

Learned by experience or learned by the book? Military use of railways in Belgium 1835 – 1918

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The Belgian army was an early user of railways, a brand-new transport mode, operated since May 1835 in Belgium; in 1837, the Belgian state railways allowed a 50 % discount for the transport of troops, probably because of the high transport cost for army movements. The army took the opportunity of the savings and used the railways to transport larger groups of soldiers. It was in other words not necessarily for strategic reasons interesting to make use of the railways, but in the first place to keep the accounts balanced. Belgium was at this moment still at war with the Netherlands; about half of the global Belgian budget was used for military purposes. Using rail transport at a 50 % reduction created savings, but did not help to impart railway knowledge. It took more than thirty five years before the army invested in a first step to spread knowledge of railway operating.

Meanwhile different writers had already pointed at the importance of railways for military purposes. The breakthrough came on the eve of the Franco-Prussian war by the writings on military transports by a Belgian civil engineer, Body. Since the victory of Prussia in the 1870 war, Belgian officers were eager for a better integration of railways in the transports for strategic but also for logistic reasons. It took however about another twenty years before the military started to integrate the planning process of rail transport. Despite early pleas for a strong integration between the military and the civil administration of the Belgian State railways, both worlds continued to live side by side. The first regulations for the services of the rear were published only in 1904, almost seventy years after the opening of the first railway line in Belgium.

This paper analyses why it takes years before the knowledge of railway operating is imparted, how it is afterwards spread and integrated in the military practices. The paper will deal more in particular with the evolution of the Clausewitzian concept of mobility for the conduct of war and mobility in the domain of the art of war and its evolutions. Five probable elements can play an important role in Belgium in the long and winding process of learning to plan railway transport and to integrate railway transport into the military:

1. The Belgian army is heir of a military tradition rooted in the Dutch army and in the Grande Armée.
2. The Belgian railway network was designed and developed for economic purposes without any military intervention.
3. The arguments for the military use of railways came from civilians; military engineers and strategists did not play a considerable role in it.
4. The conflict of interest of some militarised engineers of the corps of Ponts et Chaussées in railway projects kept the railway operations out of military hands.
5. The invisible influence of Jomini in the Belgian strategic thinking and the concept of logistics by Clausewitz.

One doesn't speak about supplies. Napoleon and the speed of moving.

The newly created Belgian army in 1830 consisted in volunteers, a kind of conglomerate of nationalists who had served on the barricades, what was left from the Dutch army or of officers of the Grande Armée. A part of them had no profound knowledge of the art of war, the others were heir of an old tradition of Napoleonic warfare. A striking example of a veteran of the Grande Armée in the Belgian army was Louis Evain, general and minister of War. He had been an important driving force of the army reorganisations in the Napoleonic area. He was about sixty years old when the railway line from Brussels to Mechelen opened. In other words, he was familiar to the Napoleonic way of transportation.¹ The Belgian army was not a well-functioning machine; their equipment was lacking, weaponry insufficient and horses were missing:

'plusieurs corps avaient abandonné leurs bagages; le soldat indiscipliné avait déposé son sac pour se battre. Les armes étaient en mauvais état, les objets de campement n'avaient jamais été fournis à l'armée [...] Les régiments de cavalerie n'avaient pas pour leur complet de chevaux [...] l'artillerie de campagne manquait de matériel pour la compléter et de chevaux pour l'atteler pendant qu'il y avait absence complète de chevaux et de voitures pour la formation d'un parc'. [several army corps had abandoned their luggage; the undisciplined soldier had put his bag to fight. The weapons were in poor condition, the objects to camp had never been provided to the army [...] The regiments of cavalry faced a lack of horses [...] Field Artillery lacked equipment and horses for harness while there was complete absence of horses and carriages for the formation of a park].²

It was more or less one of the important lessons, Napoleon had given, about thirty years before. Soldiers had to carry their own backpacks; five elements could not be separated from the soldier or could not be left behind by the warriors: the backpack, his rifle, the ammunition, the food and the engineering utensils. Why Napoleon insisted on this point was because of the savings he made in the baggage trains of the army, by suppressing all the tents and the camping material for troops. What he expected to obtain was higher speed and more efficiency of the cavalry. The shift from transported camping material and baggage towards a personal effort by the individual soldier resulted in the suppression of 6.000 horses, necessary for the slowest part of his army: the transport section.

Clausewitz was a fine observer; he participated in the Napoleonic wars, like Jomini did; his writings were edited after his death in 1831 and thus he could not write about the new transport mode that few years after was supposed to trigger the dramatic change in the way armies mobilised and concentrated troops near the theatre of war, but he did not miss the opportunity to point at the results of the changes in the transport of baggage, with a certain nuance although:

'Seit der Abschaffung der Zelte und seit der Verpflegung der Truppen durch gewaltsame Beitreibung der Lebensmittel an Ort und Stelle ist der Troß der Heere merklich verringert worden, und es ist natürlich die bedeutendste Wirkung davon zunächst in der Beschleunigung ihrer Bewegungen, also in der Vergrößerung des Tagemarsches zu suchen. Dies ist doch nur

¹ Louis EVAÏN was born in France in 1775 and died in Brussels in 1852. He was a well-known French officer. He enlisted in the Belgian army at the request of Leopold I, in the rank of Lieutenant General. He became soon minister of War until August 1836, when he retired at his own request. See GUILLAUME, Evain Louis, in *Biographie Nationale*, t. 6, 1878, col. 739-740.

² Belgian Parliament, Chamber, Documents, 23 November 1832, Projets de loi pour fixer le Contingent de l'Armée, ainsi que le Budget de la Guerre sur le pied de paix pour l'exercice 1832, présentés par le Ministère de Département, p. 5.

der Fall unter gewissen Umständen... Indessen haben die Beweglichkeit und Handlichkeit, wenn wir uns so ausdrücken dürfen, der großen und kleinen Heeresteile auf dem Kriegsschauplatz durch die Verminderung des Trosses doch merklich gewonnen. Teils hat man bei gleicher Anzahl der Reiterei und des Geschützes weniger Pferde, ist also wegen des Futters nicht so oft in Sorgen, teils ist man in seinen Stellungen weniger befangen, weil man nicht immer auf einen lang nachziehenden Schweif des Trosses Rücksicht zu nehmen braucht... Überhaupt liegt in der Verminderung des Trosses mehr eine Ersparung von Kräften als eine Beschleunigung der Bewegungen'. [Jolles Translation: the mobility and the manageableness, if we may use the expression, of the parts of an army, both great and small, on the theater of war have perceptibly gained by the diminution of baggage. Partly because with the same number of cavalry and guns, there are fewer horses, and therefore less often trouble about forage, partly because armies are no longer so tied to their positions, and there is no need to consider constantly a long train of baggage trailing in the rear...Generally the diminution of baggage tends more to a saving of energy than to the acceleration of movement].³

There is even more; Clausewitz makes a clear distinction between movements and supplies: the difference lies in particular in both *'Kriegskunst'* and *'Kriegsführung'* or in other words, logistics being a part of the combat and logistics creating preconditions for the combat. In book II, Clausewitz indicates he will not pay attention to elements situated outside the domain of the *'Kriegsführung'*, the 'use of military force' an sich. He agrees upon the fact those elements are important, sometimes very close to the conduct of war, in other situations more different from it, but they are all different from the 'use of military force'. These activities all go with the maintenance of the military force. *'Wer wollte die ganze Litanei der Verpflegung und Administration zur eigentlichen Kriegführung zählen, da sie mit dem Gebrauch der Truppen zwar in beständiger Wechselwirkung steht, aber etwas wesentlich Verschiedenes davon ist!'* [Jolles Translation: *Who would include in the conduct of war proper the whole catalogue of things like subsistence and administration? These things, it is true, stand in a constant reciprocal relation to the use of troops, but they are something essentially different from it.* Howard and Paret translation: *One would not want to consider the whole business of maintenance and administration as part of the actual conduct of war. While it may be in constant interaction with the utilization of the troops, the two are essentially very different.*]⁴ In other words, Clausewitz does not speak about logistics in a broad sense, the back office of warfare: he considers all these activities outside the conduct of war, combat and fighting and thus outside the theory. The analysis of transport and logistics by Clausewitz might have led to ignorance for the planning and organisation of transports. The Napoleonic heritage was a long lasting one; in the handbook on field service, Laurillard Fallot⁵ still speaks about the tents and the camping material:

'On a récemment introduit en France l'emploi des tentes abris, composés de sacs de campement convenablement préparés à cet effet et agencés comme on va le dire. Ce dispositif paraît très avantageux aux troupes en marche, qui peuvent facilement porter elles-mêmes tous les éléments dont il est l'assemblage. Le sac de campement déployé consiste en un rectangle de toile de 1m,76 sur 1m,64'. [Recently the use of shelter-tents was introduced in

³ CLAUSEWITZ, V, 11, <http://www.clausewitz.com/readings/VomKriege1832/Book5.htm#11> ; CLAUSEWITZ, *On War*, translated by O.J. Matthijs Jolles, New York, 1943, V, 11, p. 277; See also CLAUSEWITZ, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton, 1984, V, 11, p. 321.

⁴ CLAUSEWITZ, Book II, 1; CLAUSEWITZ, (1943), Book II, 1, p. 63; CLAUSEWITZ, (1984), p. 129.

⁵ Major Ch. G. A. Laurillard-Fallot, born in The Hague in 1787 and deceased in Brussels in 1842 started his military career in the Dutch army (1800-1808), passed to the French army (1811-1812), to the army of the Netherlands (1814-1826) and finally to the Belgian army (1834-1842). See Documentation Centre of the Royal Military Museum, Officers, 3408, Fallot – Laurillard.

*France, consisting in camp bags properly prepared for this and arranged as we say. It seems very attractive for marching troops, which can easily carry all the material before it is assembled themselves. The camp bag is made in a rectangle of canvas 1m x 1m 76, 64]*⁶

Laurillard and his successors do not speak about the railways; the old system of transport is explained (requisitions, purchase of services or plunder). The first edition was published in the early 1830's; the citation comes from the 1858 edition. His work is far from being unique: Jean Girard Lacuée, comte de Cessac, had his work, '*Guide particulier d'un officier de campagne*' published in 1837 in Brussels. Belgian officers took also the opportunity to translate books and have them edited afterwards, like Neuens did with Clausewitz' *Vom Kriege*' into French, or Dekeuwer, who translated the book by von Hardegg: '*Skizze eines Vortrages über Generalstabswissenschaft*'. Also in the annotated version of the manual on the regulation of 1832 for the field service of the army by de Savoye, the railways appear for the first time in the 1873 edition – more than 35 years after the opening of the line, and after the experiences of the Franco Prussian war.

Knitting the web

The Belgian railway network was designed from the beginning in 1832 as an international network with North – South and East – West links. A second element of the network design and development was to create a railway system, where the creation of local and regional links formed a part of the ambition of the government. A third element was the role to be played by the Belgian government. The law of May 1834 stipulates clearly:

*Art. 1. 'Il sera établi dans le Royaume un système de chemin de fer ayant pour point central Malines, et se dirigeant à l'Est vers la frontière de la Prusse par Louvain, Liège et Verviers, au Nord par Anvers; à l'Ouest sur Ostende par Termonde, Gand et Bruges et au Midi sur Bruxelles et vers les frontières de France par le Hainaut. ['There shall be established in the Kingdom a system of railways with Mechelen as its central point, extending eastwards towards the Prussian frontier via Leuven, Liège and Verviers, northward via Antwerp, westward to Ostend via Dendermonde, Ghent and Bruges and southward to Brussels and to the French border through, Hainaut']*⁷

The responsible engineers for the construction, De Ridder and Simons⁸, informed the government – the minister of War included – on their project for the railway line from Antwerp to the Prussian border. They used economic and commercial arguments to convince all the stakeholders, with one exception:

'sous le point de vue stratégique, si l'on admet qu'un canal peut servir quelque fois de ligne de défense, on doit reconnaître qu'un chemin de fer, par les plus grandes facilités qu'il offre pour l'approvisionnement des places, pour le transport rapide des munitions et des troupes elles-mêmes, peut devenir un moyen de résistance plus puissant contre les invasions de l'ennemi'
[from a strategic point of view, if we assume that a channel can be used sometimes as line of defense, we must recognize that a railway, by the largest facilities it offers for the supply of

⁶ Ch. LAURILLARD FALLOT, Cours d'art militaire, Bruxelles, 1858, p. 265.

⁷ Moniteur belge, 4 May 1834.

⁸ Aug. MOYAUX, De Ridder, Gustave, in *Biographie Nationale*, t. 19, Brussel, 1907, kol. 314-318 en Edmond MARCHAL, Simons, Pierre, in *Biographie Nationale*, t. 22, Brussel, 1914-1920, kol. 620-625.

places, for rapid transport ammunition and troops themselves can become a more powerful means of resistance against the invasions of the enemy].⁹

It was a unique quote by both engineers, a plea for the military use of railways; the military were silent as a grave. But also members of parliament did not discuss the military issues, with one exception: member of parliament Legrelle made his statement on 15 March 1834:

'Que le département de la guerre y trouvera une grande facilité et une extrême promptitude pour le transport des soldats, de l'artillerie et pour le matériel de l'armée ; que cette promptitude même donnera un sensible accroissement à nos forces militaires, et qu'il ôtera à la Hollande l'immense avantage qu'elle a sur nous de pouvoir transporter presque en un seul jour ses armées d'un point à l'autre du royaume, au moyen de ses bateaux à vapeur' [That the War Department will find ease and extreme quickness to transport troops, artillery and military equipment; this will prompt even a significant increase in our military, and that will take away to Holland the huge advantage it has on us to be able to transport almost in one day his armies from one point to another the kingdom, through its steamers¹⁰

There is enough evidence to conclude that there was no military intervention in the debates on the network concepts, nor in the scarce statements on the advantages of the use of railway systems for military purposes. The parliament or the government was more concerned about the role to play by the state railways and the private companies than the military were, although these interventions were rather emblematic. Belgium was although not in a unique situation. During the early years of railway network planning in France as well in Prussia, the military were not enthusiast; a certain form of distrust is seen within military circles. The French military history invokes Lamarcq as the founding father for the military railways, for his quote that steam might be a further reaching invention for warfare than gunpowder. He made this quote during a session in the French parliament in 1832. According to the sources, he never took the floor in 1832 in the parliament and moreover, when he spoke about steam, he meant stationary steam power and not steam for railway transport.¹¹ In France, the debate started apparently in 1842, with interventions by inter alia Pelet.

In Prussia, the debate led to other, interesting conclusions. Civil authors pointed at the military interest of railways, like the Belgian engineers had done. Harkort and List were early advocates for the creation of a railway network, that also was useful for military purposes. Harkort, an entrepreneur from Westphalia, wrote his memorandum at the same moment of the opening of the Stockton – Darlington line. The enthusiasm with his audience was rather modest. In 1833, he wrote a new memorandum, with a warning for the French danger in the Rhineland for Prussia.¹² List pointed at the advantages of rail transport and especially to speed, but railways had also a perspective for a long lasting peace.¹³ The Prussian discussion ended with an 'in depth research' by Ruhle von

⁹ SIMONS & DE RIDDER, *Le chemin de fer belge, ou recueil des mémoires et devis pour l'établissement di chemin de fer d'Anvers et Ostende à Cologne*, Bruxelles, 1839, 3th ed., p. 23.

¹⁰ *Moniteur belge*, 16 March 1834, 75, consulted via <http://www.unionisme.be/ch18340315.htm> ; intervention by G. Legrelle or Le Grelle. See also the biography by J. LAUREYSSENS, (1988), 237-240.

¹¹ PUIG P., *Jean-Jacques Pelet, un visionnaire de l'emploi militaire des chemins de fer*, in *Revue d'histoire des chemins de fer*, 15, 1996, p. 37-38; RIBEILL G., *La révolution ferroviaire. La formation des compagnies de chemins de fer en France*, Paris, 1993, p. 9. MITCHELL seems to follow also the quote of Lamarcq. See MITCHELL A., *The Great Train Race*, New York, 2000, p. 31. BREMM (2005), p. 81 also points at Lamarcq as an early advocate for the importance of military railways.

¹² BREMM K.-J., *Von der Chaussee zur Schiene. Militär und Eisenbahnen in Preußen 1833 bis 1866*, 2005, p. 15-19, also for the citation.

¹³ THEN V., *Eisenbahnen und Eisenbahnunternehmer in der Industriellen Revolution*, Göttingen, 1997, p. 77; VAN CREVELD M., *Supplying War. Logistics from Wallenstein to Patton*, Cambridge University Press, 2004, p. 82

Lilienstern, who came to some amazing conclusions for the very long term: armies needed all the possibilities, offered by all the different transport systems and the rigidity of railways could not replace the advantages of road systems. A railway line, as was suggested in the memoranda, was of no use, unless a network of railway lines was created. This rather pessimistic vision by Ruhle changed after years and Prussia took the lead in network concept and railway operating organisation.¹⁴

The first strategic remarks from the military in Belgium came not before 1852; Brialmont, who became afterwards famous for the concept of the defence of Antwerp and the Meuse, wrote about the railway lines and their position vis-à-vis the fortifications of the Belgian towns, like Antwerp, Dendermonde, Ghent, etc.

The role of the private sector can explain too why the military were not immediately interested in railways for military purposes. The private sector was blinded by the enormous earnings by the state railways during the early years and engineers of the Ponts et Chaussées were also interested to cash in this business. In the early years of the independence of Belgium, these engineers were temporary integrated in the army; the higher administrative ranks became high ranked officers. Two striking examples of this professional group are Willmar and De Puydt. The latter wrote several 'Mémoires' on topics of public works, inter alia on railways.¹⁵ The former became minister of War and afterwards member of parliament. A preliminary knowledge of railway technology might have existed in the army.

HIS MASTERS VOICE – JOMINI AND THE BELGIAN MILITARY WRITERS

The strategic thinking in Belgium is still to study, according to Bruno Colson, but one thing is clear: it wasn't a wasteland in matters of theory and strategy either: J.B.C.F. Neuens, a Belgian officer translated Clausewitz' *Vom Kriege* for the first time into French.¹⁶ In the Belgian army, there were prolific writers and some of them were avid readers of theoretical books, inter alia works by Jomini; his works were edited simultaneous in Paris and in Brussels, and Jomini stayed in Brussels for a certain period from 1848 on. Although Clausewitz was translated into French by a Belgian, it was Jomini who cached all the attention of the audience. During the debates on the budget of the War Department, more in particular on the artillery, general Chazal – then minister of War – used Jomini as *argumentum ex cathedra*: '*La force de l'artillerie ne se fixe pas plus arbitrairement que la force de*

¹⁴ Quote of Ruhle von Lilienstern in BREMM, (2005), p. 53.

¹⁵ R. DE PUYDT, (1837), *Mémoire sur le chemin de fer de Charleroi à la Meuse* and ID., (1837), *Mémoire sur le chemin de fer de l'Entre-Sambre et Meuse*. De Puydt whose name is written in all different orthography, was born in Poperinge in 1789 and died in Schaarbeek in 1844. His project for the railway company Entre Sambre et Meuse was executed after his dead by English financial circles; see J. LAUREYSSSENS, (1975), *Industriële Naamloze Vennootschappen in België 1819 – 1857*, Leuven, (Interuniversitair Centrum voor Hedendaagse Geschiedenis, Cahiers, 78), p. 384 – 387 and p. 604. See also GUILLAUME, (1876), De Puydt (Remi), in *Biographie Nationale*, t. 5, col. 640-647, and KLM – MRA, Records Officers, De Puydt, 1852, on his nomination as colonel at the Engineers. Records on De Puydt are also found in BOIJEN R., (1979), *Inventaris van het archieffonds "België in de periode 1830 – 1839*, Brussels, KLM – MRA and ID., (1979), *Inventaris van het fonds Belgische Militaire aanwezigheid in het buitenland, (1826 – 1955)*, Brussels, KLM – MRA. These records were originally described by JACOBS E.-A, (1960), *Inventaire du fonds Colonel R. De Puydt*. The demand for the concession was registred by another officer, Peruez. See KLM-MRA, Records Officers, Peruez, 2522 and A. DE LAVELEYE, (1862), *Vingt-cinq premiers années des chemins de fer Belges*, Bruxelles, Decq, p. 62.

¹⁶ COLSON, B., & WASINSKI, C., *Tailoring ends to means: Clausewitz in Belgium*, in Reiner POMMERIN (Ed.), *Clausewitz goes global. Carl von Clausewitz in the 21st century*, Miles Verlag, 2011, p. 31. See: Clausewitz Charles de, *De la guerre, traduction du major d'artillerie Jean Baptiste Charles François Neuens*, J. Corrèard, Paris, 1849-1851. See also COLSON, 1986, p. 345-363.

l'infanterie. Il existe à cet égard des règles déterminées, des règles fixes. Ainsi, il est reconnu partout que la force de l'artillerie doit être de 5 à 4 pièces de canon par 1,000 hommes d'infanterie, de 4 pièces par 1,000 hommes de cavalerie. C'est l'opinion de Gassendi, de Decker, de Jomini, de Soult, de Napoléon, de tous les hommes enfin qui font autorité'.¹⁷ It was not a unique intervention; Jomini is quoted twenty nine times in the parliamentary debates in the period 1844 to 1913 (although 1892 seems to be an erroneous counting). Clausewitz is quoted three times ; von Moltke sr. is quoted in the same period 75 times.¹⁸ Captain Fisch, a teacher at the Ecole militaire in Brussels lectured strategy in a pure Jominian way: *'Il est un principe fondamental de stratégie, mis en lumière par le général Jomini, qui le premier a réuni l'enseignement de la stratégie en un corps de doctrine, qu'il ne faut jamais perdre de vue*'.¹⁹ In the manual on strategy, published by colonel Fix in 1884, three works of Jomini are cited on twelve books, mentioned in the bibliography. Clausewitz is not within this circle. In the bibliography on the art of war, recommended for the admission tests for the 'Ecole de guerre' of 1894 in Brussels, Clausewitz is not mentioned either. Jomini is in the list.²⁰ One of the well-known Belgian Jominians is Louis-Joseph Vandevelde, *'à un point tel que le maître s'effrayait parfois de la rigueur de son orthodoxie*'. Vandevelde was a military and a writer.²¹

Jomini witnessed a series of technological changes, not only in weaponry, but also in mobility, by the use of railways for army purposes. It challenged the organisation of logistics, due to the masses moved by rail. In the end, a gridlock was often the result because the local distribution was not foreseen for the quantities of goods to be distributed. *'Tactics can still be studied theoretically by rules and principles; but "strategy may be regulated by fixed laws resembling those of the positive sciences" ... At the end of his live, faced with new challenges to the whole of his theoretical outlook, Jomini argued that the growing military use of railways could not change his universal principles of strategy*'.²² Vandevelde agreed upon this point, although he was astonished to see the speed of mobilization during the Austro-Prussian war of 1866. At the beginning of the century, mobilization is time consuming, but now rail brings new dimensions for mobilisation, without, in his opinion, bringing major changes to strategy and tactics:

'la promptitude que la vapeur est venue imprimer au rassemblements des armées, sans avoir rien changé aux grands principes de la stratégie et de la tactique des batailles, exige cependant qu'on apporte de grandes modifications dans l'ensemble des éléments qui constituent la force militaire des Etats. D'abord le rassemblement des masses et le ravitaillement des armées opérant avec beaucoup plus de célérité et de facilité, à l'avenir les

¹⁷ Belgian Parliament, Chamber, Annales, 23.02.1849, 825.

¹⁸ See <http://dighum.ua.ac.be/plenum> .

¹⁹ M.M. FISCH, *Cours d'art militaire*, 2 vol., Bruxelles, Spineux, II, p. 210, quoted in COLSON B., *Antoine-Henri Jomini. Précis de l'art de la guerre*, 2001, p. 26.

²⁰ COLSON, 2001, 26-27; Also LANGENDORF J.-J., *Faire la guerre: Antoine-Henri Jomini. Volume 1: Chronique, Situation, Caractère*, Genève – Paris 2001, p. 314.

²¹ KLM – MRA, Officers, 3394, VANDEVELDE Louis; Vandevelde °1805 in Courtrai - 1885 in Meise. Langendorf mentions Vandevelde as member of the volunteers corps of Limburg. No elements in his personal records at the Belgian army give confirmation on it; he was Second Lieutenant in the Garde Civique Mobile in Courtrai and participated in the battles with the Netherlands. In 1848 is Vandevelde posted to the War Office, when Pierre Chazal is minister of War. In 1849 he publishes 'De la défense de la Belgique ou du nombre et de l'emplacement des ses places fortes', and in 1849 'Considérations sur les écrits qui ont paru sur la défense de la Belgique' is published. He is in the early fifties Lieutenant. In 1853 he is promoted again in the rank of Captain and aide-de-camp of the king. In this function, he will become the military commander of the royal palace in Laken. In 1866, he retires in the rank of major and becomes, while retired lieutenant colonel by Royal Decree of August 17th, 1869. From 1841 to 1874 he is the editor of the Journal de l'armée belge.

²² GAT, A., *The origins of military thought from the Enlightenment to Clausewitz*, Clarendon Press, Oxford 1989, 113-114.

invasions se feront plus promptement que par le passé et par conséquent, l'organisation des armées pour le temps de paix devra être combiné de manière à pouvoir passer sans la moindre entrave, immédiatement sur le pied de guerre.'

*'les voies ferrées sont venues imprimer une telle mobilité aux armées, que les forteresses-frontières, et même les grandes positions fortifiées, situées dans l'intérieur du pays en dehors des grandes directions stratégiques, n'ont plus aucune valeur quant à la défense générale du pays.'*²³

A PRELIMINARY CONCLUSION

The wars of the 1860's marked a turning point in the vision on railways and warfare. Until then, railways were used by the Belgian army and the State railways had become in 1860 the unique transport for army services. But there had been until this moment hardly any knowledge transfer, no theoretical reflection nor integration of railway services into the army. During the late 1860's two books were published, one of them by a civil engineer, paying attention to planning, the other by a staff officer, paying attention to the destruction of railways as a means of strategic defence. It was too little and too late. The Franco-Prussian war broke out and the Belgian army was not ready to face the high demand for logistic transports during the campaign of the Belgian observation army, despite the efforts to study procedures for entraining and detraining. There was an enormous knowledge gap since the early days of the Belgian railways and the military agreed on the fact that the knowledge was kept within railway circles. After the Franco-Prussian war, the campaign was evaluated and one of the measures that followed was the creation of a railway company within the engineer corps. It was the easiest way to give a quick answer for the lacunas stated during the war. But planning and studying was left entirely in the hands of the state railways. It took another fifteen years before the Civil and Military Commission for the Railway Network, was created. It was a commission in which civilians (with the necessary operational knowledge) worked closely together with the military, but the integration of both seemed a bridge too far. The role, the responsibilities and the tasks of the railway men for wartime supply transports, including also the planning and the execution of these transports was regulated only in 1904, more than thirty years after the conclusions of the commission, studying the Franco-Prussian war.

²³ VANDEVELDE, L.J., *La guerre de 1866*, Paris, p.181.