

## William Siborne's New Waterloo Model

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### ABSTRACT

*William Siborne has played a major role in our understanding of the battle of Waterloo, and has left a lasting legacy in the form of two large models, a collection of eyewitness accounts, and a history of the campaign that has remained in print since it was first published in 1844. But Siborne's history has become clouded in controversy, and as a result his skills as a model maker have gone largely unnoticed. A recent project to conserve his New Waterloo Model at the Royal Armouries in Leeds has presented a unique opportunity to review this aspect of his work, and to appreciate some of the subtleties of this complex piece of art.*

William Siborne is best known for his *History of the War in France and Belgium*, which despite being criticised for its over reliance on British sources, remains one of the most cited works on the Waterloo campaign. However, as a young man his interest was in topographical surveying, plan-drawing and modelling, and it was as a result of his published work on these subjects that he was asked to construct a model of the battlefield of Waterloo for the United Services Museum. The project consumed twenty years of his life, and the hundreds of personal accounts from Waterloo veterans that he collected during the course of his research, and the history that he produced were mere bi-products of his model making. Siborne's *New Waterloo Model* is on display at the Royal Armouries Museum in Leeds and represents the culmination of his work, and a recent conservation project has presented the first opportunity in many years to fully appreciate his skill as a model-maker.

Siborne was born in 1797, and at the age of fourteen entered the Junior Department of the Royal Military College as a gentleman cadet.<sup>1</sup> After successfully completing his studies, he was awarded his commission in 1814, and joined the second battalion of the 9<sup>th</sup> Regiment. He was promoted to lieutenant in the following year, and

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<sup>1</sup> Siborne's father, Benjamin, was a captain in the 9<sup>th</sup> Regiment, and as the son of a serving officer, Siborne paid only £40 a year for his education, room and board at the Royal Military College, and then providing he passed his examinations, received a commission free of charge.

transferred to the first battalion, but the regiment returned from North America too late to participate in the Waterloo campaign, and although he served in the Army of Occupation, he was placed on half pay in 1817. Siborne's military career may have been frustrated with the reduction of the armed forces, but during this time he had developed a keen interest in topographical surveying, plan-drawing and model making. He would have studied practical surveying at Sandhurst, and may also have visited the Musée des Plans-Reliefs in Paris.<sup>2</sup> In 1822 he published his first book, *Instructions for Civil and Military Surveyors in Topographical Plan-Drawing*, in which he proposed the adoption of the system of showing relief on maps developed by Johann George Lehmann, an officer in the Saxon army, whose system had become popular on the continent. Siborne was recalled to active service in 1824, but instead of joining the 47<sup>th</sup> Regiment, which was then in India, he took up the position of Assistant Military Secretary to Sir George Murray, Commander in Chief in Ireland. He published his second book, *A Practical Treatise on Topographical Surveying and Drawing*, in 1827, in which he demonstrated how to carry out a detailed and accurate survey, and how to use the results to create a map or plan at an appropriate scale. He concluded with some brief *Instructions on Topographical Modelling*, and two of his models, one showing a mountainous and rocky terrain, and the other illustrating part of the countryside around Ledbury in Herefordshire, were put on display at his publishers. This small volume, little more than 125 pages in length and comprising seven plates, is the key to unlocking much of his subsequent work on the Waterloo models.

Siborne's *Practical Treatise* does not appear to have made a significant impact in professional circles and when the first part of an article on military surveying appeared in the *United Service Journal* in March 1829 the author bemoaned the absence of 'a single good English manual of instruction, either on the general science of military surveying itself, or the mechanical and subordinate art of committing its results to paper', and although the author knew of Siborne's first publication, it is clear that he was unaware of his second.<sup>3</sup> Siborne took the opportunity to write to the editor, and his letter commenting on the article and drawing attention to his book was published in the next issue.<sup>4</sup> When the second part of the article appeared in August it included a suitable acknowledgement of his work. The timing of this

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<sup>2</sup> The 'Particulars of the Annual Expenses for the Junior Department of the Royal Military College for the Year 1811' show that one master was paid £150 to teach practical surveying, *The Journals of the House of Commons, Session 1810-11*, 66, (1811), 499.

<sup>3</sup> 'Military surveying', *United Service Journal*, Part I, 1829, pp. 337-345; Part II, 1829, pp. 176-186.

<sup>4</sup> William Siborne, letter to the editor, March 5, 1829, *United Service Journal*, Part I (1829), 497-499.

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exchange was fortuitous. Elsewhere in the pages of the journal a discussion was unfolding on a proposal to establish a United Services Museum.<sup>5</sup>

Siborne had included in his *Practical Treatise* a brief discussion on the weakness of maps and plans, in that they require careful study to understand the multiplicity of lines and symbols, and the advantages of topographical models in giving an overall impression of the ground and the key features of the landscape. He put forward the potential benefits of models, not only to geologists and land surveyors, but also to politicians as a means of following military operations, and to field commanders in planning their operations. He also suggested that models of famous battles could be used in military colleges to enable cadets to understand the nature of the terrain, the strength or weaknesses of the positions taken up by the respective commanders, the subsequent movements of troops, and some of the factors that contributed to the success or failure of a particular manoeuvre.<sup>6</sup> It proved an incredible piece of foresight. In March 1830 it was announced that a decision had been taken to adopt measures for the formation of the new museum, and shortly afterwards Siborne was invited by Lord Hill, the Commander in Chief of the British Army, to make a model of the Battle of Waterloo as the centrepiece of the displays.<sup>7, 8</sup>

The project was to be undertaken in Siborne's own time, not as a part of his military duties, so he immediately took a leave of absence, and travelled to Belgium to conduct a topographical survey of the battlefield. He stayed at the farm of La Haye Sainte, and over the course of the next eight months he plotted the key topographical features, measured the height (or depth) of the ground, and recorded the angle of inclination of the slopes. However, what was required was a model of the battlefield as it appeared on 18 June 1815, and in addition to the small changes in the landscape that had inevitably occurred in the intervening years, a large part of the ridge occupied by the Allied army had been removed for the construction of the Lion Mound memorial. Siborne was determined that the model would be as accurate as possible, so he interviewed local farmers and used the information he acquired to add fine detail to his plans, and to reconstruct the lost part of the battlefield. By the time Siborne had completed his survey he had produced a series of working drawings

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<sup>5</sup> An Old Egyptian Campaigner, letter to the editor, no date, and subsequent correspondence, *United Service Journal*, Part I (1829), p. 239, pp. 366-367, p. 759; Part II (1829), p. 107, pp. 238-239, p. 368, p. 625, p. 753.

<sup>6</sup> William Siborne, *A practical treatise on topographical surveying and drawing* (London: C. and J. Rivington, 1827), pp. 91-96.

<sup>7</sup> 'The editor's portfolio', *United Service Journal*, Part I, 1830, p. 100.

<sup>8</sup> Lord Hill's commission has not survived. Siborne's failure to produce written authorisation to undertake the project was to hamper his attempts in later years to gain payment for his work from the War Office.

from which he was able to create an overall plan of the field as well as various details of key features such as La Haye Sainte and Hougoumont, and cross sections through the landscape. Unfortunately, the only survival from this exhaustive process is the plan he produced to accompany the circular letter that he sent to Waterloo veterans when he was looking for further information on the battle. Some annotated copies, which were returned to him by British, Hanoverian and German officers to illustrate their personal accounts, are preserved in the British Library, but the only complete copy is the one published by his son at half the size of the original.<sup>9</sup>

It is interesting to compare Siborne's plan with the one published by the Dutch surveyor, Willem Craan, in 1816. It shows a high level of agreement with regards to the human influence on the landscape – the roads, buildings and enclosures - but is far superior in illustrating the nature of the ground. In his *Treatise* he had outlined an improved system of showing relief, combining the method then gaining popularity in France of using contour lines to connect points of equal elevation, with the practice in Britain of using single shading lines to show both the direction of the slopes and (by the relative intensity of the shade) the relative steepness.<sup>10</sup> At first glance the plan looks confusing, particularly with the addition of field boundaries, but anyone who has read accounts of the battle or walked the field will recognize the undulating nature of the terrain, and be able pick out the sandpit which formed the advance post of the 1/95<sup>th</sup> Regiment (Rifles), the valley bottom where the Union Brigade was counter-attacked by French cavalry, the hollow way leading to the north gate of Hougoumont, the dead ground west of La Haye Sainte where the French cuirassiers lay hidden before surprising the 5<sup>th</sup> and 8<sup>th</sup> Line Battalions (King's German Legion), and the projection from the ridge which caused the attacking columns of the Imperial Guard to diverge. Siborne's interpretation of the area of the field occupied by the Lion Mound illustrates how significant a feature was the ridge forming the right centre of the Allied line, the highest point of which was chosen by the Dutch as the site for the Lion Mound monument, and a comparison with modern maps produced by a combination of ground and aerial survey, shows the general lowering of the ground above 132.5 meters (150 feet on Siborne's plan) as a result of its construction.<sup>11</sup> In his *Practical Treatise* Siborne had adopted the convention of using short, straight shading lines to show cuttings (the longer the line the deeper the cut), but on the surviving copy of his plan these appear without clear definition as thicker

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<sup>9</sup> The scale of the original plan was 10 inches to the mile, and it measured approximately 26 x 22 inches. H.T. Siborne, ed., *Waterloo letters: a selection from original and hitherto unpublished letters bearing on the operations of the 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> June 1815, by officers who served in the campaign*, (London: Cassell, 1891), p. xii.

<sup>10</sup> William Siborne, *A practical treatise on topographical surveying and drawing* (London: C. and J. Rivington, 1827), pp. 62-63.

<sup>11</sup> *Institut Géographique National* (IGN)

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black lines. The details and cross sections that he produced would have shown these features in more detail, but it is still possible to pick out where the main road and the country lanes cut through the landscape. This feature was most marked at the crossroads, but a glance at a modern map shows that it has since all but been destroyed by a combination of the construction of the mound, the widening of the road and the laying of tramlines (since removed).

After completing his survey Siborne returned to Dublin to begin work on his model, choosing to show the whole of the battlefield at the moment of the defeat of the Imperial Guard. It was constructed on a scale of nine feet to the mile, taking eight years to complete, and when it was finished it measured 21 feet 4 inches long by 19 feet 9 inches wide, and was populated by approximately 80,000 figures. It went on display in 1838 at the Egyptian Hall off Piccadilly and attracted an estimated 100,000 visitors, proving it to be both a popular success and being well received by Waterloo veterans, although there was some criticism of the prominence of the Prussians in Wellington's great victory.<sup>12</sup> The model then toured various provincial cities, including Birmingham and Manchester, before going on display in Dublin in 1841.

Following a War Office decision to withdraw his funding Siborne fell into severe financial difficulties and this situation was not resolved by the success of his original model, but despite that he began work on a new model showing the charge of the British Heavy Cavalry.<sup>13</sup> This was intended to be the first of a new series of models constructed on a much larger scale and showing the critical moments in the battle.<sup>14</sup> Siborne had made a careful study of the whole question of scale, and had realised that if the same scale was used for heights as it was for distances, then the effect of viewing models from above would be to make gently undulating ground resemble a flat plain, and mountainous country appear as hilly ground. He therefore concluded that in order to give the correct impression of the nature of the terrain, the vertical scale should be exaggerated in comparison to the horizontal scale.<sup>15</sup> He had already put these ideas into practice in his previous models so when he came to plan the new model, which would show only that part of the battlefield occupied by the left centre of the Allied line, he decided to construct it on a horizontal scale of 15 feet to 1 inch, and a vertical scale of 6 feet to 1 inch. This produced an overall base size

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<sup>12</sup> Siborne eventually bowed to pressure and removed about 10,000 figures from the model. H.W. Siborne, *History of the War in France and Belgium in 1815*, 2<sup>nd</sup> edition, Vol. 2 (London: T. and W. Boone, 1844), pp. 270-272.

<sup>13</sup> 'The Army', *Freeman's Journal and Daily Commercial Advertiser*, October 7, 1839, p. 1.

<sup>14</sup> William Siborne, *Guide to Captain Siborne's New Waterloo Model*, (London; 1844), p. 5.

<sup>15</sup> William Siborne, *A practical treatise on topographical surveying and drawing* (London: C. and J. Rivington, 1827), pp. 96-98.

measuring 18 feet 7 inches long by 7 feet 9 inches wide, which he divided into ten sections to make the model easier to construct and to transport.<sup>16</sup>

The construction of the individual sections was relatively simple. Siborne began by preparing a topographical plan of the part of the battlefield to be depicted by the model, and then transferred the details to the base of each section. He then hammered pins into the base at intervals along the lines representing the contours, roads and other boundaries, and after cutting these to the correct height, used them as a guide to sculpt a preparatory model in clay. When this was finished the preparatory model was used to create a plaster mould, and then the mould was used to make a plaster cast. The section of the model having been cast, it was allowed to dry before being sealed and mounted on a wooden frame.<sup>17</sup> Recent conservation work on the new model confirms that this was the method used. The surface is cast from plaster about an inch thick, and each section is mounted on a box-like construction made of softwood about one inch thick, which is cut with handholds, usually two on each side, to make the pieces easier to carry and manoeuvre into position. The inside of each box is strengthened by a wooden cross frame, which has a series of  $\frac{1}{4}$  inch iron bars attached.

Siborne had divided his plan of the new model into a number of small squares, and once each section was mounted, he carefully marked these on the surface of the cast, and then transferred the fine details of hedges, walls, trees, buildings, roads etc. The fields with crops were made from a woven fabric mat, and the uncultivated ground was painted. The recent conservation project found evidence of several old repairs at the edge of some of the sections, where the fabric mat had either broken off or lifted away from the cast and had been reattached. In one instance the repair was so poorly carried out that where two sections of the model meet the surface is no longer flush. The farm of La Haye Sainte and the small cottage on the edge of the model were constructed of wood and card, which was then painted. The foliage of the trees and hedges was pressed out from thin lead foil, shaped and painted, and the trunks formed of small twigs, but recent x-ray fluorescence analysis has revealed that some of the leaves are made of out of aluminium, which did not appear until the early twentieth century, and must therefore be the result of a later restoration. The main road was also made from thin sheets of lead, which were stamped to show the metallised surface, but this has become less distinct as a result of being over painted several times in the model's history.

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<sup>16</sup> The model comprises six sections measuring 40 inches by 45 inches; two measuring 50 inches by 45 inches; and two measuring 51 inches by 45 inches.

<sup>17</sup> William Siborne, *A practical treatise on topographical surveying and drawing* (London: C. and J. Rivington, 1827), pp. 98-103.

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The evidence of the method adopted by Siborne to recreate the charge of the British Heavy Cavalry for his new model survives in a collection of letters and memoranda held at the British Library. When he began to look for information to aid in the construction of his original model, he found that the official records lacked the level of detail he required. He therefore requested permission from Lord Hill to send a circular letter to British officers who had fought at Waterloo, to ask them for information about the battle. His proposed solution was a radical one. No survey of this nature had been attempted before, and some senior military figures raised concerns that the differing versions of events that officers were bound to give, would merely result in a mass of contradictory information, and might weaken the authority of Wellington's official dispatch.<sup>18</sup> Despite these concerns Siborne was given permission to conduct his survey, and in response received hundreds of personal accounts from British, Hanoverian and German veterans.<sup>19</sup> He diligently checked every piece of information, and where necessary entered into further correspondence to clarify matters of detail, before using the results to produce his original model. When Siborne came to construct his new model he adopted the same approach.

One of the criticisms of Siborne's original model had been that the size of model soldiers 'renders it difficult to discern between cavalry and infantry', and he realised that the figures for the new model would be critical to its success.<sup>20</sup> Model soldiers at this time were invariably made as 'flats', but these did not satisfy his desire of showing the battlefield in three dimensions, and so he had 'rounds' cast for his original model. The 10mm high figures were crude and lacked detail, but when painted and viewed from a distance they served their purpose of illustrating the positions and tactical formations of the opposing troops. The model soldiers required for the new model needed to be much larger and far more detailed, but the ready availability of military prints showing the uniforms of the armies at Waterloo helped Siborne ensure that they were as accurate as possible. The figures cast for the new model were 25mm high, and the preparatory models carved in boxwood or ivory from which the moulds were made must have been exceptionally fine. The different unit types were easily recognisable as line infantry, highlanders and riflemen; household cavalry and dragoons; foot artillery and horse artillery, and when painted in the correct uniform colours and facings, the different regiments were readily

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<sup>18</sup> Sir James Willoughby Gordon, letter to Lord FitzRoy Somerset, November 1, 1834, Gareth Glover, ed., *Letters from the battle of Waterloo: unpublished correspondence by Allied officers from the Siborne papers*, (London: Greenhill, 2004), pp. 326-327.

<sup>19</sup> The text of Siborne's circular letter is reproduced in, Siborne, *Waterloo Letters*, ix-xi; and, Glover, *Letters from the battle of Waterloo*, pp. 25-26.

<sup>20</sup> 'Waterloo and the Waterloo model', *United Services Journal*, Part II, 1839, p. 201.

identifiable. There were different figures for officers and men, models of guns and limbers, and individual model soldiers for personalities such as Wellington, Uxbridge and Picton. The figures were made with separate heads, arms, weapons and accoutrements, a decision that may have been made to make casting easier, but which also allowed Siborne to pose each individual model soldier. It has been suggested that the only craftsmen with the skills required by Siborne to produce his figures were the jewellers and silversmiths of Dublin, and it appears that this may be true. X-ray fluorescence analysis of some of the original model soldiers shows them to be made of a lead and tin alloy, but it has also revealed that the swords of the cavalry are made of silver.<sup>21</sup>

A count taken during the recent conservation work revealed that there are 6,858 figures in the new model representing 7,455 Allied and 14,800 French soldiers, but it also identified nearly 700 examples of lead and tin debris where model soldiers may once have stood, and so the total number may originally have been closer to 7,500. This would give a figure scale of approximately 1:3, but an investigation of the strengths of some of the units suggests that this is purely nominal. An analysis is difficult due to the loss of some figures and the replacement of others, but the figure scale of Allied units varies from 1:2.6 to 1:5.4 for infantry, and from 1:3.3 to 1:3.6 for cavalry.<sup>22</sup> There also appears to be far too few Frenchmen. The figure scale for French infantry brigades is about 1:6.3 and for cavalry brigades about 1:9. It would appear that Siborne was less interested in showing accurate numbers, and more concerned about representing the correct tactical formations, and creating the illusion of movement and action.

Siborne was promoted to captain in 1840, and appointed secretary and adjutant of the Royal Military Asylum at Chelsea just a few weeks before the *New Waterloo Model* went on show at the Egyptian Hall on 26 December 1844. The initial reviews were favourable. *The Times* admitted that, 'The modeller has certainly been most successful in placing before the public one of the most complete representations of a battle that such materials can afford'; the *Naval and Military Gazette* praised 'this most beautiful, ingenious and comprehensive sketch of the memorable battle of Waterloo'; and the *United Service Gazette* observed that, 'The life and spirit which Captain Siborne has infused into this model is to us almost inexplicable'.<sup>23</sup> The following year Siborne displayed both models side-by-side to commemorate the 30<sup>th</sup> anniversary of

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<sup>21</sup> 'Siborne's Waterloo model: reuniting soldiers with their swords', last modified April 8, 2015, <http://blog.royalarmouries.org/2015/04/08/sibornes-waterloo-model-reuniting-soldiers-with-their-swords/>.

<sup>22</sup> The 5<sup>th</sup> Line Battalion (King's German Legion), shown in square, four ranks deep, has a figure scale of 1:1.2.

<sup>23</sup> 'The Waterloo Model', *The Times*, December 25, 1844, p. 5.

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the battle, and he made liberal use of these endorsements in his advertisements in newspapers like the *Illustrated London News*, as well as in journals such as the *Economist* and the *Art Journal*. However, the new model attracted far less attention than his *History*, which had been published in June 1844. Such was the level of expectation for his book that the first edition of 1000 copies sold out rapidly, a second edition was brought out in August, and a third edition in 1848.

Siborne had hoped that the new model would be the first of a series of such works, but it was the only one to be completed. His health was declining, and he spent the last few years of his life trying to secure the long-term future of his models, hoping that they would be 'arranged in some public building, so as to constitute a highly instructive, as well as soul-stirring, national memento of the greatest and most important battle of modern times'.<sup>24</sup> After his death in 1849 the original model was purchased by regimental subscription for the United Services Museum, but the new model was largely forgotten. It had been shipped to Germany in 1846, where it was exhibited by Mr. and Mrs. W.C. Evans of Mutton Hill, Banbridge, Co. Down, in Berlin, Dresden, Leipzig and several other towns, before returning to Britain in 1847.<sup>25</sup> It was then displayed in Liverpool and Manchester before being placed in storage at the Ringsend Iron Works in Dublin. It was acquired by the foundry owner, Frederick Barrington, in lieu of a bad debt, and on his death was inherited by his niece, Mrs. Marion Malone, of Glendruid, Cabinteely, Co. Dublin.<sup>26</sup>

The model reappeared 'for sale' at the Irish International Exhibition in Dublin in 1907, but no buyer could be found, and the following year Mrs. Malone gave the model to the Royal Military College at Camberley.<sup>27</sup> It was placed on 'issue charge' to the Tower Armouries in 1925, following a review of trophies of war held in military establishments, and then at the end of 1934 the commandant of the Royal Military College at Sandhurst wrote to the Curator, Charles ffoulkes, informing him that all available space was now required for educational purposes, and requesting that he

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<sup>24</sup> Siborne, *Guide to Captain Siborne's New Waterloo Model*, p. 4.

<sup>25</sup> The continental tour is recorded in *The Morning Post*, September 8, 1846, and March 29, 1847, p. 3.

<sup>26</sup> Mrs M. Malone, letters to Charles ffoulkes, Curator of the Armouries, January 28, 1935 and June, 23, 1935; Amy Barrington, letters to C. ffoulkes, June 24, 1935 and July 5, 1935; and, Kate Macrory, letter to C. ffoulkes, July 3, 1935. Royal Armouries. Inventory File. XVIII.82.

<sup>27</sup> Mrs M. Malone, correspondence with Henry H. Wilson, Commandant, Staff College, Camberley, November 8, 1907 and February 5, 1908. Royal Armouries. Inventory File. XVIII.82.

take back the model.<sup>28</sup> ffoulkes recognised that the model would be of great interest to the public, and rather than see it destroyed, which seems to have been the only other option being considered, agreed to the transfer. The sculptor, Herbert H. Cawood, was commissioned to carry out some restoration, and after he had repaired the surface, cleaned and adjusted the model soldiers, and replaced some of the losses, it went on display in the White Tower accompanied by 'an ingenious arrangement of movable magnifying glasses by which every detail can be studied both by the adult and the child'.<sup>29</sup>

The model remained on display until the advent of the Second World War, and when the Tower of London reopened in 1946 it had been relocated to the New Armouries, where it was inaccessible to the public. The need to carry out major works to the building in 1955 prompted discussions on whether to re-display the model in the White Tower, or find it an alternative home in one of the military museums, but in the end no agreement could be reached and it was placed in storage.<sup>30</sup> An idea to send the model to the new Wellington Museum in Belgium, which was being set up in the inn that had served as the Duke's headquarters, was pursued with interest, but was indefinitely postponed when the trustees were unable to acquire the whole of the building.<sup>31</sup> It was finally agreed to lend it to Dover Castle, pending a revival of the Belgian scheme.<sup>32</sup> Some conservation work was carried out at this time, the case was repaired, and a number of damaged or decayed figures suffering from lead disease were removed, but the model was noticeably incomplete when it went on display in 1963.<sup>33</sup>

The condition of the model continued to deteriorate, and when the Waterloo Committee visited Dover in 1975, they were prompted to write that, 'it was very sad to see the once brilliant colours of the uniforms covered with dust and dirt', and

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<sup>28</sup> Major T.G. Upton, Quartermaster, letter to C. ffoulkes, November 1, 1934. Royal Armouries. Inventory File. XVIII.82.

<sup>29</sup> Charles ffoulkes, *Arms and the Tower* (London: John Murray, 1939), pp. 192-193.

<sup>30</sup> W. Sayles, memo to K. Newis, Ministry of Works, October 8, 1957; Lt. Col. P.L. Binns, War Office, letter to Sir James Mann, Master of the Armouries, 10 December 10, 1957. National Archives, WORK 14/2655.

<sup>31</sup> Duke of Wellington, letter to Sir James Mann, March 28, 1958. National Archives, WORK 14/2655.

<sup>32</sup> A.M. Clarke, Ministry of Works, correspondence with Sir James Mann, January 12, 1962 and January 17, 1962. National Archives, WORK 14/2655.

<sup>33</sup> R.W.B. Howarth, memo to A.S. McConnell, Exhibitions Division, C.O.I., February 16, 1965. National Archives, WORK 14/2655.

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asked to see it 'restored to its former splendour'.<sup>34</sup> A condition report written following a hasty loan inspection, confirmed that the uniforms of the model soldiers were badly discoloured. It noted that many of infantry were missing their bayonets, and that some of the formations had become very ragged through losses, the impressions of where the model soldiers had once stood being clearly visible in the surface of the model. It also observed that many of the cavalry were headless, and that some were suffering from lead disease.<sup>35</sup> However, no work was undertaken until 1983 when the Ancient Monuments Laboratory carried out tests into the possible cause of the corrosion that was affecting some of the figures. Fresh strips of lead were placed inside the display case, and these showed evidence of being attacked within two months of exposure. One theory put forward was that it might be caused by organic vapours emanating from the model or from the wood, paint and adhesives used in the restorations undertaken in the 1930s and 1960s, but evidence then began to point to one particular fabric.<sup>36</sup> The model was then moved to the Department of the Environment's Model Unit at South Ruislip, where the surface was repaired; the figures cleaned, conserved and replaced where necessary; and an air filtration system installed in the display case to prevent any future build-up of pollutants that might cause further corrosion. Approximately 200 model soldiers had been found to be headless and were repaired, and 239 replacement figures inserted where some of the model soldiers had completely disintegrated or had been lost.<sup>37</sup> The repairs are difficult to identify, but the replacements are instantly recognisable as being slightly taller and less detailed than the original figures, cast in a single piece with a fixed pose, and with a fresher coat of paint. The model was then left largely undisturbed until it was removed to the new Royal Armouries Museum in Leeds in 1996.

The *New Waterloo Model* is a complex piece of art, and in order to gain an appreciation of its subtleties it is necessary to examine it alongside the *Guide* that Siborne produced to accompany it, his *History*, and the letters and memoranda of his British, German and Hanoverian correspondents. One of the most finely detailed

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<sup>34</sup> F. Loudon, Secretary, Waterloo Association, letter to A.L. Tunbridge, Ancient Monuments Secretariat, October 20, 1975. National Archives, WORK 14/2655.

<sup>35</sup> 'A report on the present condition of Captain William Siborne's second model of the Battle of Waterloo, now on loan to Dover Castle, 20 January 1967'. Royal Armouries. Inventory File. XVIII.82.

<sup>36</sup> John Price, Chief Conservator, Ancient Monuments Laboratory, letter to William Reid, Director, National Army Museum, January 26, 1984; J. Price, letter to J. Saunders, National Army Museum, June 30, 1984. Royal Armouries. Inventory File. XVIII.82.

<sup>37</sup> *Captain Siborne's Waterloo Model of 1844* (English, Heritage, August 1989). Royal Armouries. Inventory File. XVIII.82.

areas of the model is La Haye Sainte, and Siborne was indebted to the accounts of the defence of the farm that he had received from Major Baring, commander of the 2<sup>nd</sup> Light Battalion (King's German Legion) and others.<sup>38</sup> When the French began their advance a brigade of infantry was detached to the east of the main road to attack the farm and a close examination of the model shows a number of casualties in the orchard to the south of the farm, and around the barricade, which had been thrown across the road near the main gate, illustrating where the riflemen had put up a stout resistance before being driven back to the farm buildings. The Germans had lost their entrenching tools the day before the battle, but had done their best to make the farm defensible. They can be seen defending three large holes that they had made with some difficulty in the south wall, standing on top of the piggery and firing at the French skirmishers who have taken cover behind the barricade, and engaging in fierce fighting at the entrance to the barn, the door of which had been broken up for firewood the night before.

Almost every figure tells a story. There are more dead and wounded in the fields just to the west of La Haye Sainte, where two companies from the 1<sup>st</sup> Light Battalion (King's German Legion) and a company of Hanoverians had been positioned before being attacked and forced to retreat. Some of them can be seen reforming near the crossroads. The French infantry had then continued its advance, and driven another company of riflemen from the garden to the north of the farm. The Germans can now be seen firing from the windows of the farmhouse, and through loopholes in the stable wall. A little further to the west are a number of casualties from the Lüneberg field battalion, which had been sent forward to support the garrison of La Haye Sainte, only to be surprised in the open by a brigade of French cuirassiers. The Hanoverians broke and fled back up the slope pursued by the cavalry. Some of them can be seen struggling to regain the safety of the main position, and others are attempting to rally beyond the country lane. On the top of the ridge, on either side of the lane, are a number of dead and wounded French cavalrymen, showing where their pursuit of the Lünebergers had been brought to a halt by the fire of the Allied infantry drawn up in squares, and then counter attacked by the Household Cavalry Brigade.<sup>39</sup>

Although many of the model's finer details are hidden from the casual observer, there are three vignettes that would have been clearly visible to every visitor. As the French columns crested the ridge Sir Thomas Picton, commander of the 5<sup>th</sup> Infantry Division, ordered his brigades to counter-attack, but as he led them forward, he was

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<sup>38</sup> Maj. George Baring, letter to W. Siborne, March 12, 1835, Glover, *Letters from the battle of Waterloo*, 241-249; Maj. G.D. Graeme, letter to W. Siborne, December 6, 1842, Siborne, *Waterloo Letters*, pp. 406-409.

<sup>39</sup> Siborne, *Guide to Captain Siborne's New Waterloo Model*, pp. 14-15.

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shot in the head and killed. The incident was recorded in two letters sent to Siborne by Colonel Seymour, ADC to Lord Uxbridge, and Picton is shown on the model close to one of the guns of Roger's company (Royal Artillery), the position given by that officer.<sup>40</sup> Captain Clark was in command of the centre squadron of the 1<sup>st</sup> (Royal) Dragoons as the regiment advanced, and described the charge made on the French columns in some detail in his letters to Siborne, including the capture of the Eagle of the 105<sup>th</sup> Line Regiment.<sup>41</sup> The standard is now missing from the model, which makes the exact location of this incident difficult to identify, but there are two possibilities that might fit Clark's description. The letter recording the capture of the Eagle of the 45<sup>th</sup> Line Regiment by Sergeant Ewart of the 2<sup>nd</sup> Dragoons (Scots Greys) is missing, and only a short summary appears in the *Guide* and the *History*, but the scene is captured on the model where Ewart is shown delivering a ferocious back cut to the standard bearer.<sup>42</sup> It seems likely that the model shows other personalities, such as Lieutenant Belcher (32<sup>nd</sup> Regiment), who seized the regimental colour as the ensign carrying it fell severely wounded, and defended it from a French officer who tried to capture it; and Corporal Shaw (2<sup>nd</sup> Life Guards), who disabled no less than nine cuirassiers before being killed.<sup>43</sup>

The model also reveals the flaws in Siborne's research. He had sent his circular letter asking for information about the battle to British officers, but he made no attempt to contact veterans in the Allied, Prussian or French services. He did receive some responses from officers in the King's German Legion and Hanoverian services, who had close personal and professional ties to the British Army, but otherwise he relied upon the official accounts he received from Holland and Prussia supplemented by published works. The absence of more detailed and balanced information is keenly illustrated on the model. A number of his British correspondents, including Sir James Kempt, had asserted that Bylandt's Brigade had retreated in the face of French fire, and as a result Siborne placed no figures on the model to represent Dutch or Belgian

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<sup>40</sup> Col. Sir Horace Seymour, letters to W. Siborne, November 21, 1842; and November 30, 1842, Siborne, *Waterloo Letters*, 18-21; Col. T. Rogers, letter to W. Siborne, February 9, 1837, Siborne, *Waterloo Letters*, pp. 236-238.

<sup>41</sup> Col. A.K. Clark Kennedy, letters to W. Siborne, April 13, 1835; June 18, 1839; July 14, 1839; and July 27, 1839, Siborne, *Waterloo Letters*, 67-78.

<sup>42</sup> A footnote records that, 'The Eagle of the 45<sup>th</sup> French Regiment was taken in the charge by Sergeant Ewart of the Greys. Unfortunately, I cannot find the letter giving the detail'. Lt. Col. C. Wyndham, letter to W. Siborne, April or May 13, 1839, Siborne, *Waterloo Letters*, 78-82.

<sup>43</sup> Siborne, *Guide to Captain Siborne's New Waterloo Model*, p. 10, p. 16.

units.<sup>44</sup> However, it is now widely recognised that this version of events is incorrect, and that some of Allied troops held their ground.<sup>45</sup>

Siborne received little or no help from the War Department in Paris, and as a consequence he made a number of errors in his interpretation of the French attack. He transposed the position of the 1<sup>st</sup> and 2<sup>nd</sup> Infantry Divisions, and misidentified the Cavalry Division as d'Hurbal's rather than Watier's. On the left of the French advance the 1<sup>st</sup> and 2<sup>nd</sup> Carabiniers are shown drawn up near the edge of the model, when they should be the 7<sup>th</sup> and 12<sup>th</sup> Cuirassiers, and even this is inaccurate – at this time both regiments were in reserve on the right of the main road, and not on the area represented by the model. Siborne believed that only the 1<sup>st</sup> Brigade of the 3<sup>rd</sup> Infantry Division had made attacked the Allied line, and showed the 2<sup>nd</sup> Brigade in support. In fact, the whole of the 3<sup>rd</sup> Division had reached the country lane, and the troops shown advancing in two columns on the far right of the French attack should belong to the 4<sup>th</sup> Infantry Division.

However, perhaps the most interesting omission from the model is that of Captain Whinyates' rocket troop. Siborne had received several letters from Whinyates and others asserting that the troop had been sent forward in support of the advance of the Union Brigade, and that after leaving their guns on the near side of the country lane, they had set up their rockets on the forward slope and fired several into the French columns.<sup>46</sup> Siborne was unsure exactly when this event occurred, and in the absence of corroborating information, decided that it must have taken place after the British Heavy Cavalry had completed their charge, and while the French infantry were reforming on the opposite ridge.<sup>47</sup> However he might just as easily have chosen to represent them on the model.

Only two major errors have been discovered. In his letters Sir Hew Ross (Royal Horse Artillery) asserted that he had placed four of his guns on the ridge to the north of the kitchen garden of La Haye Sainte, and two on the main road, and had

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<sup>44</sup> Sir James Kempt, letter to Sir Hussey Vivian, no date, Siborne, *Waterloo Letters*, pp. 346-347.

<sup>45</sup> Demetrius C. Boulger, *The Belgians at Waterloo*, London, 1901.

<sup>46</sup> Col. E.C. Whinyates, letter to Sir Hew Ross, March 10, 1841; Lt. Col. C.C. Dansey, letter to W. Siborne, February 2, 1843, Siborne, *Waterloo Letters*, pp. 203-208, pp. 209-213; Col. E.C. Whinyates, letter to Sir Hew Ross, August 17, 1840; letter to W. Siborne, November 20, 1842; Lt. Thomas Fox Strangeways, letter to W. Siborne, April 30, [1838]; Sergt. Michael Taylor, letter to W. Siborne, no date, Glover, *Letters from the battle of Waterloo*, pp. 133-134, p. 136, p. 139.

<sup>47</sup> H.W. Siborne, *History*, 2<sup>nd</sup> edition, Vol. 2, 43.

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included a sketch map showing the exact positions.<sup>48</sup> This shows the two guns on the road to the south of the crossroads, and in a direct line with the other four guns in the fields. However, when Siborne placed Ross' troop on the model, he placed the two guns to the north of the crossroads. Major Samuel Waymouth recalled that as the 2<sup>nd</sup> Life Guards moved forward to engage the French cuirassiers, his squadron passed a small cottage or hovel, which was occupied by a party of the 2<sup>nd</sup> Light Battalion (King's German Legion). He described it as without a roof, and remembered that an officer of the Legion was sitting on one of the rafters. Siborne later wrote asking for more details, and received the reply that Waymouth had recently met with Sir Andrew Barnard, Lieutenant Colonel of the 1<sup>st</sup>/95<sup>th</sup> Regiment (Rifles), who had slept in the hovel the night before the battle, and remembered preventing some men, who had already removed the thatch to burn, from taking the rafters as well.<sup>49</sup> On the edge of the model in the rear of the Allied ridge is a small cottage, complete with roof and a neat vegetable garden.

A review of the model is made more difficult by the loss and damage that has occurred in the past, and the lack of detailed information about previous conservation work. However, a black and white photograph dating from November 1956, showing almost the entire length of the model from above, provides some valuable clues.<sup>50</sup> One section of the model has been particularly devastated by losses. On the far right the 2<sup>nd</sup> Brigade of the 3<sup>rd</sup> Infantry Division (as Siborne had misidentified it) should be formed of two columns of perhaps 180 model soldiers each (based on the strength of the other brigades represented on the model). The first column is reasonably intact, although it has become somewhat irregular in shape, and is somewhat over strength, leading to a strong suspicion that some of figures may belong to the other regiment. The second column has been completely decimated. There is a similar story on the Allied side. The plan published in the *Guide* shows part of the Lüneberg landwehr battalion drawn up in support of Rettberg's company (Hanoverian Foot Artillery) with a wing of the 44<sup>th</sup> (East Essex) Regiment behind. All of the figures representing the Hanoverian infantry have been lost; the remains of two limbers can be seen in the rear of the gun line (and the replacement limbers have been located in the wrong position); and only a ragged line remains as evidence of the British battalion. There also appear to be significant losses to the left flank of the 92<sup>nd</sup> (Highland) Regiment, to the right flank of the 42<sup>nd</sup> (Royal Highland) Regiment, and the 1<sup>st</sup> Regiment (Royal Scots) is very much reduced.

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<sup>48</sup> Sir Hew Ross, letters to W. Siborne, January 27, 1835; and March 22, 1841, Siborne, *Waterloo Letters*, pp. 223-224.

<sup>49</sup> Maj. S. Waymouth, letters to W. Siborne, March 16, 1837; May 31, 1842, Siborne, *Waterloo Letters*, pp. 44-46, pp. 51-53.

<sup>50</sup> Royal Armouries. Neg. no. A4555.1.

Cawood is known to have replaced the model soldier representing the Duke of Wellington and a number of the guns, and may have been accidentally responsible for much of the damage to the model.<sup>51</sup> Siborne's plan shows the Allied commander in chief on the ridge in the rear of the Royal Horse Guards (Blues). There is a group of mounted figures at this location, but none wears the Duke's famous plain blue frock coat, and it seems that when Cawood made the new figure he depicted Wellington in the scarlet uniform of a general officer. Siborne would never have made such a mistake. At least the Duke is in the correct location, more than can be said for Comte d'Erlon and Lord Uxbridge. The French commander is shown on the plan in the rear of the central column near the edge of the model, but there is no command group at this location on the photograph. A careful examination of the model shows a single mounted figure, close to the rear of the infantry as if trying to rally the retreating troops. The figure has no hat and appears to have little hair (d'Erlon is depicted in portraits with a bald pate), and he cuts a lonely figure without any accompanying staff, but this seems to be the only likely candidate. He is shown in this position on the photograph. Uxbridge has been even less fortunate. The commander of the Allied cavalry noted in his memorandum to Siborne that after delivering his orders for the advance, he placed himself at the head of the 2<sup>nd</sup> Life Guards, and the plan shows him at the forefront of the charge.<sup>52</sup> However his model soldier is not shown at this location on the photograph. A glance at the model shows another command group further along the ridge to the west of Wellington, one of whom is dressed in the uniform of a colonel of the 7<sup>th</sup> Hussars, and clearly represents Uxbridge.

There is more than a hint of suspicion that none of the guns are original. The barrels are very crude casts, and are mounted on carriages with a double trail more reminiscent of the Gribeauval (French) system than the single block trail of the Congreve (British) system. The limbers are more or less of the correct pattern, but where some of the casts are fine and detailed (Siborne's originals) others are less well defined (later replacements). The British artillery units should consist of five guns and one howitzer, but there are no howitzers on the model; the limbers should be drawn by teams of six horses, but all of those on the model have only four. These are errors that would have drawn comment from Siborne's correspondents amongst the Royal Artillery and Royal Horse Artillery had he been guilty of making them.

Cawood may also have accidentally relocated some of the guns. The photograph shows Rogers' company (Royal Artillery) consisting of seven guns and five limbers,

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<sup>51</sup> Charles ffoulkes, letter to the Secretary, Ministry of Works, June 15, 1935. National Archives, WORK 14/2655.

<sup>52</sup> Marquis of Anglesey, memorandum to Sir Frederic Stovin, November 8, 1839, Siborne, *Waterloo Letters*, pp. 7-10.

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with the death of Picton taking place in the rear of gun number four. The model now shows the correct number of guns (six), but with Picton lying near gun number three. A closer examination reveals a group of three original figures in the uniform of Royal Artillery on the right flank of the company without a gun, suggesting that the gun on the left flank has been incorrectly relocated in the past. One of the limbers of Roger's company is clearly a later replacement, as the drivers and mounted officer wear the Tarleton helmets of the Royal Horse Artillery and not the Belgic shakos of the Royal Artillery, suggesting that two of the original limbers have been lost.

The plan illustrates Ross' troop (Royal Horse Artillery) with four guns positioned in the field to the north of the kitchen garden of La Haye Sainte and the other two guns on the main road. However, the photograph shows only four guns drawn up on the ridge, one limber in the country lane, and four limbers in the fields near the edge of the model. An examination of the model reveals a group of four gunners and a mounted officer in the distinctive Tarleton helmets standing in the road, but without any guns, and these figures can also be clearly identified on the photograph. The model now shows all six guns of the troop positioned in the field, one of which has been moved from its correct location near the crossroads to the right of the gun line, one limber in the country lane, four limbers in the fields, and one limber on the main road near the edge of the model. The damage is not restricted to the Allies. The breastplates and backplates of all of the French cavalry on the model have been over painted with brass paint, regardless of whether they are carabinieri or cuirassiers, and a black and white photograph of the section containing La Haye Sainte taken in 1935 suggests that this may also be an accidental result of Cawood's restoration.<sup>53</sup>

Siborne had a clear understanding of both the theory and practice of topographical surveying and plan-drawing, and carrying out such an extensive survey of the battlefield of Waterloo with the relatively primitive equipment available at the time was an outstanding achievement. It is a great pity that more of his results have not survived as they would reveal much valuable information about the nature of the ground that has since been lost. A computer simulation, created by L P Archaeology, for the Waterloo Uncovered Project used thousands of digital images of his original model, which were then overlaid on a modern map, and this shows a high degree of correlation with surviving roads, buildings and enclosures. A three-dimensional rendering of the model and his overall plan would be very interesting.<sup>54</sup> Siborne's models have endured, and the *New Waterloo Model* represents the culmination of his life-long work. The level of detail that he included in his depiction of the battlefield and his interpretation of events is extraordinary. Siborne was meticulous in his

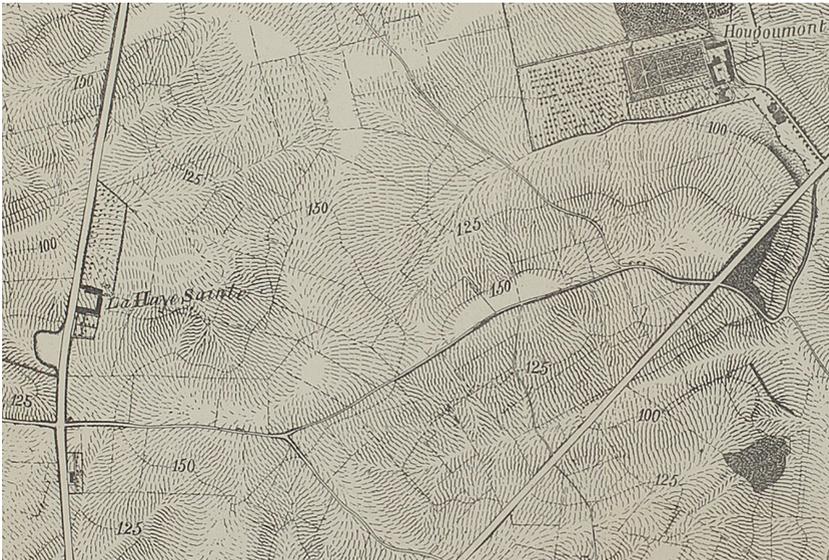
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<sup>53</sup> Royal Armouries. Neg. No. A5010.2

<sup>54</sup> 'Siborne's Model' last modified June 25, 2015,  
<https://www.youtube.com/watch?v=DwXSQUwBPGk>

approach, and although his research was not perfect, even the flaws are a fascinating part of the model's history. Siborne's intention was to produce a model on a scale that would enable 'a closer insight not only into the disposition and movements of the troops engaged, but also into those minutiae of detail which characterise the actual battlefield', and when it was first displayed it must have been an astonishing spectacle. There has been some loss over the years, and other accidental damage, but enough of Siborne's original work survives to appreciate the skill with which it was made. It still delivers a dramatic interpretation of one of the critical moments in the battle of Waterloo, and is a masterpiece of the modeller's art.

## Images



*Image 1: Detail from Siborne's plan of the battlefield showing the right centre of the Allied line including the section damaged by the construction of the Lion Mound. From H.T. Siborne, ed., Waterloo letters, (London, Cassell, 1891).*

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*Image 2: Captain Clark leading the charge of center squadron of 1<sup>st</sup> (Royal) Dragoons. The Eagle of the 105<sup>th</sup> Line Regiment is missing. © Royal Armouries.*



*Image 3: Siborne was able to use the accounts of the defense of La Haye Sainte to make it one of the most detailed areas of the model. © Royal Armouries.*

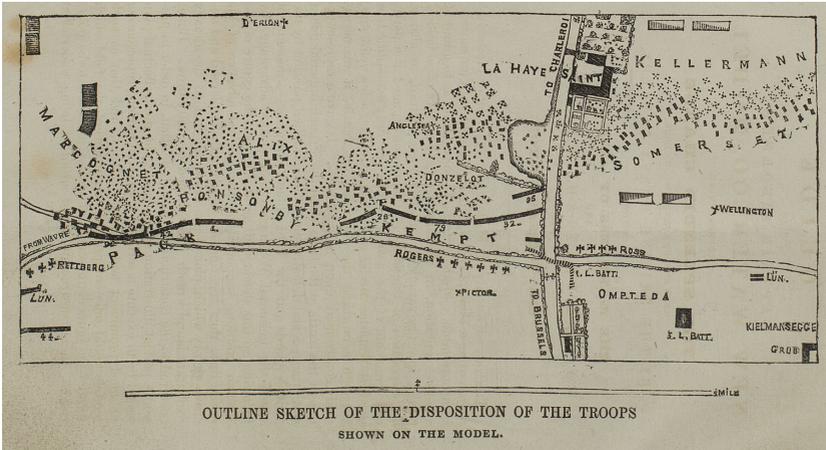


Image 4: Siborne's plan of the model as constructed. Note the locations of d'Erlon, Anglesea [Uxbridge] and Ross's guns. Siborne, *Guide to Captain Siborne's New Waterloo Model*, 4.



Image 5: Photograph of the model showing its condition in November 1956, the loss and damage that had occurred, and the results of Cawood's restoration. © Crown Copyright. Royal Armouries.

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*Image 6: Photograph showing the model's condition in May 2015 after the most recent conservation. A comparison with the previous image also shows some of the work carried out by the Ancient Monuments Lab and the Model Unit in 1983. © Royal Armouries.*



*Image 7: The replacement figure of the Duke of Wellington (mounted on the chestnut charger) in the scarlet uniform of a General officer and not his blue frock coat. © Royal Armouries.*



Image 8: The relocated figure of Lord Uxbridge dressed in the uniform of a colonel of the 7<sup>th</sup> Hussars. © Royal Armouries.



Image 9: The gunners of Ross' troop Royal Horse Artillery, minus their guns, on the road just north of the crossroads. © Royal Armouries.

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*Image 10: The death of Sir Thomas Picton in the rear of Roger's company Royal Artillery. Note the double trail on the gun carriage more reminiscent of the Gribeauval system, and the French infantrymen manning the guns. © Royal Armouries.*