British forces received less, something antithetical to Lloyd George's career.

What does all this suggest? The obvious conclusion is that the Entente, as a maritime coalition, pursued a style of warfare sharply different from that of the Central Powers. Able to gain access to global resources, the Entente powers had a distinct advantage in providing munitions for its forces. The focus of this was Britain, and it seems fair to conclude that there is a distinct British way in munitions just as much as it has been argued that there is a distinct British way in warfare.⁶⁰ While the British also pursued an increase in their domestic production by means similar to the Continental states through the setting up of the Ministry of Munitions, their preferred approach reflected their pre-war economic commitment to free trade and globalisation.

Such an approach had many advantages in the war. The ability to tap global resources acted as a multiplier effect on the economics of Britain and her Allies. In fact, those looking to discover why the Entente won the First World War might begin profitably by looking at the advantages that the economic style of a maritime power provided.⁶¹ While the famous geographer and geopolitician, Halford Mackinder, had argued before the war that the Power that controlled the Asian heartland was destined to control the world, he might better have been advised to contend that the Power which had maritime access to the world's resources might dominate the globe.⁶²

⁶⁰ For an introduction to this subject, see Neilson and Kennedy, eds, *The British Way in Warfare*.

⁶¹ For a suggestive discussion of this style, see Walter Russell Mead, *God and Gold. Britain, America and the Making of the Modern World* (London: Atlantic Books, 2007).

⁶² For a good introduction to the topic, see G.R. Sloan, 'Sir Halford Mackinder: The Heartland Then and Now', in *Geopolitics, Geography and Strategy*, eds. C.S. Gray and G.R. Sloan: pp. 15-37. London: Frank Cass, 1999, and Brian W. Blouet, ed, *Global Geostrategy. Mackinder and the Defence of the West* (New York and London: Frank Cass, 2005).