

British Use of Telegraphs in the Peninsular War

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I have been interested in the British Army for forty years with a special interest in the Peninsular War, 1808-1814. My first publication, “The Fatal Hill” covered the campaign culminating in the battle of Albuera in May 1811.

In 2009, I completed a PhD focusing on the role of the Royal Engineers during this period. This was published as “Wellington’s Engineers” in 2015. Details can be found at www.wellingtonsengineers.co.uk. I have also published the Peninsular War diary of another engineer officer, Edmund Mulcaster.

I have presented at many conferences in the UK and abroad including the Wellington Congress. I am a member of the British Commission for Military History, the Friends of the British Cemetery at Elvas and the Friends of the Lines of Torres Vedras.

Please visit my website at www.marksthompson.co.uk to find out more about me and a complete list of my publications.

INTRODUCTION

It was a special day for me in May 2014 when I arrived on the Lines of Torres Vedras at the fort of San Vicente and saw, for the first time, the replica of the Ciera Indicator Telegraph built by the Municipality of Torres Vedras. Francisco Ciera was a Captain in the Portuguese Engineers and had led the development of signalling in Portugal.

His simple designs were used extensively from the beginning of the 19th century and were the cornerstone of the national telegraph system that eventually connected Lisbon with the major cities and the main border fortresses of Elvas and Almeida.

These simple devices played a critical role in the operations of the Duke of Wellington during the Peninsular War, 1808-14, allowing rapid communication of messages across Portugal.



Figure 1. Ciera Indicator Telegraph.

The British Army at this time had no signalling systems and Britain lagged behind some other European countries in the use of these technologies.

USE OF TELEGRAPHS IN EUROPE

At the start of the 19th century, optical telegraphs were the modern solution to the problem of how to pass messages quickly. However, they were very expensive to set up and few countries had developed systems.

The first serious attempt at using telegraphs over large distances was by the Frenchman, Claude Chappe. His design was large and complex with nearly 200 combinations and required permanent buildings. It was first introduced in 1794 and at the peak of Napoleon’s power; the Chappe telegraph covered much of France, with branches into the Low Countries and Italy. Transmission timings were amazing with this technology: eg the 475 miles from Toulon to Paris would take about 12 minutes.¹

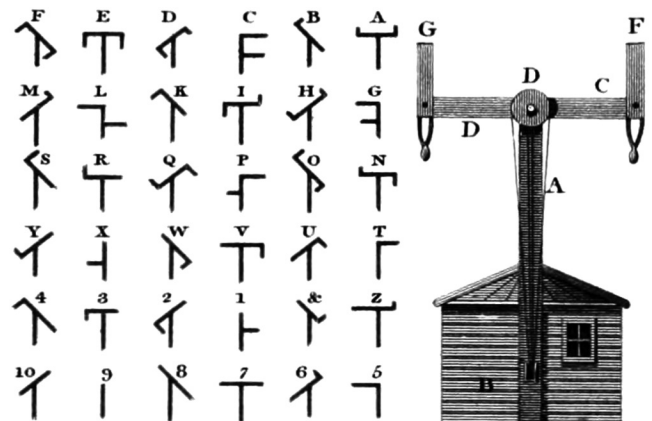


Figure 2. Chappe Telegraph and signals.

¹ Holtzmann & Pehrson, *The Early History of Data Networks*, California, 1995.

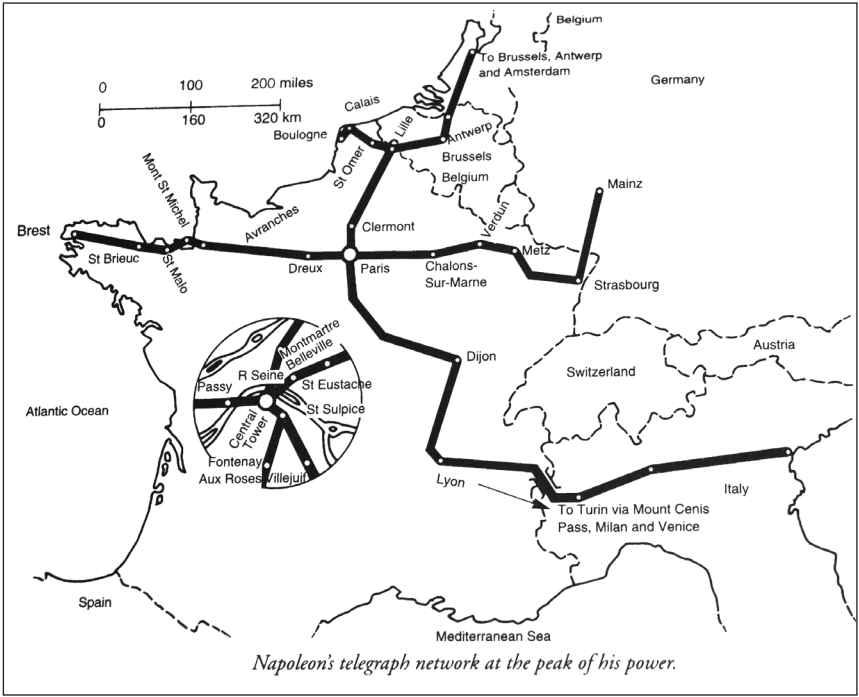


Figure 3. French Telegraph Network 1815

As information about the Chappe telegraph spread, the rest of Europe raced to catch up. In England, telegraphs were only used by the Admiralty, connecting the main naval bases to London using a system developed by the Reverend Murray. His six shutter telegraph (64 combinations) was introduced in 1796. Initially signal stations were constructed between London, Deal and Portsmouth and later extended to include Great Yarmouth and Plymouth. Another English inventor, John Gamble, had narrowly missed out on the Admiralty telegraph contract and went on the design a mobile telegraph solution, with which he hoped to interest the Army. There are claims this mobile solution was used in the Peninsular War but I have found no evidence.²

In Portugal, Francisco Ciera developed three different telegraphs using a single arm, shutter or balloon. All three systems used the same code book.

The other telegraph, which you may be familiar with, is the

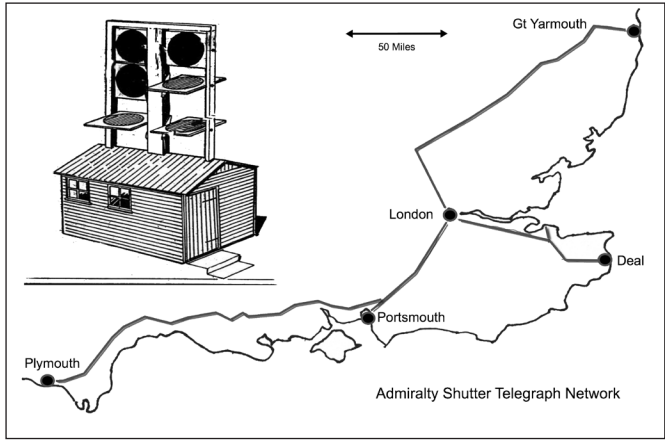


Figure 4. Murray Telegraph and Network



Figure 5. Gamble portable telegraph.

British naval balloon telegraph as used on Lines of Torres Vedras. I will come back to this later.

As the telegraphs became more complicated, they also became larger and required experts to operate them. The huge advantage of the Portuguese telegraphs was their simplicity that made them quick to build, easy to operate and small enough to be portable.

THE ANGLO-PORTUGUESE USE OF TELEGRAPHS

The allied army made use of telegraphs in four distinct places during the Peninsular War. The Royal Engineers or their Portuguese equivalents were involved in three of these.

The first and operationally most significant was the Portuguese national telegraph network. This provided direct communication between Lisbon and the border fortresses of Almeida and Elvas, and also provided shipping information from the Tagus Estuary. Financially, Portugal still relied almost exclusively on trade with its colonies. To manage this network, the Portuguese army formed the *Corpo Telegrafico* in 1810, sixty years before C Telegraph Troop, Royal Engineers was formed.



Figure 6. Three Ciera telegraphs and code book

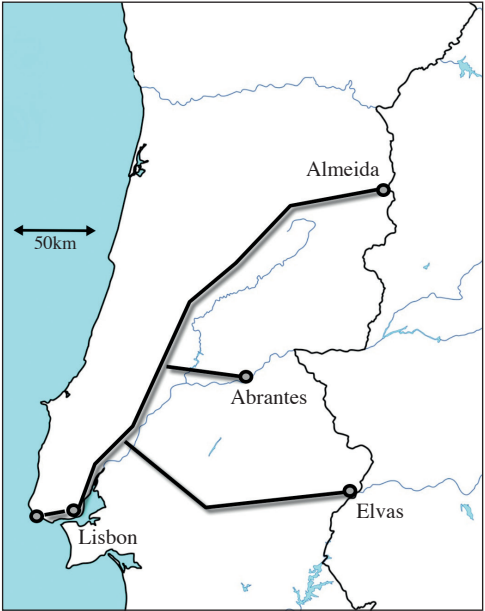


Figure 7. Portuguese Telegraph Network

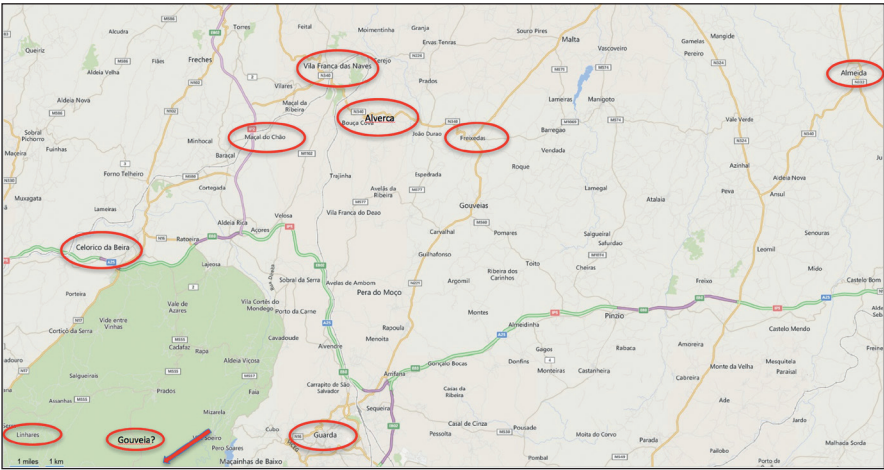


Figure 8. Telegraphs on Portuguese border 1810.

USE OF TELEGRAPHS ON THE PORTUGUESE BORDER IN 1810
IN 1810, Wellington was faced with a French army specifically sent by Napoleon to conquer Portugal. Wellington's army was not large enough to stop the French, but he needed to delay them as long as possible at the border to give time for defences to be built around Lisbon. Wellington spent the summer of 1810 watching the French as they besieged the border fortresses of Ciudad Rodrigo and Almeida. During this period, he used telegraphs to communicate with Lisbon, his forces and the major towns on the border. Using information from Wellington's Despatches, and the diaries of the Royal Engineer officers, John Jones, Rice Jones and Edmund Mulcaster, you can build a picture of how telegraphs were used.

The first mention of telegraphs comes on 31 July 1810, when Wellington wrote to the commander of his cavalry telling him he was sending "people to manage the telegraph".³ Wellington wanted to communicate with the

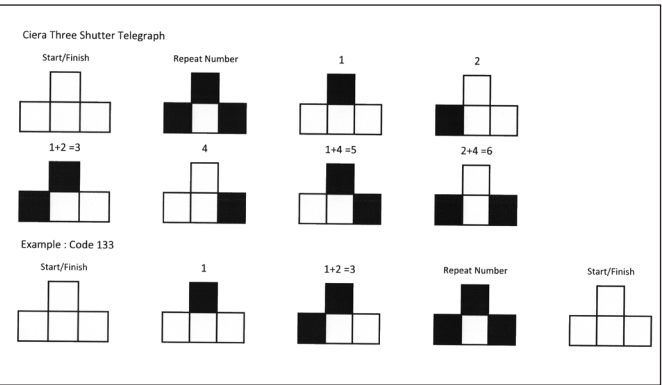


Figure 9. Ciera shutter codes.

Portuguese garrison in Almeida that was now blockaded by the French.

On 8 August 1810, Edmund Mulcaster reported that he had been ordered to "construct a telegraph on the Lisbon principle at Guarda". Rice Jones described its design as a "mast and flag" and also said it "is to be one of the Portuguese telegraphs coming from HQ".⁴ From the description, the telegraph would appear to be the Ciera single arm design. Also, if it came from Headquarters, it would suggest that Wellington's army was carrying ready-made Portuguese telegraphs or they had people with the knowledge to build them.

The three Ciera designs all had eight possible combinations. One was used for start/finish and one to repeat the previous letter. A string of numbers using the numerals one to six was transmitted, serially and this number was matched to a word in the code book: eg 223 was "many" and 662 was "today".

On 9 August 1810, Rice Jones records that a British Artillery officer, Captain Ross, was "erecting a telegraph at Celorico castle".⁵ Three days later it was ready and Ross rode to Linhares from where, according to Rice Jones "he distinguished the signals made on the Portuguese telegraph with one arm, fixed upon the castle here" (at Celorico). The distance between these towns is around 10km.

Wellington quickly came to rely on the information he received from the telegraph system. Through August and September 1810 he was regularly sending and receiving messages by telegraph. Captain John Burgoyne RE noted that Wellington was receiving daily reports from the Governor during the blockade and siege of Almeida. Wellington's view on the Portuguese telegraphs is clear from a message he sent to the Governor of Almeida on 20 August 1810:

Wellington finds the Portuguese telegraph so convenient, that he recommends you to prepare one

² All these claims seem to point back to Nalder's *History of the Royal Corps of Signals*, 1958. I can find no evidence to suggest that Gamble's portable telegraph was ever used in the Peninsula.

⁴ Thompson, *Peninsular War Diary of Edmund Mulcaster RE*, Amazon, 2015, p.120.

³ Wellington's Despatches (WD), Wellington to Cotton, Celorico, 31 July 1810.

⁵ Rice Jones, *An Engineer Officer Under Wellington in the Peninsula*, Trotman, 2005, p.60.

of their upright ones ... Let the upright be as high as the present telegraph, and the board attached to the movable beam be 3 feet English Square [1 metre], and we shall be able to distinguish it.⁶

Over the next few days, more telegraphs were built at Alverca and Villa Franca. Interestingly, Mulcaster wrote on 23 August 1810 that he met his Chief Engineer, Richard Fletcher at Villa Franca “about the telegraph shutters not being large enough”.⁷ This would suggest that another design, the Ciera shutter telegraph was also in use.

When a French raid destroyed the telegraph at Freixedas on 28 August, another one was built further west at Maçal do Chão to continue communication between Alverca and Celorico. When the siege of Almeida ended and Wellington knew he had to retreat, he wrote:

When Guarda and Celorico are finally evacuated, take care that the telegraphs are destroyed.⁸

Even as he retreated, he continued using telegraphs and mentions those at Linhares and Gouveia. As late as 16 September 1810, Wellington was still making reference to telegraphs. Once his retreat finally started, movement was too rapid to make any more use of the telegraphs.

TELEGRAPHS ON THE LINES OF TORRES VEDRAS

In Summer 1809, Napoleon had just defeated the Austrians at the battle of Wagram. Wellington knew that the might of the French empire would descend on Spain and Portugal in 1810 and he needed a place where his army could resist the larger French forces. In October 1809, Wellington rode over the ground to the north of Lisbon and after his inspection he issued instructions to his Chief Engineer, Richard Fletcher, to commence work on a system of defences that came to be known as the Lines of Torres Vedras. These defences, which would eventually number 152 separate forts would resist and defeat the French without a battle being fought.

One of Wellington’s instructions ordered Fletcher to “fix upon spots on which signal posts can be erected upon these hills, to communicate from one part of the position to the other”. There is no further mention of signals for about five months until Wellington wrote on 1 April 1810 that Fletcher had been talking to Admiral Berkeley, commander of the British fleet at Lisbon. Clearly he had been seeking naval expertise on signalling.

Later that month, Mulcaster noted in his diary that he had received a letter from “the Colonel” [Fletcher] to prepare signal posts. The following day, 27 April 1810, he “rode to Serra de Socorro and set the men to work digging”. Mulcaster noted on 5 May 1810 that Mr Davie, a Royal Navy officer from *HMS Barfleur*, arrived at Mount Socorro to get the mast up and the following day “that they got up the signal post at Cabeça” (Montechique). The design of this telegraph was similar to signalling as used by the Royal Navy, incorporating masts, yards and flags.

⁶ WD, Wellington to Cotton, Celorico, 20 August 1810.

⁷ Mulcaster, p.123.

⁸ WD, Wellington to Cotton, Celorico, 3 September 1810.

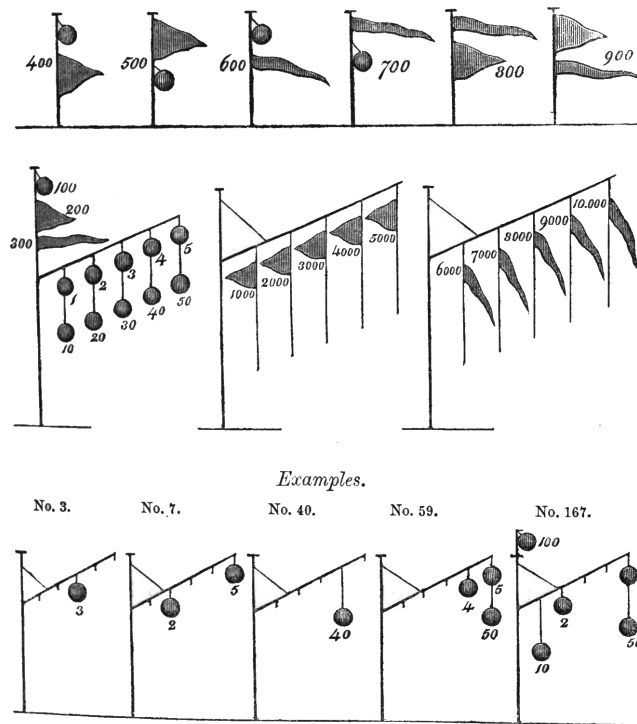


Figure 10. Ten Balloon telegraph and example codes

The Balloon telegraph was a much larger and complex design than the Ciera telegraph. Up to five balloons could be raised on a single yardarm, each balloon having a numerical value depending on its position. With additional flags over 10,000 number combinations were possible, each number matching a word in the code book. The design, build and operation relied heavily on support from the Royal Navy. The code book was Popham’s naval code with many additional words added for operation on the Lines. Recent investigations suggest that up to twelve signal stations were built.

On 15 June 1810, Wellington who was still at Celorico on the Portuguese border, wrote to Admiral Berkeley:

There are however, two or three points in which I think you could [help me] ... One is to give us some of Popham’s telegraph vocabularies ... I should be very much obliged to you if you could [provide sailors] for each of these [signal] stations I cannot spare officers to go down and learn how to use a telegraph; and I am afraid of the mistakes and blunders, which will result from using them without [training].⁹

There is a further letter from Wellington to Berkeley on 24 June 1810 when in typical Wellington style he goes into great detail on his ideas for the design of the telegraph and the number of people to man the telegraph stations.

I should wish to have only one arm to the yard and I should think that if the yard was supported by means of two large sized blocks, thus [see Figure 11] there would be no difficulty in discovering the numbers

⁹ WD, Wellington to Berkeley, Celorico, 15 June 1810.

intended. Number 2 would be under the block nearest the mast; number 3 between the two blocks; number 4 under the most distant from the mast.

Wellington then went on to say:

the establishment at each station ought to consist of the person to be in charge of the signals, and one or two men to assist him ... These officers and men should be paid and treated in every respect as parties from the fleet acting on shore.¹⁰

The issue of payment of the sailors would become a problem and I will come back to this later. Mulcaster noted in his diary on 6 July 1810 that he had been told he could not join the army on the frontier until he had “safely housed the signal men”.¹¹

Command of the work on the Lines now passed to Captain John Jones RE when Fletcher rode north to join Wellington’s army. Jones’ first mention of telegraphs was on 18 July 1810, when he wrote to Fletcher reporting:

at every [signal] post I have visited, the sailors in charge say the distance between the stations is too great and that the masts are all too light for the yards – it blew rather hard on Sunday evening and two were [broken], that on Mount Socorro so badly that we were obliged to replace it. I shall ... see Mr Leith the [Naval] lieutenant in charge of the signals and obtain his ideas as to a new construction and in the meantime I have ordered stronger masts and yards to be prepared for each post ... The navy complain of the quality of the telescopes. If better can be [bought] in Lisbon I shall not hesitate in authorising the purchase of them.¹²

Fletcher replied to Jones saying:

I am sorry to hear so bad an account of the signal posts – We thought at the time of erecting them that from any one of them to the next nearest, the balls would be very visible, and this seemed to be the

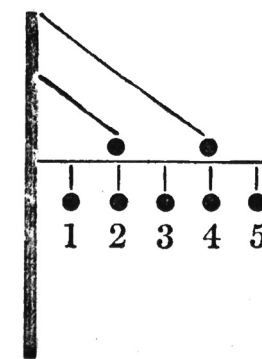


Figure 11. Telegraph Diagrams from Despatches.

¹⁰ WD, Wellington to Berkeley, Celorico, 24 June 1810.

¹¹ Mulcaster, p.110.

¹² Royal Engineers Museum (REM), 5501-59-18, Jones to Fletcher, Lisbon, 18 July 1810.

opinion of Mr Davie the officer who put them up. I ... believe the principal fault lies in the telescopes and I feel confident that there will be no objection to you purchasing others of a better description, if you can find them.¹³

By mid-August 1810, the situation had improved with Jones reporting “the [signal] posts as far as I can judge answer very well”. At the beginning of September, Wellington was faced with an unexpected problem. Admiral 1810 Berkeley had written to him asking for additional rations and pay for the sailors who were operating the telegraphs. Wellington replied that:

The difficulty ... [is not in] giving the officers and seamen additional rations ... So much as in creating a precedent by the grant of this allowance ... which may be very inconvenient to the service here after.¹⁴

Wellington finished by saying he would have to ask the government to make the decision and if the Admiral felt he had to withdraw the sailors, he would “try to arrange to manage our signals without the assistance of these officers and men”. This could not have come at a worse time as Wellington knew he would be retreating towards the Lines in the next few weeks.

On 7 September 1810, Jones was asked to arrange for Portuguese militia to take charge of the signal stations vacated by the British sailors. Realising that there was no one who could operate the complex naval balloon telegraphs, on 11 September, Jones was told:

Lord Wellington thinks we had better use the simple sort of Portuguese telegraph which we now employ here ... I request you will ... get one made for each post as soon as possible, and have it carried to the spot where it can be put up in a few minutes ... The men who work them are old seamen who have been examined for the purpose. I should think it would not be difficult to procure a number of these men at Lisbon.¹⁵

It is interesting to note that Wellington appears to say that “old Portuguese seamen” were operating the telegraphs on the Portuguese border and could also be used on the Lines. On 18 September 1810, Jones reported that “workmen are employed constructing the portable telegraphs ordered to be fixed up near the site of the present signal masts”.¹⁶ On this date, Wellington had started his retreat.

Wellington remained very concerned about the situation as he retreated to the Lines. His whole strategy for defending the Lines required fast signalling to be available as he planned to concentrate his army behind the Lines and quickly move them to counter any French attack.

¹³ REM, 5501-59-18, Fletcher to Jones, 23 July 1810.

¹⁴ WD, Wellington to Berkeley, Celorico, 2 September 1810.

¹⁵ REM, 5501-59-18, Fletcher to Jones, Gouveia, 11 September 1810.

¹⁶ REM 5501-59-18, Jones to Fletcher, 18 September 1810.

As late as 5 October 1810, Jones was reporting “the new telegraphs are not yet quite finished, but I expect tomorrow to have sufficient for the front line sent out”.¹⁷ The army entered the Lines just four days later on 9 October 1810 and, although it is not documented, it appears that Wellington and Berkeley quickly reached some agreement, perhaps common sense prevailing. A General Order dated 13 October 1810, stated that “When any officer [wants to send] a message to the Commander of the Forces, it is only necessary to send it to the nearest telegraph and to request the *officer of the Navy* at that telegraph to communicate it to the Sobral station.” The Royal Navy officers and sailors must have returned to the signal stations by this time.

Whilst the signalling on the Lines was a great success, the argument between Wellington and Berkeley seemed unnecessary and created great risk to the huge effort and sacrifice of the Portuguese people in building the Lines of Torres Vedras to defend Portugal from the French. The success of the telegraphs on the Lines was summed up by one officer:

[The French] cannot give the least move but that we know it in the course of 15 minutes by telegraph, which we have in all directions. Whenever they think of moving we know it directly.¹⁸

THE USE OF TELEGRAPHS IN THE PYRENEES 1814.

THE last time Wellington used telegraphs was during the operations in the Pyrenees in early 1814. His army was located in mountainous terrain, in winter, and this made communication and movement very difficult. Any French attack needed a prompt response. In January 1814, Wellington established telegraphs which communicated across the front of the army, to his HQ at St Jean de Luz on the Biscay coast.

These were placed on church towers and were described as follows:

By an ingenious combination of flags and barrels suspended from high signal posts, it was found that notice could be almost instantaneously given at headquarters [of the] ... movement of the enemy.¹⁹

Each division of the army was asked to nominate an officer to take command of the telegraph when their division was on duty. Edmund Wheatley who served in the 1st Division, was on duty towards the

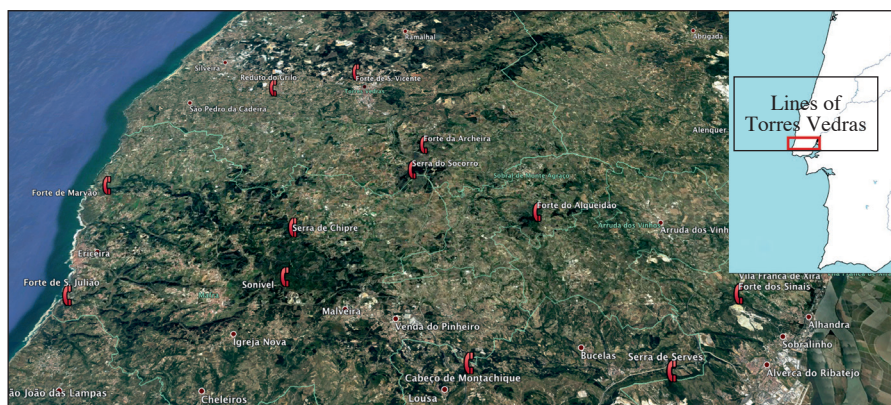


Figure 12. Map of signal stations on the Lines.

end of January, his description shows that thought had also been given to making signals at night:

If there was a disturbance amongst the enemy, lift one flag; if the French picquets retired, raise two flags; if they fired at me, raise three flags. At night if they began to be clamorous or retreat, to hoist the tub of pitch and set fire to it. If they ... advanced, to [set] fire to my tent and a bonfire near it and to retreat.²⁰

Telegraphs capable of working at night was something that the founder of the School of Military Engineering, Charles Pasley, had also taken an interest in.

This telegraph system was only used for a few weeks but gave Wellington confidence that he could contain any advance made by the French in the early weeks of 1814.

The British army made good use of several telegraph systems in the Peninsular War to improve the speed of communication. The Corps of Royal Engineers and the Portuguese Engineers made a significant contribution to the operational development of this technology.

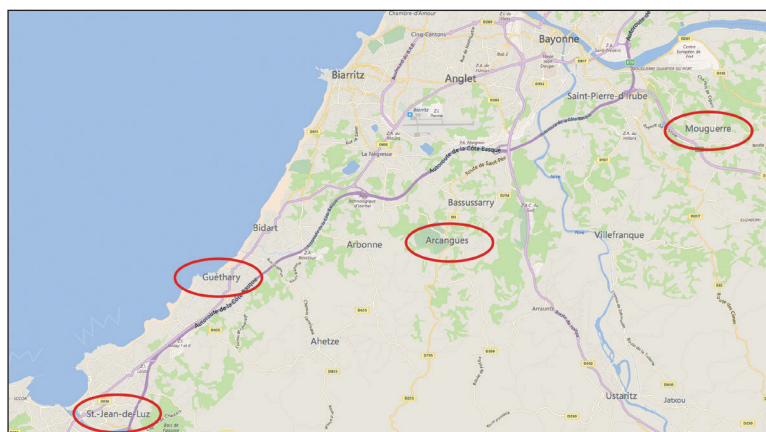


Figure 13. British Telegraphs in the Pyrenees, 1814.

17 REM 5501-59-18, Jones to Fletcher, Lisbon, 5 October 1810.

18 Bamford, *With Wellington's Outposts*, p.39, Alcoentre, Jan 1811

19 Batty, *The Campaign of the Left Wing of the Allied Army in the Western Pyrenees*, John Murray, 1823, p.102.

20 Hibbert, *The Wheatley Diary*, Longmans, 1964, p.34.