THE SIGNAL CORPS.

By: LIEUT. W. A. GLASSFORD. SIGNAL CORPS. U. S. A.

EXCERPT FROM:

THE ARMY OF THE UNITED STATES
HISTORICAL SKETCHES OF STAFF AND LINE WITH PORTRAITS OF GENERALS-IN-CHIEF

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INTRODUCTION

It is with pleasure that I avail myself of an opportunity to commend this effort of the Military Service Institution to provide an authentic and condensed account of the services of the Army, from the creation of our military establishment to the present day. Each staff-corps and regiment of the line has here its chosen historian and its modest memoir replete with biographical as well as historical data. Its form gives it a unique character of special value as a work of reference. It represents a completion of a series of historical sketches, which have appeared from time to time during the last few years in the Journal of the Military Service Institution of the United States, and comprises an amount of gratuitous labor by contributors and of public spirit on the part of the publishers that merits public acknowledgment. I have no hesitation in saying that it deserves a place in every public library, and is worthy of preservation by all collectors of military works.

NELSON A. MILES,

Major General

Commanding the Army.

HEADQUARTERS OF THE ARMY,

WASHINGTON, D. C., NOV. 15, 1895

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The genesis of military signaling is written in the labors of Myer. What from the most ancient times other commanders had dimly comprehended, Napoleon first saw clearly enough to crystallize into his maxim, "*Le secret de la guerre est dans le secret de communications*." What the great captain of modern warfare recognized but could not attain was the problem whose solution fell to Albert James Myer of the Medical Department, United States Army. In all campaigns from the remotest times the maintenance of communication by transient signals had presented itself to commanders as of paramount importance, but in practice it had eluded them. When simple the signal was inefficient, when efficient it was so unwieldy as to be impracticable; the flashing shield at Sunium and the fingers of Chappé's semaphore were alike in their unavailability upon the field of battle. The waving flag and torch of Myer were the first contribution to the solution of the problem, which were efficient without cumbersome machinery, and while so simple as to be easily extemporized from any chance materials were yet capable of performing every service, which they could be called upon to render.

From the flag and torch of the enthusiastic inventor to a highly developed corps of the general staff is a long step. To show how it was taken, to present some of the more striking features of this growth, rapid in the heat of battle, to sketch the plan on which the Signal Corps was built, this chapter of the history of the war has been written from study of the compiled Official Records of the Union and Confederate armies.

In the beginning, the corps was enfolded in the enthusiasm and determination of Myer. In fact there was no corps, but there was Myer. A chief without a corps, it was his consuming ambition to surround himself with a staff of trained assistants; he succeeded in his ambition in 1863, but such were the animosities excited by his success that he was removed from the command of the corps he had created and in 1864 was out of the Army. Yet such was the influence he was still able to exert that he prevented the confirmation of Colonel Fisher twice appointed to succeed him. It is with the period between these two phases of signal service that most of this sketch has to do.

Dr. Myer entered the Army in 1854 as an assistant surgeon. His active interest in sign language, already displayed in his graduating thesis, was manifested at once by its development into a system of signal communication, for in 1856 he drafted a memorandum of his device. This, however attracted little or no attention at the War Department, and not before 1858 was the inventor successful in bringing his plans before a military board duly authorized to consider them. Yet another two years of exertions, strenuous though unrecorded, passed by before Congress created the position of signal officer of the Army. On June 27, 1860, Myer was gazetted Major and Signal Officer, the first known to history, and the first acknowledgment that the Napoleonic maxim was worthy a place in practical military science.

Within a fortnight he was dispatched to the plains. It is interesting to note who ordered the duty and to whom this inventor of the latest feature of military art was sent. It was Floyd who wrote the order, it was Fauntleroy of the First Dragoons who commanded the Department of New Mexico to which the signal officer was assigned; within a year they were both under arms in the Rebellion, and the signal officers of the Confederacy were conveying, messages on Myer's system in the very front of Washington before the National Army had fairly realized that it had a signal officer. Fortuitous as this coincidence may be, Major Myer on reaching his distant post was ordered to participate in the Navajo campaign in Colonel Canby's command. Here again the senior officer designated for a course of signal instruction and to act as assistant in the field was among those who joined Floyd and Fauntleroy. This expedition in the severest rigors of mid-winter upon the mountains of New Mexico proved a test, which showed the new signal system to be capable of all that was claimed for it. The test, which proved the system satisfactory, must also be regarded as a test of the author. The examination of what he did in this campaign gives a clue to his successes as well as his failures in the graver war which followed, and the test is a more than fair one, since it is judging him by his own standard.

Myer was an enthusiast, but his enthusiasm was often expended on trivialities. Strong on details he was weak on great principles. Having founded his system of signal communication upon a code of three elements he failed to grasp the induction, which should have led him higher. He was diligent in repeating the same three elements in all sorts of guises having developed the system for the eye he devised codes to appeal to the other senses of touch, hearing and even of smell. He multiplied instance upon instance and repeated needlessly the demonstration of that which was already proved. In connection with the torch he was minute in measuring the diameter of the flame-shade and its linear distance below the wick. He attributed the failure of his dial signal-telegraph train to the fact that curious soldiers cut the trailing insulated wire to see what it was made of; he could not be brought to see the inherent inefficiency of an apparatus which could not be made to work over ten miles of wire, even if uncut, because wrong in principle.

It is essential to a proper comprehension of the corps in the early chapters of the war to understand these traits of the man who called the corps into being. How he did it, how he induced the creation of a staff corps, how he was himself overpowered in the very success, these are matters which appear in the Rebellion records, here a piece and there a piece with many gaps which demand close attention to fill them up.

When in 1861, war unexpectedly broke out Major Myer was prompt to suggest the practical value of signals to the Army, and on this account he was called from the west, since the patriotic zeal at headquarters would neglect no chance that gave even

the faintest promise of assistance. In Washington there was haste to meet the emergency so suddenly thrust upon the Army not yet recovered from the paralysis of wholesale resignations. Little was known of the new military device and Myer found officials too busy to give much attention to his plans. Lights appeared on the Virginia hills by night and waving flags by day, a device of the enemy. Incomprehensible to all others and menacing, these things were clear to Myer, who renewed his efforts under this stimulus and succeeded in gaining the official ear. A course of signal instruction was initiated on June 10, 1861, at Fort Monroe, where eleven subaltern officers detailed from the forces near that post were hastily instructed in signal duties. This course continued but a few weeks and came to a sudden close when Major Myer was ordered to the Department of Northeast Virginia, and called upon to establish communication without being allowed a single trained assistant. Blunder as it was, yet it was fruitful in results, since nothing short of the spectacle of the Signal Officer of the Army idle upon the field of Bull Run, could avail to show those charged with the conduct of affairs, that the individual signal officer is valuable only as a part of perfected machinery. However, rudely acquired, this knowledge led to the establishment on August 30, 1361, of the Signal Camp of Instruction on Red Hill, Georgetown, D. C., a permanent institution where under the diligent charge of Lieut. Samuel T. Cushing, who was associated with Major Myer in the Navajo campaign, signal parties were instructed and equipped to attend each army that took the field.

Established under these circumstances, the activity of the Signal Corps during the war can best be studied in connection with the great military operations of the campaigns, which it so materially assisted. Reference to the general maps of the war will show the Confederacy to have held possession of the interior lines of communication, a decided advantage, the want of which imposed upon the Federal commander grave inconvenience and considerable hazard, in that it enforced upon him the necessity of attack by widely disconnected armies operating in regions equally separated. Comparing all the campaigns it may in a broad way be said that the Federal attack was directed midway between the four cardinal points. Hasty movements began the attack upon the northeast where the valleys of Virginia, Maryland and Pennsylvania were the theatres of the hardest fighting. In the southeast, the coast of Florida, Georgia and the Carolinas formed another point of attack. Louisiana and the lower Mississippi was the scene of the southwestern attack. The assault upon the northwest moved along the great military lines of the Tennessee and the Cumberland. Any study of the growth of the corps during the war will involve the necessity of tracing its history in each of these approaches to the heart of the Confederacy.

This method of examination of the materials at hand, while sacrificing unity of time, yet in its stead renders it possible to present in clear terms the independent but co-ordinate development of four bodies of signal officers, each in its own field. This in due course of time made it possible for Major Myer, as with intent to bring about a uniform degree of signal efficiency throughout the armies, to embody in a single centralized corps these organizations which were practically as independent of him as of one another. The period comprehended within the scope of the more detailed part of this paper, is that during which the system of regimental signal officers obtained, which was concluded in 1863 by the act creating the Signal Corps to continue during the Rebellion. However successful

the system of signals proved itself, it must be seen that the plan of detailing regimental officers crudely instructed broke down completely under the strain of actual campaign. One of the most distinct lessons of the war is this, which appears unmistakably in every report.

Recurring to the four columns of inquiry a brief presentation will be made of the development of signals in each up to the period noted. This happens most opportunely to correspond with the limit of the Rebellion records thus far published, beyond which it is not deemed advisable to push a detailed inquiry in which the chances of error are considerable.

Instruction at the Georgetown camp had been but a few weeks under way when the Signal Officer was called on to detail officers for an expedition then fitting out at Annapolis for an unknown destination. This was the beginning of the operations on the southeast at the close of 1861, and the expedition was that commanded by General Thomas W. Sherman against Port Royal in which the signal officers were efficient in maintaining communication and won for the signal system in a particular degree the commendation of the Navy. Early in 1862 signal officers accompanied General Burnside's Roanoke expedition and secured a foothold upon the coast of North Carolina. Thereafter, during 1862 and 1863 the Signal Corps was present at the operations in the two Carolinas with ever growing efficiency. It must suffice to indicate in broad outline the growth in the southeast quarter up to the time when the corps was placed upon a solid basis, which corresponds closely with the engineering successes before Charleston. The beginning was small at Port Royal; at Roanoke the signal officers did no signal duty at all and won mention by volunteer service as aides. From this humble start the progress in the next eighteen months though slow was steady, and as the novel service won, little by little, the confidence of commanding generals, it was stimulated to greater efficiency. The result attained is apparent in the reports of the chief acting signal officer of the Department of the South, which detailed the events just prior to and including the fall of Fort Wagner and Battery Gregg, the approaches to Charleston. It is shown plainly in his record of events; but more prominently yet in the attitude which he seems to have felt justified in assuming toward officers his superiors in lineal rank, and in the freedom with which he called upon the other staff corps to render him assistance in erecting the ingeniously constructed signal towers which overlooked Charleston harbor and roads.

The scanty record of signal operations in the southeast presents one difficulty, —lack of material; the record in the northeast being voluminous, presents another and even harder difficulty, that of selection and condensation. Major Myer, who was designated Chief Signal Officer of the Army of the Potomac, published in 1864 his report of its two-year-old signal operations, written with less reference to its military value than to its political bearing upon legislation then under consideration in Congress. From these records, diffuse in details and silent as to essentials, it is a hard task to arrive at the methods by

which the Signal Officer proposed to utilize the military results of his actions, in firmly establishing his own position which as yet had not emerged from the insecurity which must attach to any experiment.

On this northeastern approach there was some signaling done in 1861; the officers instructed at Fort Monroe put their lessons into practice, but they contributed little to the success of these early engagements. But in 1862 the Signal Corps, after its full winter's training at Georgetown, was as eager to press on to Richmond as any portion of that luckless army. Myer moved with his corps; he saw what each man did and made a note of it; nothing escaped his attention and few events but was made to contribute to the greater glory of the new arm of the service. He diligently recorded that on the voyage down the Potomac the Signal Corps prevented marine disaster; at Yorktown it became in the person of its officers, prominent by reason of the incessant waving of their flags, the target for artillery practice; it served at intervals in the Seven Days Battles, and that the service was interrupted was the fault, not of the system, but of the battle clouds of smoke; it changed its base to the James and directed the gunboat fire at Malvern; it fell back with the rear guard from Richmond with the great army to which it was attached. At every step, after the corps had done anything noteworthy, Myer insured the future of his system by securing a letter to that effect from the general or flag officer that had seen it done.

Another Signal Corps at the same time was operating with Pope's army at Cedar Mountain and Second Bull Run as it had done in the early spring with Banks at Strasburg and Winchester, but its history is obscure, since its successful work was not heralded by Myer's reports until the Army of the Potomac moved north in September. Then came the operations about Frederick, Md., and the engagements at South Mountain and Antietam, in all, which the corps was efficient in its proper function. With these northern battles the signal operations assume a status of more real value and are better recognized by commanders; Fredericksburg brings the corps prominently to the dangerous front, Chancellorsville shows Hooker making intelligent use of this body of trained officers both to observe and to communicate, and at Gettysburg the Signal Corps is acknowledged as firmly fixed in the military household by Meade's circular before the battle, in which he calls upon this as upon all other staff corps to aid him in the impending engagement. First appearing as an idle spectator at Bull Run, later summoned to the council of war at Gettysburg, these two facts tersely illustrate the two years' growth of the signal system on this front.

In the southwest the signal officers, like the son of Achilles, came late to the war. When Farragut ran Forts Jackson and St. Philip no signalmen were with him, nor did they come until the first assault was over and the Federal forces occupied New Orleans. It was not indeed until 1863 that the Signal Corps made its mark in this field of the war. Having had just enough duty in small skirmishes to bring it into efficiency, it in vested Vicksburg and Port Hudson with Grant and Banks; from its towers and treetops it covered the beleaguered towns with vigilance ever alert; it saw every movement in time and gave warning to the besiegers, for whom it was not only eyes but tongue as well.

The beginning of the war on the northwest was most distinctly marked by the failure of signal operations, not so much by reason of any inefficiency of the system, as through the chapter of accidents, which so greatly retarded military operations upon that approach.

The first signal party was sent to General Halleck at St. Louis late in March of 1862, but the use of this new military art was not fairly appreciated, and the detachment was soon dissolved. At Shiloh, Grant's army had no signal officers; Buell's had, but almost the sole mention of their activity is that they were ordered back to duty with their companies. At Perryville the record shows that the signal system was in operation, but by a strange mischance it did not succeed in conveying to Buell the knowledge that a battle was in progress. But an improvement was noticeable when on the last day of 1862 Rosecrans fought the battle of Stone's River, and found his signal officers to be relied upon in the discharge of their proper duties. Thenceforward the progress was distinct, the service was growing in efficiency and in reputation, and in each regard an improvement may be noted after Franklin, Tullahoma, Chickamauga, Lookout Mountain, Missionary Ridge and Knoxville. In a year and a half the Signal Corps had, from a position in which it was treated with indifference, advanced in this army also to the burden of grave responsibilities, in which it proved itself deserving of the reliance placed upon it.

On the Confederate side signal officers were no less active, although the close details of their operations exist only in fragmentary reports. It has been already remarked that the Confederate army made earlier use of signals than the Union forces, and that the sight of their flags and flames on the Virginia hills served to hasten consideration of Major Myer's plans. The Richmond Congress early recognized the value of this service and drafted a measure, which authorized the creation of a Signal Corps of consistent and comprehensive efficiency. Under this act the Signal Corps of the Provisional Army of the Confederacy was instituted and placed in charge of Major Norris. The plan was excellent but when it came to putting it into operation it would seem that of the two duties of the signal officer, observation and communication, which the model signal officer of the future must combine, Norris, not being actuated by the inventor's enthusiasm, devoted his attention to the former. The reports of Norris' bureau which have survived are in the majority of cases the details of scouting exploits within the Federal lines; the system seems to have grown into a matter of high-class spying in which the commission and uniform were expressly designed to serve as a cloak to the operations and to enable the operator, if captured, to offer a specious plea against the customary penalty of spying. To perform the legitimate duties of signal communication there grew up another body, the Independent Signal Corps under Major Milligan, which operated in Virginia and North Carolina, and probably enjoyed a still wider field.

In the four fields of war in which the signal officers prosecuted their operations the work in this formative period was done by acting signal officers, that is, subalterns of volunteer regiments detached for this special service. To understand their position attention should be directed upon the enactments and orders, which authorized their employment on this duty. The act of 21st June 1860 created the position of Signal Officer and announced

rather than defined his duties. In 1861 the commanding generals of the several departments to which in succession Major Myer was assigned, detailed junior officers to be instructed in signal duty; thus originated the school at Monroe, the experimental stations along the upper Potomac, and the permanent camp at Georgetown, all being authorized by orders and confirmed upon an essential point by the act of 22d February, 1862, which settled upon officers so detailed the pay of cavalry officers of the same grade. Thus the Signal Officer obtained his first corps.

There was about this corps, as in all new projects brought about by the personal efforts of any enthusiast, an element of uncertainty, it was of a temporary nature. Officers detailed might be recalled to the line by the order of their regimental commanders or by their own wish, above all there was no appropriation directly made for the service rendered. One remedy was applied, the order of the War Department that acting signal officers should not be relieved from that duty except by order of the Adjutant-General of the Army. This was palliative, it secured the corps against rapid depletion, but it did not remove the causes, which led to such depletion, nor did it secure the corps a permanent status. It still presented the anomaly of but one Signal Officer in the Army and all the work of signal communication performed by acting signal officers. To remove this anomaly, to acquire a permanent status with an eye to inevitable retrenchments of the peace footing in the future, engaged the best efforts of the Signal Officer. This system of regimental officers detailed for signal duty had the most fair trial, it was tested by the exigencies of actual campaigning and this test was continued for two years; in this length of time its merits, if it had any, should have been made overwhelmingly manifest, its faults should have suggested their correction. But the two years experiment showed the faults too deep-seated for correction short of radical reconstruction, the merits expected were uniformly absent. Every battle, every movement of troops showed defects, and proved them to be inherent in any corps of signal officers, which depended for its existence upon regimental details. Yet, following his plan of utilizing every method which might popularize his system, he succeeded in having a course of signals prescribed at the Military Academy in July, 1863, and added to the instruction in visual signals a course of lectures on telegraphic communication, and to aid that purpose sent to West Point a train with the Beardslee instruments.

Myer's system was a novelty in military practice; there had been no opportunity to exhibit its utility to the army in general; New Mexico was faraway and in 1861 men had other things to occupy their minds than waving flags in a fruitless Indian campaign; worst of all not a line about the duties of the Signal Officer was found in any text of the art of war, and not yet had the lesson been learned that war well made makes its own art. The unknown system was nowhere welcomed, at best it was tolerated, in many cases it had to encounter the dogged resistance of rigid formalists.

Time and the event had not yet proved its superiority in its twofold sphere; the scout for observation and the orderly for communication were yet supreme. Like Napoleon, who rejected Fulton's project to transport the French army across the channel by steam power, few could sufficiently project the new arm of the service into the future to give Myer support in his efforts. Where improvements in the methods of observation and communication failed to affect the result, it was necessary to seek still further modes of

usefulness in which the Signal Officer might be free from old traditions. It must be recognized that Myer was diligent in grasping at every means that might even remotely assist him, and characteristically pertinacious in returning to his purpose with unabated vigor after each rebuff.

The chance of the times and the events incidental to the hasty mobilization of great bodies of raw levies, zealous as they were unskilled, offered the first opportunity. The disasters of Big Bethel and Glasgow, where troops fired deadly volleys into the ranks of their own comrades, sadly showed the inability of new volunteers in the peril of panic to know friend from foe. While the feeling of horror was still fresh, Major Myer came forward with a system of countersign signals, which should prevent similar deplorable catastrophes. The system was adopted and promulgated in general orders. Regimental commanders were to have their adjutants and color sergeants instructed to wave by day the regimental colors in certain fashions and to burn colored fires by night. There were then two hundred and fifty organizations in the single Army of the Potomac, and they were all instructed during the winter of 1861; but the time and labor were spent in vain. The system never gained a foothold, and properly lapsed as better training in the duties of the soldier removed the causes, which had operated to bring it forward.

A second attempt to attain, first, prominence, and next, permanence, brought the Signal Officer in contact, not this time with apathy and indifference of commanding officers, but with the lively opposition of a civil bureau of the War Department already well established and decidedly indisposed to yield to the pretensions of Major Myer. This was the attempt to secure control of the telegraph upon the field and in its relation with the army. The attitude which the civilian operators assumed, seems to have been prompted not so much by the belief they professed in the essentially civil nature of their calling as by their personal objection to Myer, who had not served an operator's apprenticeship, and who did not have that peculiar touch by which an operator comes into electric sympathy with his fellows in the profession.

Governed in this by sentiment rather than by reason they made a mistake; the mistake they then made they have since acknowledged, and have pleaded it in support of legislation sought in their behalf. The men who were most strenuous in opposition to military control of the telegraph, are now on record as supporting just that control and discipline in campaign. It must be admitted that Myer was personally unsuited for telegraph duty; moreover, it must be admitted that had he been suited for that duty history would have been different. Similarly of the few nations that attempted to perform military telegraph work by force of civilians, all have realized the practical impossibility of the attempt. Every nation except France has transferred the service to the army, and even in France the transfer will soon be brought about inasmuch as schools for the instruction of officers and men have been established.

The creating act of 1860 explicitly authorized the Signal Officer to have charge of all signal duty and all apparatus connected therewith. This language was General Butler's sufficient authority for assigning Myer to the charge of the recently constructed line of the U. S. Military Telegraph in southeastern Virginia. The order was distasteful to the regularly appointed superintendent of the line, who believed himself to be accountable only to the War Department. But communication with Washington was practicable only by letter, and disobedience to Butler's order would have been quickly visited with heavy penalties; on this account the operators made temporary submission. The Signal Officer's tour of duty as telegraph officer was brief, and he was sharply reminded by the Secretary of War that electric telegraphy was not in his province. This was the first skirmish of a bitter contest.

Myer now made a formal demand upon the War Department to be given control of the entire system of military telegraphs under the terms of his commission, but it was at once apparent that he would not be allowed to interfere with the electric operators. His attention was accordingly directed upon some portable system of telegraphy operated upon other principles than the Morse system, and even in his early plans be seems to have appreciated the important differences between the flying telegraph and the semi-permanent lines. Having discovered what he sought in a magnetic dial apparatus, the Signal Officer in August, 1861, laid before the Secretary of War a plan for signal telegraph trains which should not interfere with existing interests, and yet, by a clause judiciously inserted to the effect that a proper proportion of the officers and men should be selected electric telegraphists employed for the war, it was carefully devised to secure Major Myer a permanent corps in the place of the acting signal officers, and, by securing a sufficiency of Morse operators attracted by actual commissions or the prospect of winning them, to place him in a position to make a more effectual demand for the control of the military telegraph. This was met by an authorization to purchase a small telegraph train to communicate with points which could not be reached by signals, and fixing upon the Signal Officer the responsibility of determining the necessity for such a train. Major Myer hesitated to act under this authorization, which was silent as to any appropriation. In March, 1862, the Beardslee or magnetic instrument had not been brought into condition to use, and the question of an electric train was beset with difficulties when the Signal Officer was ordered to take the field with no definite arrangements concluded.

Under these circumstances little could be done with this branch of the equipment in the Peninsular campaign, and what little was attempted was touched upon very lightly by Major Myer in his personal report, although this is the first mention in all history of the telegraph on the battle-field. It was not until the close of the year 1862, at Fredericksburg, that any definite attempt was made to bring into special prominence the telegraph train of the Signal Corps. This dial telegraph was maintained in intermittent operation, and for the most part was favorably reported by the officers in charge. In May 1863, at Chancellorsville, the field telegraph of the Signal Corps was in operation. Practical test demonstrated the line to be insufficiently insulated and incapable of working except for short stretches, while the instrument was slow and particularly sensitive to atmospheric disturbances. But the gravest difficulty was that it here came into direct and disastrous competition with the electric military telegraph of the War Department, and offered itself

to the critical judgment of such men as Eckert, Stager and Bates, who were in a position to pass upon it the criticism of technical experts.

Under the influence of sundry successes achieved in the summer campaigns, the last month of 1862 saw the appropriation of funds sufficient to construct several of these telegraph trains. The same causes contributed to produce a result of greater importance than the supply of field telegraph trains. This was the permanent organization of the Signal Corps.

The authorization to construct signal telegraph trains was, in its very nature, a solace to Major Myer for refusing him control of the U. S. Military Telegraph to which he claimed title. He had been in conflict with Secretary Stanton and had been worsted. There could have been no better recommendation to the sympathies of the Congress of that time. Avoiding any chance of reference to the more purely military committees, which would be to a certain extent under the influence of the powerful secretary, the legislation was accomplished in the Sundry Civil Bill, which became law on the 3d of March 1863. Thus was the Signal Corps built and equipped with a systematic organization.

At the head of the corps there was a chief signal officer, a colonel, who should be Signal Officer of the Army, there was a lieutenant-colonel and two majors, there was one captain and eight lieutenants for each army corps, and for each officer there was allowed a sergeant and six privates. The corps was authorized for the duration of the Rebellion, and appointments were to be made on the recommendation of examining boards. In accordance with the report of the first of these boards Major Myer was nominated Chief Signal Officer and given a recess appointment. Later in the same year the judge Advocate General wrote an opinion establishing the status of the corps as of the establishment of the regular army. The realization of Myer's ambition had yielded to his persistence, he had secured a higher rank and his corps would be permanently established as soon as the examining boards had completed their work in the several military departments.

But Colonel Myer in the moment of success had to learn that the War Secretary could not be trifled with in safety. Once again the Chief Signal Officer sought to obtain a certain control of electric telegraphs, and to that end advertised his willingness to give commissions to telegraph operators. Thereupon the blow fell. On the 10th of November 1863, Colonel Myer was relieved from command of the Signal Corps and ordered to the Mississippi. He turned the bureau over to Major Nicodemus, who was later promoted to the lieutenant-colonelcy, and, most important of all, the Secretary of War ordered that the telegraph trains be put in charge of the Superintendent of the Military Telegraph, Colonel Anson Stager. Thus was the Signal Corps built; but when the capstone had been laid in place the edifice passed away from him who built it. Myer, was not only banished to a remote military division, but the Senate failed to confirm his appointment; the President revoked it, and the first Signal Officer, the inventor of the art, was no longer in the Army.

It is to study the growth of a staff corps from a single officer to a highly organized body, rather than to make a record of the deeds of the signal officers or a roster, which should give them the credit they earned, that this paper has been written. In pursuing this line of research it has been necessary to pay strict regard to the operations of the Signal Officer of the Army and to weigh his official acts as presented directly in the official records of

the rebellion, and as reflected in the services, which his subordinates rendered in obedience to his orders. A study of the later period of signal operations will afford an opportunity to return to, and present in detail a narrative of events, which cannot fail of interest. This chapter is of necessity drawn closely about the personality of the first Signal Officer, for it was in and through that personality that the Signal Corps came into being.

Freed from the guiding touch of its inventor and foremost advocate, the Signal Corps nevertheless maintained a steadfast activity during the war and grew in favor, as it conscientiously discharged its invaluable duties. Major Nicodemus, temporarily placed in charge, had control until the end of 1864, when he too was visited with punishment. He had published his report for that year without having gone through the formality of submitting it to the Secretary of War, and for that offense was dismissed the service on the ostensible ground that he had aided the enemy by divulging valuable information. His innocence of any wrong intent was made manifest soon afterwards, and, it perhaps becoming apparent by what influences he had been hampered, he was reinstated in his regiment of the regulars. He was succeeded in the Signal Bureau by Colonel B. F. Fisher, who was given a recess appointment as Signal Officer of the Army, and, when that lapsed, through failure to receive confirmation at the instigation of Myer's friends, was at once reappointed on the same terms.

While affairs of the Bureau at Washington were thus kept in a permanently unsettled condition, the corps in the field was winning fame. At Allatoona its services were so distinguished as to win brevets or actual promotion for all who participated in the battle. When Farragut overcame the fort, the torpedo and the ram, the defenses of Mobile, he sent his army signal officers below and bade them assist the surgeon in the cockpit, for they had been assigned to him only for the purpose of opening communication with the army after the naval victory had been won. But he could not keep them there; the needs of battle overtaxing the naval signal system, forced him to summon them to give him aid. They found their proper station on deck, and aloft as the fight grew fiercer. The admiral ceased to look upon his signal officers as idlers; in his moment of greatest need, when the *Lackawanna* having once through accident collided with the flagship and was returning to the disastrous charge, the admiral called to Lieut. Kinney who had been detailed to his vessel, "Can you say 'For God's sake' by signal?" Then followed the hasty and historic message to the *Lackawanna*, "For God's sake get out of our way." As the armies closed in on the vanquished enemy the Signal Corps closed in with them until there were no foes to fight; then it was mustered out and absorbed in the body of citizenship, proud to have been pioneers in a new military art whose value none will now dispute.

By way of a conclusion, which is at the same time a commentary upon the methods employed in building the Signal Corps, reference may be not improperly made to a sketch, hastily outlined, that was designed to establish for the Confederacy a signal corps founded on ideas of making it a body efficient in proportion to its purely scientific character, an ideal which has indeed been reached in the present Signal Corps of the Army, but reached only after many years of painstaking endeavor. In a memorandum submitted to General Beauregard in November, 1862, Joseph Manigault, signal officer of the department of South Carolina, outlined the plan for securing to his corps the

management of telegraph lines of the army. Incidentally he referred to the education, the reliability and the scientific training of the signal men as fitting them to become a bureau for the transmission of military information; and since they would necessarily have a certain electrical equipment, that they were in a position to assume charge of electric mines and the management of the electric light, and, in short, might properly become the electrical corps of the army.

If Myer fell short of these broadly philosophical plans for a Signal Corps, which should conquer all opposition by the very weight of its scientific attainments practically applied to the exigencies of actual warfare, it is not that those ideas were yet in the future. It is shown that practical experience had suggested those ideas to one signal officer; that the same, and even greater, practical experience did not suggest those ideas to another is not the fault of the ideas nor the fault of experience. But had the case been reversed, had the ideas of Manigault found a welcome in the mind of Myer, it is probable that this chapter of the building of the Signal Corps had been written in far different form, and the history of the corps in the later times would show far more done, far less that had to be undone.

The act of July 28, 1866, fixing the military peace establishment enacted that there should be one chief signal officer with the rank of colonel, but it made no provision for a corps other than by a limited detail of six officers and not to exceed one hundred men from the engineer battalion. The lessons of experience were left unheeded, —it was as though the war had never been. The conditions were of the utmost similarity, with the sole exception that the absence of the war rendered it feasible to formulate a comprehensive policy and elaborate its details in a wise and thoughtful manner. But Myer did not choose to study the record of history. The first step in his construction of the first corps was paralleled by his first act in the construction of the second corps; he again organized his corps by details of acting signal officers and thereby exceeded the provisions of the act, which limited his choice to engineers; two years of war had proved the defects of such a system to be beyond remedy, a quarter of a century of peace has barely sufficed to effect its removal from the corps of to-day. The parallel may be pursued still further. It has been shown that Myer, failing to secure immediately for his first signal corps the dignity which its intrinsic merits would have won for it in due time, sought to win consideration by assuming duties foreign to its legitimate province, and thereby destroyed that which he wished to secure. A similar method marked his plans for the development of the second corps, for his own language declares this unmistakable purpose "the main question is not how to curtail the corps but how to enlarge its scope and consequent usefulness to the varied industries of the nation." To the legitimate duties of military signaling he added the utterly foreign concerns of the meteorologist, with a result well known. The military side of the corps found its chief activity in the system of military telegraph lines, which was extended along the frontier and which has been maintained to the present. This telegraph system was designed to secure necessary communication where the commercial lines were not available, and its lines have been withdrawn when private enterprise, finding its advantage in the country thus opened, has removed the pioneer burden from the government. In 1878 the act of June 20th made provision for the appointment of two-second lieutenants chosen from the sergeants of the corps, recognizing their services by the promise of a military career. In 1880 the Signal Corps was advanced to equality of consideration with the other staff corps, and its chief was given the rank of brigadier-

general. This comparative review is timely. The present Signal Corps stands to-day at the point where the Signal Corps of the Civil War, its predecessor, began to crystallize into a recognized auxiliary of modern war and gained that glory of which it may well be proud. Two years of battle brought to that a permanent organization and a singleness of purpose in the prosecution of its proper duties and of those alone; twenty-five years of peace have brought this to a point where extraneous occupations have been renounced and defective constitution rectified. As the two formative years of the first corps, despite their faulty methods, were filled with military activity, so in this formative quarter century of the present corps, military duties have been prosecuted despite the foreign occupations, which Myer grasped. Under the earnest endeavors of signal officers the crude device of the flag and torch have developed into the ingenious yet simple mechanism of the heliograph and the flash lantern; the defective machinery of the early dial telegraph has given place to the portable field telegraph, and the telephone and the Morse key have been advanced to the skirmish line. All signal duties have been studied, some have been practiced to a perfection reached by no other army, and in this the heliograph system stands preeminent. The Indian campaigns in which the Signal Corps has participated exhibit this fact most forcibly. In the Apache wars in Arizona the signal detachments from their stations on the mountain tops have discerned the most stealthy movements of the enemy and have flashed the news to headquarters or moving bodies of cavalry, enabling the troops to change instantly their direction of march to conform to that of the enemy or to be massed where danger threatened, and even to meet the Indians with their own favorite maneuver of the ambuscade. With equal distinctness these campaigns have shown the weakness of the system of regimental instruction and details, for in the Geronimo campaign it was found necessary to call upon the Chief Signal Officer to assign technically trained members of the corps to render the duty that proved too great for the unskilled. Despite the continued record of failure of the system, both in the Civil War and in the several Indian wars, the War Department has shown a disposition to maintain the same fallacious idea, and to this is due the repetition of the successive failures of the system of regimental instruction and details.

If the lesson is not drawn sufficiently clear in our own military history, the same principles appear in the policy of foreign armies that have borrowed the art of signaling from us. No matter how much the foreign systems may vary among themselves they are all copied from the Signal Corps of this army with that imitation which is always the sincerest flattery. They have adopted the code, the cipher, the train, though modifying them to suit their own needs; but one feature they have uniformly not copied and that is the regimental detail. Even where their signal services have not been dignified by a separate corps organization, they have at least formed a distinct division of some corps

already in existence, such as the engineers, and the practical exigencies of war have in general served to make them independent in all but name.

The permanent Signal Corps is now built on a foundation substantiated by the double test of war and peace, and it is in a position to relieve for the second time the line of the army from the burden of drill and study in the purely technical and special duties of signal communication. It is now possible to progress to a development of the legitimate activities of the signal officer, to observe and to communicate; in war to watch the forces of the enemy and to keep the army advised of hostile movements; in peace to watch those whom the chance of a day may make enemies, to study what preparations they are making and what advantages they hold, and to keep the army advised of these matters; in short so to utilize its energies that as in the field the army will rely upon its signal officers for information, so in peace the army will confidently turn to its Signal Corps for its military intelligence.