This article was downloaded by: [University of Illinois at Urbana-Champaign]

On: 11 March 2015, At: 08:13

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered

Number: 1072954 Registered office: Mortimer House,
37-41 Mortimer Street, London W1T 3JH, UK

Royal United Services Institution. Journal

Publication details, including
instructions for authors and
subscription information:

[http://www.tandfonline.com/
loi/rusi19](http://www.tandfonline.com/loi/rusi19)

The German Railway Regiment

Lieutenant H. E. Rawson R.E.

Published online: 11 Sep 2009.

To cite this article: Lieutenant H. E. Rawson R.E. (1876) The
German Railway Regiment, Royal United Services Institution.
Journal, 20:88, 738-760, DOI: [10.1080/03071849709416332](https://doi.org/10.1080/03071849709416332)

To link to this article: [http://
dx.doi.org/10.1080/03071849709416332](http://dx.doi.org/10.1080/03071849709416332)

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy
of all the information (the "Content") contained in the
publications on our platform. However, Taylor & Francis,
our agents, and our licensors make no representations or
warranties whatsoever as to the accuracy, completeness,
or suitability for any purpose of the Content. Any opinions
and views expressed in this publication are the opinions
and views of the authors, and are not the views of or

endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

THE GERMAN RAILWAY REGIMENT.

By Lieutenant H. E. RAWSON, R.E.

At a time when the question of the purchase of the whole system of railways throughout Germany by the State is being eagerly discussed by the Federal States, and Prussia has set the example in the matter by voting on the 2nd of May last, by a substantial majority in the Chamber of Deputies, the law ceding its railways to the Empire, there is a peculiar interest attaching to the organization which would be adopted by it for their management, and which is very clearly indicated by that which already exists in the PRUSSIAN RAILWAY REGIMENT.

It is for want of such a complete system, that the Italian Government, upon concluding the purchase of the South Austrian and Alta Italia railways on June 27th ultimo, has been obliged to stipulate that a private company should carry on the administration for the next two years, though as early as June, 1875, it had ordered that all Officers of the Army should go through a course of instruction in the technicalities of railway management. Quite three years must elapse before the vote of May 2nd can be carried through the Reichstag, and the Prussian railways finally handed over to the Empire, when the expanded organization of the regiment will be quite sufficient to meet the demands made upon it. Such a powerful branch of a military system commanding the respect of the whole world, needs no argument from the writer, to show the value of the subject touched upon in these pages, nor to assure its place among the three recognized arms of warfare, infantry, artillery, and cavalry, for to deny its right to be among them, is to shut one's eyes to the times.

The Prussians were the first nation to recognize, in a practical manner, the fact that the day had gone by in which it was possible for a general in command to conduct, simultaneously, the organization of the services required in maintaining the communications, as well as the military operations of the army. Wellington did it, Napoleon did it; but neither Wellington nor Napoleon had to deal with the question in the aspect it has assumed to-day, complicated as it is by the increased number of men to be provided for, the greater rapidity required in all movements, the more extensive scale on which military operations can be carried out by railways, and the larger area of country over which they are conducted. In the Peninsular war, convalescents, assisted by detachments from the main army, and organized by the General in command, were able, under the charge of the officer commanding the Corps of Guides, to ensure the lines of communication; but this was for an army seldom exceeding 40,000 men. The army sent into the field by Germany amounted to between 400,000

and 500,000 men, and to effect the concentration of this enormous force, required the transport of no less than 42,000 men daily to the frontier. It was completed in thirteen days after mobilization. In Jacquin's words¹, "on the 24th or 25th of July the railways were "closed to passengers and goods. Eleven days afterwards the concentration of the whole of the GERMANY army upon the western frontier "was terminated; two days later, the army was victorious at Forbach "and Fröeschwiller. . . . FRANCE appeared ready the day war was "declared. Ordinary traffic on the railways was suspended on the 16th; "trains followed trains in rapid succession, and ten days later, 186,000 "men and 32,000 horses were disposed along the frontier." It is not to our purpose, to follow him in the picture he draws of the two armies at that time, except so far as is contained in the following sentence. "While France was in every respect in disorder and confusion, while "in Metz the Intendance Department was searching for its provisions, "the Corps for their kits, the Artillery for its ammunition, regularity "and order pervaded the whole of the operations of the German army." Prussia had recognized the important part railways had played in the American Civil War, had studied the successful application of organized bodies of workmen, civilians it is true, but bowing for the time to the severest military discipline, to the construction of railway works requiring rapid execution, to the destruction, and to the restoration of lines; had made trial of such a method for itself in the campaign of 1866, and had found that properly systematized, a new and most powerful arm might be developed. As the result of its experience, the army entered upon the campaign of 1870 with four Railway corps, subsequently increased to seven, for the three main lines of communication. They were but bodies of civilians and military intermingled; hastily associated, and provided with material for such operations as they were intended to carry out. They amounted in all to 800 men at the commencement, to 1,400 men at a later period of the war. But there was a method in their organization, there was order and precision in the way they were employed, and above all they formed a link in a chain which Prussia had long forged, had tested in 1866, and had pronounced sound and strong in the principles upon which it had been constructed. A system of ROUTE SERVICE (*Etappen-wesen*) which organized a special body to preserve the *lines of communication*, had been approved before the contest with Austria commenced, had been improved by the experience obtained, and was now put into practice against an enemy, who had not got as far as its own condition in 1866, and who was destined to give a proof in acknowledgment of its past blindness, by creating a Railway corps during the war. It succeeded in collecting a vast store of material in Metz and Strasbourg, only in time to fall with these places into the hands of the Germans. The results of the war of 1870-71 left Prussia in no wise content with what it had done; and it has pressed onwards with such vigour, in its attention to the organization of a military body capable of taking over the complete management of

¹ "Les Chemins de Fer pendant la Guerre, 1870-71." By M. Jacquin, Paris, 1872.

such lines of railway as may be employed, that whereas in 1870 it had not a man who had not to be specially mobilized for the Railway corps, it now possesses on a peace footing a railway regiment, and on mobilization an effective list of 326 officers and men in proportion. Such a result justly merits our attention.

A brief glance at the Railway corps employed in the American Civil War of 1861-65, will best show how far Prussia adapted the example to its own military system. The railway divisions of workmen formed in 1862 in consequence of the enormous extent of country traversed by railways, and the peculiar influence which they exerted upon the military operations, were placed under General MacCallum as general manager, with the title of Military Manager and Superintendent of the United States Railways. He was given complete control over the whole system of railways, and power to requisition what amount of rolling stock he might require. His first step was to form corps for constructing railway works, and for maintaining the traffic, and he concentrated the power over the whole in his own person. The engineers and workmen of all kinds who were associated together were civilians, and were employed temporarily as their services were required; but they were subject to severe military discipline; and it was this power, exercised alike by the military authorities and by the civil administration, which undoubtedly led to such excellent results being obtained. The important services which they rendered, gave rise to the institution of a similar body in Prussia. On 9th of May, 1866, the Prussian Minister of War published the basis of the organization for railway divisions to be formed in the case of mobilization. It stated the objects for which such a body was instituted, appointed the managing body, and specified the Staff, system of its formation, plant and functions. Three divisions were mobilized upon the declaration of war with Austria in the same year, and their employment forms an interesting chapter in a pamphlet translated from the German, "*De l'emploi de Chemins de fer en temps de Guerre.*" 1869.

Previous to this campaign, Prussia had formed a distinct body for carrying out a regular system of route service, and the experience obtained produced the "Organization of Route Service," approved by the King on the 2nd of May, 1867, but not made public. Thoroughly tested in the campaign of 1870-71, this organization was found to be based on sound principles, but imperfect in some of its details; the principal of which, and that from which the others sprang, being the strain thrown upon the Route Inspector-General's Department in order to meet all that was required of it. Large additions were made to its numbers during the war; and the great exertions developed by it coupled with the ability of those employed, prevented any mishap. But it was admitted on all hands that no single department could, except under the most favourable conditions, carry out for the future the duties with which this department was charged, viz., assuring the connection between the army and its base of operations, forwarding all men, horses, supplies, stores and materials along the lines of communication, and regulating the employment of the railways. The task of

maintaining the railway traffic was entrusted to this department, upon the supposition that one line of railway could be placed at the disposal of each army composed of several corps d'armée; but the inconvenience which soon arose from the unequal distribution of rolling stock, and accommodation afforded by the various lines, clearly showed the necessity of placing the whole system of railways under some central authority. The Executive Staff at the Royal Head-Quarters were therefore, during the remainder of the war, charged with the general direction of the railway transport, and control over the Railway corps. But this measure, though it relieved the Route Inspector-General's Department and did good work by so doing, gave more convincing proofs than before, that no organization for the service of communications would be complete, which did not provide during peace a distinct and trained department, to undertake the entire management and control of the railways. To this end at the close of the war, the Minister of War in concert with the Chief of the Staff organized the "Railway Battalion," in which the necessary training might be acquired, and by which without altering any of the principles of the existing military organization of Prussia, a large *personnel* might within a limited time be obtained, subject in war to the Chief of the Army Staff.¹

The obligatory service exacted from all Prussians, made the realization of any railway scheme an easy matter, as far as mere numbers were concerned. A stroke of the pen could at any time provide a fixed annual contingent; and the peculiar military system allowed of these men being passed rapidly through the ranks into the reserve, ready to be called together at any moment. The objects therefore to be furthered by the creation of a Railway Battalion were little hampered by other considerations in organizing its peace footing. It should doubtless be the nucleus of all necessary railway formations for war; the technical training in peace should be such as to enable its staff to construct any works requisite; to repair without loss of time any that had been destroyed, and to undertake the entire traffic along railway lines of communication; it should in peace procure, prepare, and preserve all plant and materials required in railway work, and be capable of supplying with tools the detachments which would be organized in war.

It was determined that the railway sections of 1870-71, should form the basis upon which the battalion should be raised. The non-commissioned officers and men whose time of service under the colours was not completed were enrolled, and such plant as had been collected

¹ The necessity of having a military body, educated *during peace* to the technicalities of railways, was recognized from the events of the late war by our own Government as well as by the Prussians, for on February 2nd, 1871, the Inspector-General of Fortifications called for a detail of officers, non-commissioned officers, and men, with tools and plant for a detachment of Royal Engineers, to be attached to a division of 10,000 infantry, for the purpose of repairing and maintaining the railway communications. It is a matter for regret that the report of the Committee to whom it was referred has not been made public; but the correctness of the views they embodied in it, has been established by the success of the Prussian organization which was subsequently published.

for their use during the war and such as had been taken from the French and retained by the Peace of Versailles, was appropriated to the battalion, and stored in its dépôt in Berlin. A royal order of May 19th, 1871, decreed its constitution. The Major in command and the Adjutant were appointed in June, and the rest of the officers during the following months. On October 1st, a force amounting to 330 rank and file took up its quarters in barracks assigned to the battalion in Berlin. The officers were drawn from the Engineers; 60 non-commissioned officers and men were enrolled from the demobilized railway sections; 234 from the Pioneers, infantry, and re-engaged men of other arms still serving; and a contingent of 36 recruits and three-year volunteers. All were of a trade useful in railway work, smiths, carpenters, miners, quarrymen, and the like.

The Inspector-General of the Engineer Corps was given the superintendence of the discipline and economy, the Chief of the Staff the technical training of the Railway Battalion—a disposition which has given every satisfaction. A knowledge of all European railways, and acquaintance with the resources in rolling stock of all the lines in the Empire, whether State or private, is at once the duty of all officers of such a branch as a railway battalion, as well as of the Staff of the army. To control and direct the technical work of a body in constant intercourse with the various lines of the Empire, was wisely entrusted to the General Staff, and could not fail to be to the advantage of both. The relation which naturally sprang up between the officers of the Battalion and the Staff, has given rise to the sentiment sometimes expressed by their fellow officers of the Pioneers, “the officers of the Railway Battalion obtain everything they want through the Staff.” It was found that it was only by constant intercourse with the officers of the Staff, and with the railway and telegraph employes of the various railways, that the officers of the battalion could be trained, and keep themselves informed of the progress of State and private lines in course of construction, of the amount of rolling stock in use, of the telegraph lines last established, and of the value of instruments and tools lately invented. The officers of the battalion were thus enabled to express their ideas to the Staff, benefitting them by the experience they gained daily, and having an opportunity themselves to study the special work of the Staff. A relation between the two of such a nature was held to be necessary to prevent friction between any of the departments—employers and employed—charged with such various work in war as the rapid transport of troops; with maintaining supplies of all kinds; with perfecting projects for establishing a second line of way along the most crowded lines, and with constructing new ones. In peace the railway department of the Staff were also charged with training officers to the knowledge of railway service, directing the transport of troops out for manœuvres, and of the various “classes” when called out for drill and returning home; preparing every detail for transport in war; collecting statistics about foreign railways; examining, from a military point of view the proposed construction of any lines; and finally studying all subjects for the advancement of the military railway service. In these

matters the officers of the battalion were frequently consulted, and the result has been that this branch of the army is popular.

The peace-footing organization of the first battalion has been followed in the recent augmentation into a regiment.

It was composed of a staff, 4 companies, and a dépôt:—

STAFF.	{	1 Field-Officer (Colonel or Major) Battalion Commander.
		1 Second-Lieutenant, Adjutant.
		1 Surgeon and 1 Assistant-Surgeon.
		1 Paymaster and 1 Aspirant-Paymaster. ¹
		1 Sergeant-Major, Quartermaster.
		2 Non-commissioned Officers, a draughtsman and clerk.
		1 Drum-Major.
		1 Armourer.
EACH COMPANY.	{	4 Officers (1 Captain, 1 First-Lieutenant, 2 Second-Lieutenants.)
		18 Sergeants and Non-commissioned Officers (1 Sergeant-Major, 4 Sergeants, 12 Under-officers ²).
		2 Buglers.
		3 Tradesmen.
		1 Hospital-Assistant.
		100 Lance-Corporals and men.
DEPÔT.	{	1 Captain and 1 Sergeant, in charge of a large and valuable store of war material.

Upon mobilization each company is augmented into two CONSTRUCTION COMPANIES and one TRAFFIC COMPANY, making an establishment, on a war footing, of four traffic companies and eight construction companies. Also a RESERVE DIVISION, consisting of a Staff, two companies and a section of tradesmen. Each of the construction companies has a train of five waggons for the transport of tools and material.

It is evident from what has just been said, that on the declaration of war the system on which the men have been trained is abandoned. The peace companies of the battalion give place to mobilized companies of a different organization each complete in itself, independent and acting upon its own responsibility; the whole directed by one head, but under officers whom most of the men do not know, and non-commissioned officers ignorant of the temper, individuality, or abilities of those with whom they have to deal.

Why is such a course adopted? The answer lies partly in the military system of Prussia. The whole army is under the same disadvantage. The service for all is three years under the colours, four in the Reserve, and five in the Landwehr, and the military system has been developed by the national character. Further reasons which determined the constitution of a railway battalion during peace, and not independent companies attached to corps d'armée, may be

¹ Awaiting commission.

² Superior rank to our Corporal.

traced to the facility afforded by such a system to recruiting, and more especially to a fact already alluded to. The lesson of the last war showed the original idea to be untenable, that it was possible to place one line of railway at the disposal of each army, to be worked by the railway companies belonging to the several corps d'armée composing it. Centralization of the authority over the whole was proved to be indispensable. Isolated sections experience showed, could not be detached from their army corps to perform extraordinary work requiring a more powerful *personnel*, without danger. Moreover a battalion could be supplied with a valuable stock of plant and material, which it would not be advantageous to entrust to independent companies. In short the following were the grounds for constituting a railway battalion: it enabled a large and valuable stock of plant to be collected in the dépôt in Berlin; officers and men could be rapidly passed through its ranks into the *Beurlaubtenstand*¹, where they would be available at any moment and yet without cost to the State; it ensured similarity of procedure, and uniformity in material; and lastly, it was in itself a school of instruction for the future.

The men were given the same equipment as the Pioneers of the Guard, and an uniform only differing by having the distinguishing letter E (*Eisenbahn*) in yellow, instead of the number of the regiment. They were armed like the Pioneers, at first with the '68 pattern of the needle gun, subsequently altered in 1875 to an improved form of chassépôt suited to metal cartridges, and they now have a special form of the Mauser rifle similar to that known as the *Pioneer rifle*.

In addition to the military training which the battalion received to enable it to become part of and manœuvre with the Guard corps, in the same way as the Pioneer Battalion with its corps, a regular scheme for its technical training was laid down. It provided for the theoretical instruction and practical education necessary in laying down, repairing, or destroying all works belonging to a system of iron way, including a scientific teaching in all branches of the art of construction, and a knowledge of law so far as it affects railway matters.

The rolling stock appropriated to the battalion consisted of two locomotives, two carriages, two guards' vans with baggage compartments, and two trucks. With these it was practised in rapid embarkation and disembarkation of men and material; as well as engine-driving, stoking, taking to pieces and cleaning the machinery employed. In case of service away from a railway, each company on peace footing had the following waggons which, except the office waggons, are similar to those of the bridge equipment, and of the same pattern as those of the rest of the army. They were built by a firm, Dittman, in Berlin, who contracted for it in July, 1872, and may be found in detail in the official "*Zeichnungen der Fahrzeuge der Brückentrains, Berlin, 1874.*" They are four general service waggons with four horses for tools; two with four horses for the transport of prepared girders and timber ready to be fitted together; two for baggage, with two horses; two office waggons for repairing and

¹ The *Beurlaubtenstand* comprises all who have already served and have passed into the Reserve and Landwehr.

working the telegraph. The Battalion Commander had, in addition, a baggage waggon. These forty-one waggons formed the transport train with which the battalion practised loading and unloading in its Spring route-marches.

In addition, each company in its annual manœuvres or upon taking the field, had the power of requisitioning private boards for a train of twenty-one carriages for the transport of the men and material complete, retaining it till the close of operations.

The tools for the complete equipment of the eight construction companies were in temporary stores in Berlin until the end of 1875, when a large building with eight magazines, one for each company, was erected in connection with the new barracks for the regiment at Schoenefeld. An officer (a captain of the Battalion) and a sergeant were placed in charge and lived at the dépôt, superintending the issue and storage of all tools, &c.; horses alone were wanting to complete the field establishment. The requisite horse-cloths, harness, whips, hatchets, bill-hooks, lanterns, oat-measures, forage and strappings complete, were kept in the company stores. Upon mobilization the ten waggons are distributed between the two construction companies, into which each company on peace footing is formed. These five will only carry half the materials of the company; but as in practice the restoration of a line destroyed by the enemy is begun from both ends, the other half is left in the special train which has brought it.

The estimate for rolling stock, waggons, and tools for the Railway Battalion in 1872, was £15,285, and was largely exceeded. The total expense of organizing the Military Railway Service, including the purchase of land for a station and practice ground and the cost of building a barrack, amounted to £140,880.¹ The tools and rolling stock purchased in 1872, and added to those of the demobilized railway sections, completed the battalion establishment of plant and material.

Immediately after the Railway Battalion was definitely constituted, all officers who had served during the war and who were on the railway staff in civil life, were enrolled as part of the reserve of the Battalion, whatever arm of the service they might have belonged to when with the colours. The effective officers of the Battalion were at first recruited from the Infantry and Engineers alike, and it was hoped that in future the majority could be drawn from the former. Experience soon showed that a greater technical knowledge was required than Infantry Officers could as a rule acquire in the time allotted, unless they were previously acquainted with the subjects of study; and it was found necessary to call annually for volunteers from among the Engineers, previous to their entering the practical school for Artillery and Engineer Officers.

From this school they generally entered the Battalion as second-Lieutenants, and remained with it at least three years, in order to learn successively the different branches of construction, working, destruction and rapid repair. Under the senior officers of the Battalion they studied "Technical Railway Management," as given

¹ These figures are taken from the report of a Swiss officer to his Government.

by *Heusinger von Waldegg*, in "Technische Dienst Instruction für das "Königliche Preussische Eisenbahn Bataillon;" "Telegraph and "Signals," by *Baron von Weber*; "Machinery Instruction," by *Paulus*; "Report upon the Employment of Railways during the American War." Mathematics and drawing also formed part of the course. The above works supplemented by verbal instruction in rapid repair and destruction of railway works, mining, and destruction of tunnels, formed the theoretical course. The application of it to practice began in April, and lasted till October of each year, either upon the practice ground of the Battalion at *Schöneberg*, or when attached with men to railways belonging to the State. No one was permitted to make a speciality of any branch, by which arrangement all were trained so as to act in any capacity. Though officered in this way by Engineers, the Battalion was always independent of the Engineer Corps, and received officers of other arms if over two years' service and duly qualified; they served for the first year on probation.

The Battalion was kept up to a strength of about 500 men, and received annually about 160 recruits, furnished in certain proportions by each district. The non-commissioned officers were principally from three-year volunteers employed previously on railways. The annual contingent was drawn from railway employes, or such trades as are employed in railway work, carpenters, smiths, quarrymen, and the like. Only Locomotive Superintendents and Engineers of the permanent way were admitted as one-year volunteers, and after their year of service were passed into the reserve of the Battalion, if they did not wish to obtain their commissions. A number varying yearly, but always considerable, availed themselves of this privilege, by which their military service was turned to profit in their civil profession. The plan was economical to Government. It was a good plan because it proved successful, and any inconvenience was easily remedied by increasing or diminishing the contingent. In order to train a large number of men, it was commonly the practice to allow even three-year volunteers to return to their profession after two years with the colours, rejoining whenever required.

The organization and armament of the Railway Battalion being similar to that of the Pioneers, the recruits were put through the same training. It received the annual contingent in the beginning of November, the three-year volunteers on the first of October, and one-year volunteers in the middle of the same month. A certain number of recruits were selected at the outset and joined the three-year volunteers, with a view to being trained as under-officers; by which plan that much vexed question of the supply of under-officers in the German army was considerably relieved for the Battalion. Military exercises and the theory of war formed the recruits' first course of instruction. They passed successively through the regular drill of an individual soldier, through that of a company, and that of a battalion; two months to each of the two former, and one to the latter, without leave of any kind. For one hour each day of this period they received a lecture on military subjects. During the training of the recruits, the remainder of the Battalion was employed

in the workshops as mechanics, carpenters, smiths, &c., repairing tools, improving or altering the rolling stock. In each company, under-officers who had been previously trained by the officers, gave technical instruction in the machines and telegraph instruments; musketry practice completed the winter course. Practical work began in April upon the practice ground at Schöneberg; picketting out and completing a formation level, curves, changes of slope; destruction and repair of lines by various methods; permanent and temporary stations; construction and leading into stations of telegraph lines; establishment, charge, and boring of mine shafts; and details of bridges and tunnels. Particular attention was paid to the hasty construction and repair of bridges, both by means of material collected on the spot and by such as was carried by the Battalion in its column of transport ready made up and easily put together. During the summer each company sent four or five non-commissioned officers to be attached to private railways boards, to learn the duties of station-master, train-conductor, engine-driver, telegrapher and engineer of a telegraph line; and every year in turn three-fourths of the men of the Battalion under their own officers, were detached to construct lines strategically important, or advantageous to the public. Continual applications were made for the services of the men to repair accidents to the lines, and damages from storms and floods, all of which were readily acceded to by the officer in command, and promptly carried out. When employed on this work for private railways, the boards paid the men extra working pay amounting to about 1s. 6d. a-day; the officers reserved their independence, and accepted no emolument. The ordinary pay of the officers and men was the same as for the rest of the army. By the summer of 1875 a sufficient number of men had been trained for the duties of the subordinate staff, superintendents, stokers, &c., and the practice of detaching non-commissioned officers to learn these duties was given up. During summer there was a weekly parade for drills, and the Battalion was required to be present at reviews and garrison parades. It furnished its own guard. It would be impossible in even a sketch of the practical instruction given, to omit entire mention of what disposition was made of time.

An ordinary day was much as follows:—

5 a.m., Réveillé; 6 a.m., Breakfast (coffee); 6.30 a.m., a general parade in two ranks, and roll called by the orderly non-commissioned officer of the day. Orders for the day's work and such as the Captain in command issued were read out, and the officers then inspected and detailed the working parties. The same men always worked together, and only the non-commissioned officers in charge were occasionally changed; each party performed the same work constantly, and was therefore perfected in only one branch, but the rapidity was increased. The tools were in charge of the men who used them, and were not returned into store daily; the non-commissioned officer of each party checked them after work, and all repairs were done by a workman at the general dépôt, close to the barracks. At work, the men wore working frocks and trousers of white serge.

Work continued from 7 to noon, with a quarter of an hour's rest at 10 o'clock; from 12 to 1 they broke off for their mid-day meal of bread and sausage, or bacon, brought from barracks, and which they eat where they had been working. Work was resumed at 1, and at 4 p.m. they returned to barracks; at 5 o'clock they had their principal meal, after which till tattoo the men were at liberty. Four days in the week they worked eight full hours; Wednesday and Saturday only six hours. On Sundays there was generally an inspection parade at noon, dinner at 1, and the men were then free to go where they liked within certain bounds.

Rapid destruction of the permanent way was practised on the manœuvring ground of the battalion at Schöneberg, both by taking to pieces and removing rails and sleepers, and by blowing up the joints of the rails with cartridges of dynamite. This latter method has been almost entirely handed over to the Cavalry, who use one pound cartridges.

The practical work done by the Battalion for instruction, was small in comparison with that done since the time of its formation in 1871 in the interests of private railway boards, in repairing the damage from inundations and accidents. Between the time of its constitution and the end of 1872 it had no practice ground of its own, and was employed altogether in this way, by which at the outset it established its public utility, raised a feeling of confidence between itself and the civil engineers with whom it was employed, and paved the way to that good understanding which now exists with the various railway boards. In the first year of its existence, 1872, the battalion constructed 100 miles of permanent way, two termini with their points and crossings, one roadside station, enlarged four termini, restored two dykes destroyed by inundations, and a railway bridge at Rykgraben near Greifswald.

In 1873, 4 officers, 9 non-commissioned officers, and 76 men changed the iron-way of the line from Altkirch to Dammerkirch, from double-headed to Vignole rails, with the points and crossings in the termini, in three months. In Silesia, one company, in the same time, constructed 15 miles of permanent way, five iron bridges, and ten points, on the line from Kamenz to Frankenstein. Another detachment in Thuringia, 16 miles of way, a temporary bridge of 16 feet span, and the necessary signals for the whole portion.

A detachment of 120 men enlarged the terminus of the Eastern Railway at Berlin, adding sidings and sheds. A detachment was further employed towards the end of the year in removing granite rock by blasting with dynamite, for the Gœrlitz-Reichenberg Railway. Very valuable observations were made during the course of this work.

In 1874 the Battalion made the tunnel under the Circular railway round Berlin, where it passes over the Battalion's practice ground. It was complicated by the necessity of not interfering with the overhead traffic. It is now used by the Berlin-Dresden Railway, as well as by the Battalion for its line to Zossen.

On the Berlin-Dresden line a detachment of carpenters and miners of the Battalion were employed in changing two level-crossings, so as

to carry the lines over the roads. The roads were sunk 9 feet 10 inches, and the lines raised on a wooden bridge 650 yards long. Civil labour was called in to assist them in this, and the work continued night and day without interruption to the traffic, and without any accident.

In 1875 a luggage train off the line, on the Berlin-Dresden Railway was replaced, and the way repaired by 2 officers and 90 men. The traffic was resumed after twenty-one hours' work.

On December 9th, 4 non-commissioned officers and 14 men were despatched at the earnest request of the Berlin-Magdebourg Railway, to relieve their own staff, tired by their exertions to meet the traffic after a short suspension from snow.

But the principal work of the Battalion this year was the construction of the line from Berlin to the artillery practice ground at Zossen. It was undertaken to afford the Battalion a ready means of instruction in the technical working of a railway, the whole administration being left in its own hands. Its total length is 30 miles, and it has three stations. It was commenced in the first week of April by nearly the whole of the Battalion, which had left Berlin in three detachments on March 31st, and had been cantoned near Zossen, Blankenfeld, and Mariendorf. These returned on May 19th, and were replaced by the 3rd company, consisting of 3 officers, 10 non-commissioned officers, and 90 men, who completed it in the first week in July. It was opened in the middle of the month, and the direction of it given to the Battalion commander, with a staff of 1 Captain¹ as Traffic Manager, 1 Lieutenant as Secretary, and 1 Lieutenant as Locomotive Superintendent. The whole management of the line was entrusted to the Battalion. An augmentation of its numbers had been contemplated before, and being necessary for this purpose, was approved by the Emperor in August. By the middle of September a second battalion, organized on the same footing as the first, was being rapidly pushed on with, as well as the barracks, buildings, and stores for it at Schönefeld; and till these should be completed, quarters were prepared at Tempelhof and Schöneberg.

The Budget of 1876 for Military Service, provided for a RAILWAY REGIMENT of two battalions, and declared its creation necessary, both to provide the requisite staff for the numerous lines, which would have to be worked in war, and to give instruction in railway work to a large number of the Beurlaubtenstand. This latter point is readily understood when we remember that Prussia was at this time contemplating handing over all its railways to the Empire. The Budget provided for the following addition to the peace footing; 3 Field Officers, of whom 1 was to command the regiment, 1 the new battalion, and 1 to be Supernumerary, effective, but without special command; 2 Captains of the first class, 1 Captain of the second, 4 first and 14 second-Lieutenants; total 24 Officers. 2 Surgeons, 1 Paymaster, 1 Armourer, 4 Sergeant-Majors, 4 Vice-Sergeant-Majors, 16 Sergeants, 53 Under-Officers, 48 Lance-Corporals, 353 men, 12 tradesmen, 2 Aspirant-Paymasters, and 4 Hospital-Assistants; total 500.

¹ By royal order of 8th February, 1876, a staff officer.

This augmentation allowed of a second battalion being formed, with the same effective as the first, except for the addition of another second-Lieutenant to each company, and of one to the staff, of the second battalion.

It was completed by March 1st, 1876.

The peace footing organization of the Railway Regiment is therefore, a staff, eight companies, and a depôt, and consists of:—

- 4 Field-Officers, of whom 1 commands the Regiment, 2 the Battalions, and 1 is without special command.
- 8 Captains, 8 First-Lieutenants, 27 Second-Lieutenants.
- 2 Surgeons and 2 Assistant-Surgeons.
- 3 Paymasters and 3 Aspirant-Paymasters.
- 2 Armourers, 1 Drum-Major, 9 Drummers and Fifers, 8 Hospital-Assistants, 24 Tradesmen.
- 9 Sergeant-Majors, 8 Vice-Sergeant-Majors.
- 32 Sergeants, 103 Under-Officers.
- 98 Lance-Corporals, and 700 men.

On a war footing, each company is augmented into two construction and one traffic company, and the instructions of July 20th, 1872, on the Service of communications, then regulate the railway organization. A General or Field Officer is placed in charge of the railway-service in the field, with the title of Chief of the Field Railways, under the orders of the Inspector-General, who has general superintendence of the entire route-service. He arranges for the transport of stores, reserves, &c., and for the concentration of the several Army Corps, he organizes the railway service at the seat of War, and makes new sidings and works if required.

Attached to him for duty are:—

The Officer commanding the Prussian Railway Regiment.

Two officers of the general Staff, two superior railway officials and four clerks.

Within certain limits fixed by the regulations, the Chief can dispose of the rolling stock on all home lines, and those on occupied territory, exercising this power through—

1. Military railway directors, for railways within the theatre of operations. This limit is fixed, in every case, by the Emperor, and is considered to extend 80 miles from the front.
2. The railway division of the General Staff at home, to regulate all military transport over lines not within the theatre of operations, and which are worked by their own officials.
3. Railway Line Commandants, in charge of certain home-lines and systems, and the military transport over them.
4. Railway Station Commandants, who are under the orders of a Military Railway Director (1), or of a Railway Line Commandant (3), according to the position of their station.

The Prussian Railway Regiment (sixteen construction and eight traffic companies), is at the disposal of the Chief of the Field Railways, for employment in repairing existing lines or in constructing new ones, and also in working them. For this purpose each traffic company is

organized to work a section of line of 28 to 37 miles, with an effective of:—

6 Officers (1 Captain Commanding, 1 First-Lieutenant, 4 Second-Lieutenants as Station Superintendents).

41 SERGEANTS AND UNDER-OFFICERS.	{	1 Company-Sergeant-Major.
		4 Station Masters.
		1 Booking clerk.
		12 Engine-drivers, 7 train-conductors, 7 baggage-masters (guards).
20 LANCE-CORPORALS.	{	3 Permanent-way overseers.
		6 Telegraphers.
		3 Guards.
		1 Telegraph foreman.
139 MEN.	{	2 Gangers of platelayers.
		2 Stationary-engine-drivers and 12 stokers.
		4 Makers-up of trains, 18 pointsmen.
		14 Platelayers, 7 workshop artificers.
		4 Carriage greasers, 2 engine cleaners.
		55 Watchmen and gatemen.
		35 Breaksmen.

There are sixteen construction companies, each with an effective of:—

9 Officers, 1 Captain (Chief Engineer), 2 First-Lieutenants,
4 Second-Lieutenants (engineers of the permanent way),
1 locomotive engineer, 1 telegraph engineer.

1 Surgeon, 1 Paymaster.

25 Non-commissioned Officers.

176 men, including 2 buglers.

11 men of the train and 11 horses.

Each is accompanied by its column of transport-waggons.

1 Under Officer in command.

9 Men of the train, 18 horses, and 5 waggons.

The construction and traffic companies are distributed as required, among the Railway Directors and the Railway Line Commandants. They can be increased from their depôts if necessary; for which purpose a reserve division for each battalion on peace footing is formed. Its effective is:—

STAFF. { 1 Officer, 1 Surgeon.
 { 1 Paymaster, 1 Armourer.

TWO COMPANIES, { 6 Officers.
EACH WITH { 25 Non-commissioned Officers, 2 Buglers,
 { 1 Hospital assistant.
 { 176 men and 2 horses.

A SECTION OF TRADESMEN, { 1 Officer.
TAILORS, SHOEMAKERS, { 6 Non-commissioned Officers.
SADDLERS, &c. { 100 men.

All orders referring to the Railway Regiment and its work, are given through the Officer commanding it.

For every 280 miles of way used, a Military Railway Director is appointed. He is a Field Officer (Colonel), and his principal duty is to organize the train-service over lines on occupied territory, and over such home-lines within the theatre of war, as are prevented, through the war from carrying on the service unassisted by the military authorities. He regulates both the transport arrangements, and the technical working and management of the lines under his charge.

He is assisted by a staff of:—

1 Field-Officer in charge of the Transport Department.

4 Officers to superintend the Traffic Department.

The Field-Officer carries out his orders for the transport-service, through 1 Captain as Adjutant, 1 Staff-Surgeon, 1 Field-Paymaster, and 1 Officer of the Intendance.

The traffic department contains a manager's office, an engineer's office, an accountant's chest and office, and a telegraph inspector's office; the establishment for these is detailed in the "*Révue Militaire de l'Etranger*," of November 26th, 1872, to which the writer would refer all interested in the subject, as one of the most valuable translations from the German that has appeared in that valuable journal.

To work the line, to repair, restore, or enlarge where necessary, a military traffic inspection and from two to four companies of the Railway Regiment are appointed to every 70 to 140 miles. A traffic inspection consists of 1 Captain, 5 officers, 14 non-commissioned officers, and 8 train soldiers.

The regulations laid down for the Prussian Railway Regiment govern the working of the lines.

It would be but a mere quotation from the Regulations of July 1872 on the German Route Service, to proceed with the functions and powers of the remainder of the departments under the Chief of the Field Railways, all of which may be read in the number of the "*Révue*" referred to above.

But the following extracts are compiled as the number may be out of print, or not easily obtainable.

Field officers are trained as railway line commandants during peace, and upon mobilization are appointed to districts. With the railway officials they arrange for the concentration of the army, borrowing rolling stock, drawing up time tables, and providing refreshments at stations determined upon. The conveyance of sick and wounded as they arrive at the hospitals of the district, is also regulated by them.

Railway station commandants enforce strict adherence to the time-tables, and arrange the police and military duties about the stations. They are informed as to what trains will run through, stop, or be unloaded at their stations; by which they will be enabled to provide for the wants of troops, horses and cattle. Certain arrangements are necessary at all stations, such as latrines, fixed platforms, and moveable ramps; a ward for sick unable to continue their journey, buckets for watering cattle, and cups or other vessels for men. The proper supply of refreshments is also regulated by them. All finance and accounts of the mobilized military-railway bodies alluded to are settled

by the field paymaster on the staff of the railway-district, with the exception of those of the field-railway companies. They keep their accounts separately and have separate pay-chests. The finance of those not mobilized is managed by paymasters belonging to their staff.

To provide the large number necessary to carry out the regulations, so far as they affect railways, very early steps were taken. An order of the Minister of War declared that after the 1st October, 1872, all employés of railways, whether belonging to the State or private boards, and who formed part either of the Reserve or Landwehr, should be enrolled in the Reserve and Landwehr of the Railway Battalion, whatever branch of the service they served in when under the colours. But it specified that this order only referred to those who had a special knowledge of the construction and working of lines, and not to porters and the like. All men of the Reserve and Landwehr are enrolled upon "Stammliste," under that branch of the service in which they served; and by the order in question, it was decided that the men affected should be borne on these lists as belonging to the railway branch; but should be able to have their names transferred to their former place in the lists, if they left the service of the boards and desired it. Officers as well as men were included in this order. Also since the constitution of the Battalion, the men upon quitting it have been enrolled on separate lists among the troops of the Landwehr; the officers according to seniority, upon two lists, those of the Reserve and of the Landwehr. The Railway Regiment now keeps a similar list corrected monthly from reports sent to them by the commanders of Landwehr in the various districts; and every year on May 15th, when the annual state is forwarded to the King, the regiment appends to the effective list of officers, that of the officers of the Reserve and Landwehr who have passed through it. The lists kept in each district of Landwehr contain the service, age, residence, and civil employment of every man and officer, and from this is determined their liability to, or exemption from, service upon mobilization. Twice a-year the district commanders of Landwehr furnish the regiment with a list of men employed on the staff of any railway who have not passed through the regiment. The employés of a line who thus become part of the Reserve and Landwehr of the regiment, include the staff for administration and issue of tickets, for working the rolling-stock, in charge of the way and stations, and workmen of various trades; the higher grades are, inspectors of traffic, of works of construction and of telegraphs, architects, foremen of works, railway engineers, locomotive engineers, foremen of machinery and workshops, overseers and comptrollers of the way, traffic superintendents, and assistant-superintendents of stations. The above, and very much more, forms the subject of the Landwehr Ordnung, and the Control Ordnung deals with the question of liability to and freedom from service amongst the employés. One extract will be given here, "All immunity from service ends, when the last class of Landwehr is "called out." The lists are of the greatest importance to the railway boards, who are by their means in no danger of being deprived upon

mobilization, of all the officials working the lines, and they exemplify the unity of interests existing between the army and the State. Exemptions of officers and men are readily and easily made, without having, as would otherwise be the case, to pass from the district commanders of each Landwehr battalion, through those of the corps d'armée, for the decision of the Chief of the Staff, as commander of the Railway Regiment. As a further means of increasing the number of railway employés in the Beurlaubtenstand, inducements were always offered to officers, after their term of service, to accept positions on railway boards, and to men, appointments on the staff of the State lines. Only lately, the difficulty of getting under-officers to remain under the colours for a greater number of years, has obliged the German War Office to hold out to them the certainty of appointment in State railways after a definite number of years.

In the Army List of 1873, the First and Second-Lieutenants classed in the Reserve and Landwehr of the Battalion amounted to 43 and 118 respectively. In 1874 these figures had risen to 56 and 121. And in that of November 12th, 1875, we find in the Reserve, 1 First and 72 Second-Lieutenants; in the Landwehr, 8 Captains, 37 First, and 179 Second-Lieutenants, or a total of 297 officers.

The Army List of that date also gives the effective officers of the Battalion, (those of the second battalion had not been appointed,) as 1 Colonel commanding, 5 Captains, 5 First-Lieutenants, and 4 Second-Lieutenants.

Officers attached for Service: 2 Majors of the Engineer Corps, 4 Captains, 2 First, and 5 Second-Lieutenants attached from Line regiments.

Administration of the plant in store: 1 Captain.

Total, 1 Colonel, 2 Majors, 10 Captains, 7 First and 9 Second-Lieutenants.

In case of mobilization, therefore, Prussia has 1 Colonel, 2 Majors, 18 Captains, 45 First and 260 Second-Lieutenants, total, 326 officers, for the various requirements of railway transport. Each battalion on a war footing is, as we have seen, augmented into eight construction companies, and four traffic companies, with a reserve division of two companies and one section of tradesmen. These require 112 officers, so that there is a greater number than necessary for two such battalions. As for men, the system pursued of receiving a large number of one-year volunteers who brought with them a previous knowledge of railway matters, and who therefore could be passed rapidly into the Reserve; of extending the privilege so far to the others, as to allow them to leave the colours after two years; and of incorporating in the reserve of the regiment all employés of the railways, has more than met the requirements of the case. By the law of June 13th, 1873, upon the allegiance of public departments in case of war, the boards of railways are obliged to be prepared to convert trucks into carriages for horses and men, to provide for the transport of troops and supplies, and to furnish rolling-stock of every kind, as well as the necessary staff for repairing and

working the lines.¹ There is little or no difficulty, therefore, in raising the 6,000 men required for the service-establishment of the railway companies from railway officials, engineers and artificers liable to render military service, as well as from suitable men in the Reserve; and this without depriving the boards of the staff required to work the home portions of their lines; their services are called for by the Chief of the Field Railways as necessity arises, and the exigencies of the home railway service permit. If any are still available after the concentration of the army is effected, and the formation of the railway corps completed, the regulations upon the Route Service lay down that with the consent of the Chief of the General Staff, they may be incorporated with other *dépôt* troops by the Minister of War, or they may be used to furnish guards and construct field-works for the protection of the lines, or to fill up the *dépôt* of the Railway Regiment. In addition to the departments mentioned above, officials of the Government lines, not liable to military service, may be called upon for railway service in the field, by the authority of the Imperial Chancellor. Civilians may also be engaged for the same service by authority of the Chief of the Field Railways. The two classes last mentioned are attached to the railway companies as military officials.

A military organization carefully prepared during peace can alone develop the qualities required of such men, in the course of a war which may be protracted, and is sure to be subject to diversities of fortune; and General MacCallum, in his report to the United States Congress after the campaign of 1861-65, was most emphatic in his assertion that the experience and practice in the first two years as director of Railways, alone enabled him to undertake with any chance of success the enormous task imposed upon him. Convinced that to wait till war is declared to complete the smallest link in the chain, is to expose the whole to failure, the railway department of the Prussian Staff have taken active measures to prepare the principal stations along important strategic lines, so as to permit of troops being readily disembarked and sheltered and provided for; to establish permanent stores of provisions in the principal termini, and to train "Line commandants" to their duties during peace. They have also built "interrupting forts" (Sperr Forts) at intervals along important lines, to prevent the turning of a single fortress along a railway being sufficient to put the whole of the rest of the line in the enemy's power; Metz affords an example of this in the late war.

The most important work undertaken to provide instruction to the Regiment is undoubtedly the construction, maintenance, and working of the military line from Berlin through the wood of Kummersdorf to Zossen, the administration of which is entirely left in its hands. A translation of the statute organizing it in 1875, is given *in extenso*, both because of its value as based upon the joint reports of the Minister of War and the Minister of Commerce, Industry, and

¹The tariff for transport and the use of stock is settled by the central committee, composed of delegates from the Federal States, but no indemnity is paid for the conversion of the trucks

Public Works, and because of its instructiveness as the first publication of the kind relating to a military railway body.

"The following statute organizing the Government line from Berlin to the practice ground, based upon your joint reports, bearing date 31st July of this year, has been approved by me, and is forwarded to you to be carried out.

(Signed)

"WILLIAM.

(Countersigned)

"VON KAMEKE.

"To the Minister of War and the Minister of Commerce, Industry, and Public Works."

1st Article. Administrative Authorities.

The military line from Berlin to the practice ground is under the superintendence of the Royal Military Railway Department; it is controlled, on the one hand, by the War Office and the Chief of the Army Staff, and on the other, by the department charged with the supervision of Railways.

2nd Article. Managers.

The body of Managers comprises a Captain¹ and two Lieutenants of the Railway Battalion, in the capacity of General Manager, Secretary, and Locomotive Superintendent.

3rd Article. Executive Staff.

The "Military Railway Traffic Department" will carry on the traffic, the maintenance of works, and the administration of the line, under the General Manager¹. The Senior Captain of the Railway Battalion will be appointed Manager of the Traffic Department, with the following Staff as permanent members:—

- 1st. A Lieutenant in charge of the head office;
- 2nd. A Lieutenant, Locomotive Superintendent;
- 3rd. The officer in charge of the Battalion's depôt, who will superintend the traffic at the depôt of the military line, and the plant in the workshops;
- 4th. A Paymaster at the head of the pay office;
- 5th. Subordinate Staff—Clerks, draughtsmen, store-keepers, foremen of works.

Temporarily attached to the Traffic Department are a certain number of officers, non-commissioned officers, and men of the Battalion to work the line, and be instructed in the management of the traffic.

4th Article. Duties of the General Manager.

The General Manager will see that the administration and working of the line conform to the laws relating to them, and to the special directions issued by the authorities named in Article 1. He has full power to issue and enforce such orders, instructions, and bye-laws as relate to his department as he may think fit. He is charged with the correspondence of the managing body, and refers all questions which require the decision of the higher authorities; he represents the managing body (except in the case treated in Article 6); he gives

¹ By royal order of February 8th, 1876, a *staff officer*; and for *battalion* read *regiment* throughout.

judgment in the litigation of the line, and sanctions all contracts, except those specially reserved to other authorities. In carrying on the traffic of the line, he is never to lose sight of the main object for which it was intended, namely, to afford the means of instruction in the technical management of a railway to officers, non-commissioned officers, and men of the Railway Battalion. Everything is to be subordinate to the furthering of this end.

5th Article. Nomination of the Staff to carry on the traffic.

The Manager, the Officer in charge of the head office, and the Locomotive Superintendent of the Traffic Department, will take up their duties as part of the Executive Staff, upon nomination by the Chief of the Army Staff, as recommended by the Commander of the Battalion. This latter will appoint the subordinate staff of this department, the company to work the line (complete in itself, or combined with men from others), and the employés to superintend and be instructed in engine-driving, relieving them from time to time.

6th Article. Duties of the Manager of the Traffic Department.

The Traffic Manager will direct the work of the department, according to the orders and instructions issued by the General Manager, whose place he will fill in emergencies. He sees that all matters connected with the traffic and administration of the line are promptly carried out, directs the correspondence of the department, and has the use of a stamp, "Traffic Department of the Military Line from Berlin to the Practice Ground." He is especially responsible for the maintenance, regularity, punctuality, and economy of the traffic, as well as for the discipline which should exist throughout the whole. All offences not committed when doing the duty of the railway, or in connection with it, are to be treated as regimental offences, and dealt with according to Article 1 of the Army Regulations of October 31st, 1872, by him or by one of his immediate superiors in the administration. The Traffic Manager has the disciplinary powers of an officer commanding a detached company. When he is unavoidably absent, from illness or on leave, the Commander of the Battalion will appoint another officer to do his duty.

7th Article. Superintendence of the traffic.

The duties of the Company Officers detached according to Article 5, irrespective of those of the Company, will be regulated by Article 8 for the superintendence of the traffic.

8th Article. The details of the service and employment of the Traffic Department, as well as the special duties to be performed by the Manager, and by the non-commissioned officers and men of the Military Railway, will be given subsequently in *Regulations for the Service*.

9th Article. Administration of the Depot.

The Officer in charge of the unused rolling stock and plant, and of the workshops, will also purchase, store, and issue all plant, tools, and other material in his charge, and will keep the ledgers and account books. Special instructions are issued for his guidance in "Instructions

¹ By royal order of February 8th, of a detached staff officer.

"for the Administration of the unused Plant of the Military Railway
"from Berlin to the Practice Ground."

10th Article. Administration of the Paymaster's Department.

The administration of the Pay-Chest will be superintended by a committee composed of the Captain who is nominated Traffic Manager, the Lieutenant of the head office, and the Paymaster of this department, who will form "the Committee for the Administration of the Pay-Chest of the Military Railway from Berlin to the Practice Ground." They have the use of the stamp of the Traffic Department, and will be governed by the regulations in force for a regimental pay-chest as modified and supplemented for the Battalion.

Berlin, 31st Aug., 1875.

The above Cabinet Order, as well as the accompanying Statute, are issued for the information of the Army.

(Signed.) VON KAMEKE.

The line was opened to the public in November, 1875, and was worked by each company of the Battalion for a month at a time. The officer who at first did the duty of Locomotive Superintendent, the Sergeant and Under-officers employed as engine-drivers, had been trained for a year previously on the Eastern Railway, and held certificates. For a week the regiment of Grenadiers, François Joseph, was conveyed daily to the practice ground at Zossen, returning in the evening. At another time, practice was given in loading and unloading such material as would constantly be used in war. An excellent example of the efficiency attained, and of the rapidity with which work can now be performed, is afforded by one of the latest services rendered. On the 17th February the Board of the Berlin-Dresden line applied to the Colonel in command for a detachment, to re-establish the communication interrupted by the flooding of the River Dahme, an affluent of the Spree, which had destroyed a large portion of embankment. Colonel Schulz lost no time in requiring explanations or, making enquiries of any sort whatever. Three hours after its receipt, the Chief of the Army Staff had been consulted, the company to furnish the detachment had received its orders, the material required for the work had been brought to the station and loaded; in fact every preparation had been made in one-eighth of the time in which civil engineers and men, under the most favourable circumstances, could have been collected together. On Friday the 18th, the same morning that they arrived, they began the works in the bed of the Dahme, and at about the same hour on Monday morning the heaviest traffic was able to pass over the gap on a permanent bridge, 40 ft. long, of wooden longitudinals, supported on four rows of piles. The work was directed by Major Golz.

A glance at the Budget for 1876 shows that the advancement of the new regiment is being pushed forward vigorously, and that there is no appearance of allowing it to remain inactive. The sum of £3,000 is asked for as a special item this year to purchase an iron bridge, a practical trial of which has been strongly recommended by the Great General Staff. It was designed by Mr. Stern, engineer of

Carlsruhe, for the purpose of rapidly and efficiently replacing railway bridges which have been destroyed, and its construction has given satisfaction to the Prussian Minister of Commerce. It provides £2,000 for the railway to the practice ground at Zossen; £300 for special tours of reconnaissance to be made by the regiment; £1,100 for the annual special manœuvres; £10 for small-arm ammunition for musketry practice, and £1,050 for contingencies. A new item occurs amongst the sums devoted to the Great General Staff, £850 to training field officers of the Staff to the duties of "Line Commandants," duties which we have seen play an important part in the route service organization scheme. It is proposed to name three this year, but from the tone adopted it is certain that this number will be added to very shortly. "The increase is necessitated by the complication of military transport, and the desirability of practising the work of 'Line Commandants' during peace. Only three are named, as the best scheme for their duties is not yet decided upon." A sum of £2,610 is asked for for the office expenses of the military railway authorities, printing of time-tables, stationery, copies of regulations and the like. This item shows an increase of £1,050 upon last year.

In any subsequent war Germany will possess in the Prussian Railway Regiment an organization which will have an influence hitherto unparalleled, upon all military operations. Its creation has given rise to a new arm. Exercised in peace to manœuvre independently under the exclusive direction of its officers, it will act in concert with the army, assisting in invading, occupying, defending or evacuating strategic points, represented by the principal stations. It will be engaged in the most exposed part of the iron road comprised within the field of operations, and will be called upon to show not only the punctuality and precision of railway traffic, but discipline, military spirit, and power, as well as science, in manœuvring. As part of the valuable system of route service possessed by the Germans, it enables them to spread rapidly into the enemy's territory, to seize and turn to their own use in a moment all local resources, paralysing the patriotism of the population; with cavalry to flank and reconnoitre in advance, it is the most rapid instrument in bringing up reinforcements of infantry to an important station seized by cavalry, or a central dépôt of stores insufficiently defended. When acting on the defensive, the enormously extended frontier of Germany renders this arm equally indispensable, in order to meet the enemy in overpowering numbers at any point. Nothing perhaps strikes a reader of the "History of the War by the German Staff" with greater force than the following quotation from page 82 of the first volume:—"The report made in the winter of 1868-69, served without any modification, as the basis of the principal dispositions taken upon the declaration of the war in 1870. In anticipation of the adoption of the plan proposed, all preparatory steps had been completed, down to the smallest detail; and upon His Majesty's approval of it, after his arrival in Berlin, there remained only to write in the day for commencing the mobilization, in the tables of the movements and transports, which had been prepared for each fraction of the

"army by the railway department of the Staff, and the movement was commenced."

Railways enabled MacMahon to withdraw his army after defeat at Wörth to Chalons, where he was joined by corps also brought by rail from Belfort and Paris, but the want of organization in the administration caused great suffering to the men, who could not leave their carriages for an incredibly long period. Railways permitted Canrobert to quit Chalons at the last moment with a large portion of his corps, and take part in the decisive battles round Metz; but on the other hand, the absence of a trained staff to restore the portion of line between Frouard and Metz, destroyed by the Prussian cavalry on August 13th, obliged him to leave a large part of his artillery behind, a result which weighed heavily against the French in the issue of the battle of the 18th. It was due to the re-establishment of the lines by the Prussian and Bavarian Railway Corps, and in particular the line from Amiens to Rouen, that the investment of Paris on the north could be assured over a very wide circle by a much smaller force than that opposed to them. The loop-line, 63 miles long, from Remilly to Pont-à-Mousson, constructed by the First and Fourth Prussian Railway Sections, to avoid Metz, is a matter of history. It is no exaggeration to say; that the lamentable conclusion of Bourbaki's expedition eastwards, was due to the inefficient administration of the railways he was employing. Between Bourges and Chalons-sur-Saône, his army could not be moved backwards or forwards owing to the block on the line. They remained *eight days* in the carriages, in intense cold, and without sufficient food. Could anyone expect them to have retained their morale when they arrived at their journey's end?

With such facts before us, it cannot but be a matter of regret that England makes no effort to provide a military body trained to a practical and technical knowledge of railway management. Will it require an experience more costly than even that of the Crimea, to show that the time for the further development of this branch has arrived? In case of invasion, no doubt patriotic ardour will hasten to provide the means to the same end; railway officials throughout the kingdom will afford their utmost assistance. But zeal and patriotism, without a pre-arranged and organized system, in a matter requiring the greatest precision and method, will not suffice. There would not be much difficulty in creating a military body similar in character to that which has formed the subject of this article, and which might become the nucleus of further expansion in case of war either at home or abroad. We shall do well, therefore, to remember that the "extraordinary requirements arising out of recent great changes and improvements in the means and appliances of warfare, render the necessity more imperative than formerly, that dependence should not be placed upon exceptional talent, nor upon lavish expenditure, to provide at the moment of action all that may have been omitted during peace in our administrative organization."