

WAR DEPARTMENT.

ANNUAL REPORT

OF THE ACTING

SIGNAL OFFICER OF THE ARMY

TO THE

SECRETARY OF WAR.

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BUREAU OF THE SIGNAL CORPS,

WASHINGTON, D. C., *October 31, 1864.*

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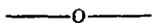
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REPORT.



BUREAU OF THE SIGNAL CORPS,
WASHINGTON, *October* 31, 1864.

SIR: I have the honor to submit the following report of operations of the Signal Corps, U. S. A., for the year commencing November 1, 1863, and ending October 31, 1864:

ORGANIZATION OF THE CORPS.

Since the last annual report of the Signal Officer of the Army the organization of the Signal Corps has been completed. This was effected by War Department General Orders, No. 106, Adjutant General's Office, April 27, 1863, and General Orders, No. 223, Adjutant General's Office, July 17, 1863. The first required a Central Board to be convened, to consist of five officers, the Signal Officer of the Army being a member; and two Auxiliary Boards, a Signal Officer with the rank of Major being on each.

The second order amended the first, and directed that Auxiliary Boards should be convened in the Departments of North Carolina, the South, the Gulf, the Cumberland and the Tennessee; one member of which should be a Captain, previously examined and approved by the Central Board. All the Acting Signal Officers of the Army of the Potomac, Middle Department, Departments of Washington and Virginia and a few others, were examined by the Central Board. The remainder of the Acting Signal Officers, with several exceptions, to be noticed hereafter,

were examined by the Auxiliary Boards in their respective Departments.

Candidates for appointment in the Corps from other organizations, and from citizen life, were examined by an Auxiliary Board, which convened at the "Signal Camp of Instruction," Georgetown, D. C.

When the examinations had been completed the Central Board was reconvened for the purpose of revising its own proceedings and those of the Auxiliary Boards, and grading the officers.

The Board labored indefatigably, and did all in its power to grade the officers according to merit and qualifications. But as the Central (afterward Revising) and all the Auxiliary Boards were composed of entirely different material, with nothing in common except the studies in which the candidates were examined, there were no means of determining the comparative merit of the different examinations, and some injustice was committed.

There were twenty-three Captains and sixty-one First Lieutenants recommended, and, with few exceptions, appointed.

There were but twenty Captains and forty First Lieutenants commissioned. Those holding appointments for six months and longer to grades higher than those to which they were ultimately commissioned regarded the reduction in rank to which they had been subjected as a reflection upon them as officers, and considered it their duty to resign.

From the cause above assigned there has been quite a number of resignations. The interests of the service require that the vacancies occasioned thereby be filled as soon as practicable. In filling these vacancies I would respectfully call attention to the claims of Captain William B. Roe, First Lieutenant Henry C. Dane and Second Lieutenant John W. Dana, Acting Signal Officers, who were entitled to examination, but were prevented from appearing before either of the examining boards by the exigencies of the service. Captain Roe was ordered to

appear at Washington for examination, but was detained in the Department of the Gulf by Major General Banks.

While the Auxiliary Board, in the Department of the Gulf, was in session, Lieutenants Dane and Dana were prisoners in the hands of the enemy.

INSTRUCTION AT THE MILITARY AND NAVAL ACADEMIES.

From some cause unknown the course of instruction in Signals at the United States Military Academy at West Point was not continued during the past year. This may have arisen from the fact that no Signal Officer was detailed as instructor, there being no application made for one.

In July, 1863, by order of the War Department, instruction in Military Signals and Telegraphy was made part of the course of instruction for the Military Academy. The course embraced instruction in the drill and management of signal parties; the theory and practical use of ærial and electric telegraphy, and a thorough field-practice with the field-line mode used in the Army.

The result of instruction at the Naval Academy has been quite satisfactory. Commodore Blake, Superintendent of the United States Naval Academy, writes, under date of September 17, 1864, "that the graduating class has had about six weeks' instruction in the recitation room, and during the practice-cruise of about four months, almost daily practice in the system. The Midshipmen of this class are quite expert in making and reading the signals."

It has now been proven beyond all doubt that the enemy uses the plans of signals first introduced into our own armies. His system has stood still; whereas ours has been so improved as to render it secure against any treachery. This enables us to read his messages, while ours can never be deciphered by him.

The officers of the Army and Navy should understand both systems thoroughly, in order to take advantage of their merits and defects.

In April last formal request was made by the Secretary of the Navy for the Army system of signals, with its most recent changes, to be introduced into the Naval Service, and taught in the Naval Academy.

In answer to this request the War Department replied, under date of April 16, 1864, that "Colonel Albert J. Myer, Signal Officer of the Army, has been directed to furnish, for the use of the Naval Academy, the Code of instruction prepared by him, with proper illustrations, and directions for naval use." These directions to Colonel Myer, I am informed, were never received by him.

The only paper I find bearing upon this subject, in addition to the above, is the following indorsement of February 6, 1862, by order of the Commander-in-Chief, upon a communication from the Navy Department, January 31, 1862, and signed by Andrew A. Harwood, Chief of Bureau:

"Respectfully referred to Major A. J. Myer. The Commander-in-Chief directs me to say that he sees no objection, and it may, in many cases, be an advantage to use the same system of signals in both Army and Navy under the same precautions. He would, therefore, be glad if you will make the necessary arrangements to accomplish the object. (Signed,)

"A. V. COLBURN, A. A. G."

Upon this authority Major Myer furnished the Army Code of Signals to the Naval Academy.

It is recommended that such orders be issued as will secure such instruction at the United States Military and Naval Academies as is contemplated by the Department. (Appendix A, papers A, B, C, D and H.)

FIELD TELEGRAPHS.

The history of Field Telegraphs, as far as the Signal Corps is concerned, shows that as early as August 6, 1861, the Signal Officer of the Army proposed, with the permission of the Secre-

tary of War, to organize a Telegraphic or Signal Train, to accompany the Army on the march; the wagons of this train to carry all articles needed for temporary telegraphic uses; that is, apparatus and supplies for the use of both electric and aerial telegraphs, rockets and composition night-signals, carefully prepared, packed, numbered and arranged for instant use. Four flying field telegraphs were to be carried in the train, which was to be accompanied by and be in charge of suitable officers and men, to each of whom his duties should be assigned, and of whom a proper proportion should be electric telegraphists, fully instructed in the use of the telescope and aerial signals; and who, employed for the war, should be sworn to the faithful discharge of their duties.

In the report of the Signal Officer of the Army and Chief Signal Officer of the Army of the Potomac, rendered to the commanding General of that Army, October 1, 1862, is found the following allusion to this subject:

“It was, from the beginning, the intention to place in charge of this Corps the flying or field electric telegraphs for the use upon the field of battle or in the immediate presence of the enemy. These were to be similar, in their general construction to those telegraphic trains, at a later day, brought into use on the Peninsula.

“The efforts to procure these trains were thwarted, to some extent, by the action of persons who seemed to greatly desire that all the duties of electric telegraphy should be in the hands of civilians; and in part, perhaps, by the hesitation of officers in authority to become responsible, by favoring it, for the success of what was then an experiment in our service. I did all I could to obtain authority and the means to properly fit such trains to accompany the army on the march. In the early days of the war I could not obtain the asked permission to organize a party, nor to draw on the Department for supplies. Later, when I submitted plans and further requests on this subject, they were either not answered, or received non-committal re-

plies. Estimates accompanying my annual report of November 10, 1861, (paper M,) were not acted upon.

“With embarrassments of this nature the work could not be successfully carried on. It was only when the army was fairly in the field that the plans began to receive some favorable attention and some support.

“One train was, however, partially completed; and the officers of the Corps were familiarized with its use. ‘This was the first movable telegraphic train of which there is record, as made for the United States.’”

The incomplete train, referred to above, was used by the Signal Corps with satisfactory results in the campaign upon the Peninsula in Virginia.

This induced the General commanding to order the purchase of three trains, of improved construction, each bearing two instruments and five miles of insulated wire. These trains were equipped with instruments invented by Mr. G. W. Beardslee, of New York. They work without batteries, and can be used by any one, who can read and write, after a day’s practice. This obviated the difficulties experienced in using the electric telegraphs, which required skilled operators, and were difficult of transportation. During the year ended June, 1863, the field trains became generally introduced, and were acknowledged as a part of the Corps’ equipment.

The services of these trains have also been acknowledged by the Generals benefited, as will be seen by the accompanying papers (Appendix B). Special Orders, No. 499, War Department, Adjutant General’s Office, November 10, 1863, directed these trains to be turned over to the United States Military Telegraph Company; which was promptly done. But when the emergency has seemed to demand it, some of the Department Commanders have directed them to be returned to the Corps for temporary use.

These trains, except where worked by the Signal Corps, are not worked at all. They are acknowledged a valuable auxiliary

to the Signal service ; were introduced by and render that service complete.

It is therefore recommended that they be returned to the Corps.

OPERATIONS OF THE CORPS.—DEPARTMENT AND ARMY OF THE TENNESSEE.

Between the 10th and 20th of June last Captain Howard's detachment succeeded in reading a number of rebel signal messages while the army was lying near Big Shanty, Georgia. These messages were sent in a code adopted by the enemy while in that vicinity. By this means it was discovered that Lieutenant Belfinger was Chief Signal Officer with the Rebel army in that front, and that Major P. B. Lee and Colonel G. A. Henry were Assistant Inspector Generals, detailed to watch the movements of the Army of the Tennessee from Kenesaw Mountain, and to report by signals ; from which it would appear that the enemy does not intrust this duty to his Signal officers. The first intimation of General Polk's death was received by rebel signals. Colonel Henry and Major Lee kept General McPherson constantly informed of the movements of the armies of the Cumberland and Ohio ; their dispatches being always received by him before he received information from any other source.

While our army was in position in front of Kenesaw Mountain communication by signals was established from the headquarters of Generals Thomas and McPherson to those of Generals Howard and Hooker. Afterwards, when the army pushed forward on the right and left of the Kenesaw, a station was established near General McPherson's headquarters, which communicated with one on Pine Mountain, and through that station to the headquarters of General Thomas. It also communicated with a station of observation on Bushy Mountain, in General Blair's front, the highest point on the line, and through that station with Garrard's and General Blair's headquarters.

This line proved of the greatest importance. Upon arriving before Atlanta stations of observations were established, over-

looking the city and the enemy's works; from which much valuable information was transmitted to the commanding General.

From one of these stations, on the 21st of July, Lieutenant C. Stickney reported to General Leggett that the enemy was moving "all available forces" to our left.

On the 22d the enemy attacked our army in front, flank, and rear. Lieutenants C. Conard and C. Stickney were in charge of a station in General Leggett's front, from which they communicated to the headquarters of General Blair. This station was entirely uncovered by the falling back of the left at the time of the attack on our left and rear; but their station was held until the last moment, and messages were transmitted to General Blair from Generals Leggett and Smith, under a galling fire from front, flank, and rear. So nearly were they surrounded that the last messages sent were transmitted over the heads of the enemy.

Lieutenant S. Edge had a station of observation in front of the 15th corps. This station was one hundred feet from the ground. He saw the enemy preparing for a charge upon the lines of the 2d division and reported the fact to General M. L. Smith, commanding that division. Lieutenant Edge remained at his station until the charge was made and our lines broke and fell back past the station. He was finally compelled to descend and retreat before the advancing enemy, under a heavy fire of musketry.

Captain Howard in his report thus speaks of the death of General McPherson:

"On the morning of the 22d, accompanied by Lieutenant W. W. Allen, I had visited the extreme front at several points and the station in charge of Lieutenant Stickney. We were returning toward the right when the attack on the extreme left and rear was made, and immediately turned and accompanied General McPherson to the scene of action to render such services, in any capacity as best we could. By order of General McPherson

son we endeavored to rally the broken left of the 17th Corps, but with but little success. We were there joined by Lieut. W. H. Sherfy.

"We then accompanied the General through the broken lines and into an ambush, where the General was killed, and we had a very narrow escape, Lieutenant Sherfy being badly injured by being thrown from his horse and Lieutenant Allen badly bruised by coming in contact with a tree. I afterwards directed the placing of a battery to resist the farther advance of the enemy, then reported to Major General Logan, who had succeeded to the command of the army, and rendered such service as I could."

Captain Howard recommends for honorable mention, for meritorious conduct on the 22d, Lieutenants S. Edge, W. H. Sherfy, W. W. Allen and C. Stickney.

The station in charge of Lieutenants Conard and Stickney was reopened on the morning of the 23d, and kept open until night, when the removal of General Blair's headquarters rendered the line impracticable. At this station, on the 23d, Private Philip W. Ashton was mortally wounded. He died on the 27th.

On the morning of the 28th, when the army was going into position west of Atlanta, stations of observation were established, one by Lieutenants Sherfy and Shellabarger, and one by Lieutenants Conard and Stickney. The latter was between the main and skirmish line. The skirmishers were driven by the advance of the enemy, and the officers were compelled to abandon it.

The station occupied by Lieutenants Sherfy and Shellabarger was held until 3 P. M., when a heavy fire of solid shot, shell and spherical case was directed against it, and they were compelled to abandon it, and finally the hill on which the station was located.

When the army withdrew from its position in front of Atlanta the stations of observation were abandoned, and the officers marched with their respective corps.

In front of Jonesborough three stations were occupied whereby

the Generals were constantly informed of the enemy's movements. The station occupied by Lieutenant C. H. Fish was maintained under a heavy fire from the enemy, whose sharpshooters attempted to dislodge him from it, and finally attempted the demolition of his station by artillery.

Captain Howard commends Lieutenants C. H. Fish, S. Edge, J. L. Shellabarger and J. Q. Adams for extraordinary zeal and success during the month of August.

Captain Howard, Chief Signal Officer of the Department, has shown great zeal and fidelity to duty, and has worked his detachment with marked ability.

Casualties.—1 enlisted man was killed. 3 died of disease and 1 was taken prisoner. (Appendix C, papers U, Z, D, I.)

DEPARTMENT OF VIRGINIA AND NORTH CAROLINA.

On January 4th Captain Jesse Merrill assumed command of the detachment in this Department, and established eight signal stations in the District of North Carolina and six in the District of Virginia.

The former gave to the General commanding our forces at Newbern communication with all parts of his picket line, and with the three forts defending the town. Whenever the enemy threatened or attacked our lines in the vicinity of Newbern, the signal communication established was found to be of the utmost importance. It enabled the commanding officer to speedily concentrate his forces at the threatened point, and thus render the line defensible by a less number of men than it would otherwise have required.

Four of the stations in the District of Virginia constituted a line of signals, which connected the left and centre of our intrenchments south and west of Portsmouth with the headquarters of Brigadier General Heckman, who commanded that position. Of the remaining stations one was at Yorktown, the other at Gloucester Point. These stations were extensively employed each day in the transmission of official dispatches; particularly

after the concentration of the 18th army corps at Yorktown and the 10th at Gloucester Point.

April 9th Captain L. B. Norton relieved Captain Merrill as Chief Signal Officer of the Department of Virginia and North Carolina. As active operations were about to commence the detachment was at once prepared for action in the field.

On the 5th of May the 10th and 18th army corps embarked on transports started on an expedition up the James River. Each corps, division and nearly every brigade commander had with him upon the steamer occupied as his headquarters the means of communicating by signals with his commanding officers as they moved up the river.

At City Point a rebel signal party was captured while transmitting to Petersburg the arrival of our troops. It consisted of a sergeant in charge and four flagmen. Their flags, torches and glasses fell into our hands. Their station was immediately occupied and communication opened with general headquarters on board the "Greyhound" and with boats as they came in view,

May 6th the Signal Officer at Wilson's Wharf accompanied a detachment of the 1st United States Colored troops which captured the rebel signal station, party and equipments at Sandy Point on the James River. The enemy's signalists made an armed defense, and the sergeant in charge with three of his men were killed. The "record" of all the dispatches and reports sent and received through that rebel station was captured and forwarded to the commanding general.

May 7th an officer was sent to Turkey Bend to open a temporary intermediate station between the flagship "Malvern," which had moved up the James to Carl's Neck, and general headquarters on the "Greyhound." Through this line Admiral Lee transmitted his official report to the Navy Department of the loss of the gunboats "Shawsheen" and "Commodore Jones;" the former having been destroyed by a rebel battery, the latter by a rebel torpedo.

Constant communication was kept open between the gunboats and the land forces, whenever they co-operated. Important

service was rendered on the following occasions: During the advance of the gunboats up the Appomattox, May 8th; a reconnaissance in force towards Petersburg on the 9th; their return to camp on the 10th; the occupation of Spring Hill, and a general advance to gain possession of the Petersburg and Richmond railroad and turnpike on the 12th.

On the 20th, the enemy attacked Wild's brigade at Wilson's wharf; and during the fight, which lasted from two till six P. M., the signal officer at that post directed the fire of the gunboats upon the enemy, and kept up constant communication with Fort Powhattan, seven miles distant, where was located the nearest force that could afford assistance, if needed.

On the 25th, a code for Rocket Alarm Signals was devised for use along our picket line, in case the enemy should make a demonstration at night.

On the 30th, the General commanding directed, by signals, the fire of Spring Hill Fort upon the railroad at Walthall Junction.

On the 31st, about seven hundred of the enemy attacked Duncan's brigade, posted at Spring Hill, on the south bank of the Appomattox; and the signal communication previously established between the two sides of the river was maintained and called into constant requisition throughout the fight.

In the District of North Carolina, the station built across the railroad track at Bachelor's Creek, was destroyed May 26th, by the accidental explosion of some torpedoes, which it is supposed were being carelessly handled from the cars beneath the signal station. By that accident, Privates H. B. Tibbetts and A. P. Barnes were killed, and one private was wounded.

During the summer seventy signal stations were established and successfully used. Of these twenty-seven were worked under the fire of the enemy, and twenty-four still remain in operation.

Although nearly all the officers and men were exposed to the severest fire of the enemy in the performance of their various duties, the casualties have been small; one officer killed and one injured by being thrown from his horse; two enlisted men killed, one wounded, three taken prisoners and three died of disease.

Captain Norton reports that all the officers performed their duties to his entire satisfaction ; but he especially mentions the following as having rendered themselves conspicuous for gallantry or uncommon zeal and close attention to duty :

First Lieutenant H. W. Benson, signal officer on the flagship of the James River flotilla, frequently under fire.

First Lieutenant W. Bruyn, signal officer of the Water Battery, who remained at his post, making observations of the rebel rams, and directing the fire of our gunboats upon them, himself under severe cross fire from the rams and the Howlett and Signal Hill batteries.

First Lieutenant C. F. Cross, signal officer at Dutch Gap, who maintained constant communication with the gunboats and the Water Battery, during the severe fire of the enemy upon Dutch Gap, August 13, 1864. His flagman was wounded by his side.

Second Lieutenant O. B. Ireland, signal officer at Crow's Nest, who made the important discovery of the enemy's movements across the James, and maintained his post under severe fire from the enemy.

Second Lieutenant J. M. Swain, signal officer at Fort Pocahontas, (Wilson's Wharf,) who directed by signals the fire of our gunboats upon the enemy during the attack upon Wild's colored brigade, and whilst he himself was under the fire of the rebels.

Second Lieutenant W. W. Clemens, signal officer on the iron-clad steamer Onondaga, frequently under fire.

Second Lieutenant D. L. Craft, signal officer at Cobb's Hill Tower, who bravely maintained his position, although the enemy for several days endeavored to knock down his tower with solid shot.

Second Lieutenant A. G. Simons, acting signal officer at River bend station, Spring Hill, through whose vigilance the commanding general was furnished with information of the enemy's movements upon the railroad and turnpike.

Captain H. R. Clum relieved Captain Norton as chief signal officer, September 1st. In his report of operations for September, Captain Clum makes honorable mention of the following

officers and enlisted men, for the gallantry with which they discharged their respective duties under fire.

First Lieutenant S. B. Partridge, while in charge of station at Water Battery, several times under fire.

Second Lieutenant F. J. Amsden, in charge of James River Tower, and Sergeant F. A. Lindal, 2d Class Privates William R. Owens and William S. Calhoun, of Lieutenant Amsden's party, several times under severe fire, and especially on the 29th of the month, when our forces crossed to the north side of the James. On that day the enemy opened a sharp fire from five pieces of artillery upon the tower with the view of preventing the forwarding of messages to our advancing columns. One hundred and thirty-five shots were fired at the tower, but communication was not at any time interrupted or delayed.

Second Lieutenant, G. M. Chase, Acting Signal Officer, and Sergeants Thomas S. Baird and William U. Baker, at different times in charge of the station at Dutch Gap, and almost constantly under the fire of the enemy, who was endeavoring to prevent the operations of our working party at that place.

Captains Merrill, Norton and Clum, who have acted at different times as Chief Signal Officer of the detachment in this Department during the year have proven themselves efficient, energetic and zealous in the discharge of their duties. (Appendix C, papers J, L.)

DEPARTMENT OF THE SOUTH.

On the 10th of January, 1st Lieutenant F. E. Town, Chief Signal Officer, reported that, after many and unforeseen difficulties, he had succeeded in opening communication between headquarters on Folly Island and Hilton Head. He makes honorable mention in this report of 1st Lieutenant F. L. Morrill, who remained alone at the station on Big Bay Island for six weeks, his men imperfectly armed and without a boat, his station practically in the enemy's country, and challenging by its signals his attack. This gallant officer was afterwards mortally wounded while nobly performing his duty.

About the first of June, Captain H. R. Clum, Chief Signal Officer, stationed Sergeant John D. Colvin at Fort Strong, on Morris Island, with the several codes heretofore used by the rebels for the purpose of reading, if possible, the enemy's signals. If not successful he was to take down the numbers for the purpose of deciphering them.

For nearly two weeks nothing could be made out of their signals; but by persevering he finally succeeded in learning their code. He has also discovered the cipher used by the enemy.

This man has displayed a remarkable talent and fitness for this branch of the service. Major General Foster has received such valuable information through his means that he has recommended that he be promoted, or that he receive a brevet or medal. Captain Clum also speaks in the highest terms of him. He is, therefore, respectfully recommended to favorable notice by the Department.

Captain Clum took command of this detachment in January. He immediately infused new life and vigor into it. He armed his men, turned over to the acting quartermaster of the detachment all the surplus equipments and stores, and directed that his officers have such and only such equipments as were needed in the discharge of their duties. His administrative and executive abilities are of the first order. (Appendix C, papers D, X. B.)

Casualties.—One enlisted man died of disease, and one missing in action.

DEPARTMENT OF THE CUMBERLAND.

The detachment serving in this department during the latter part of 1863, worked under great difficulties. Forage for a while had to be transported great distances. Finally, the distance growing greater and the roads worse, Major General Rosecranz directed all its animals to be sent where forage could be more easily obtained. The officers were compelled, therefore, to do duty on foot. They were also much exposed at night, there being no transportation for their tents; and yet not a murmur from them was heard.

In January, Captain P. Babcock, Jr., assumed charge of the detachment as Chief Signal Officer. He instituted many valuable changes in its administration, and was soon rewarded for his zeal and energy by the improved efficiency and appearance of his party.

Captain Babcock, under date of April 27, says:

"Herewith I have the honor to transmit copies of rebel signal messages, intercepted by the signal officers stationed on White Oak Ridge, Georgia, communicating with Ringgold, Georgia, Lookout Mountain, and Graysville, Tennessee, and Gordon's Mill, Georgia.

"Aside from the ordinary duties of this station, as one of communication and observation, the officers conducting it, Captain A. S. Cole and Lieutenant H. W. Howgate, have read every message sent over the rebel line.

"The importance of this cannot well be overestimated, when it is remembered that any important change in the enemy's lines, strength, position, or disposition would be very apt to be noticed by their signal officers, and some mention made of it." (Appendix C, papers L and M.)

Owing to active operations in this Department, few reports have been made. Hence it is impossible to do justice to its detachment. The work performed, however, has been second to none.

Major General Thomas acknowledges in a beautiful tribute its valuable services. (Appendix C, papers A. L.)

Casualties.—One officer killed and three wounded; two enlisted men killed, three wounded, three died of disease, one taken prisoner, one missing in action.

DEPARTMENT OF THE SUSQUEHANNA.

First Lieutenant A. M. Thayer, Chief Signal Officer, with one officer and fifty-eight enlisted men, reported for temporary duty to the commanding officer at Harper's Ferry, the latter part of June.

These men, with one exception, were recruits, who had seen no active service, and were, of necessity, inexperienced in everything pertaining to the operations of a signal party in the field.

At 8 A. M., July 4th, Lieutenant Thayer signalled to General Weber the approach of a large force from Charlestown towards Harper's Ferry. This information was the first given, and preceded the attack by at least one hour. Our pickets on the Virginia side were immediately notified; but notwithstanding the time given for preparation, they retreated disgracefully, leaving Bolivar Heights in possession of the enemy.

This retreat left the station at General Weber's headquarters only a few yards behind the skirmish line. Nevertheless, acting Sergeant Thomas Franklin worked continually during the day with great accuracy and coolness. Nor did he withdraw until ordered by General Weber, in person, to cross to the Maryland side.

On the 5th, Lieutenant Thayer reported that the enemy was moving troops and trains up the river on the Virginia side, crossing them into Maryland, and moving down towards the Ferry, and predicted an attack from the Maryland side on the following morning. This prediction was fulfilled, and called forth a personal acknowledgment from Major General Sigel. Private W. H. Crawford was severely wounded on the 6th.

On the 9th, Lieutenant Thayer was ordered to remain at Maryland Heights, and watch Point of Rocks. He reported, continually, that no force was crossing at Point of Rocks, or had crossed; that the main body of the enemy was at or near Frederick. This information was completely confirmed at 8 P. M. by scouts, who returned from Middletown and reported the engagement between Generals Wallace and Early at Monocacy Junction.

The utility of signals was well proven on this occasion. For twelve hours Lieutenant Thayer's reports were directly opposed to all others. All other evidence represented the enemy at Point of Rocks; and yet he was subsequently found to be exactly where the signal observations and reports located him. (Appendix E, paper A.)

Lieutenant Thayer has received high commendation from General Couch. (Appendix C, paper Y.)

DEPARTMENT OF KANSAS.

Major General S. R. Curtis having expressed a wish for a signal detachment to serve in this Department, 1st Lieutenant C. M. Roberts was ordered to report to him, for the purpose of organizing one. Under date of September 28th, General Curtis writes:

"The detachment has been partially organized, and reported for duty; but the field service has not given any occasion for their exertions on the scale of their abilities.

"The force being limited in this Department, and great draft being made for other staff duties, I have not been able to detail officers for this service, as requested by Lieutenant Roberts.

"The deportment of the detachment, and the skill exhibited, are satisfactory to me, and commendable to the detachment." (Ap. C, paper K.)

DEPARTMENT OF WEST VIRGINIA.

The detachment serving in this department at the engagement of Droop Mountain, November 6th, 1863, did important service; Captain E. A. Denicke, chief signal officer, succeeding in using rockets for day signals by removing the parachute, and placing in its stead a blank cartridge open at the lower end.

The latter part of March this detachment was reduced to four officers and forty-five enlisted men. Captain F. E. Town was made chief signal officer, and proceeded to enlarge his party by new details. On April 30th this detachment numbered thirteen officers and one hundred and sixty-one enlisted men.

Under date of June 12th, Captain Town reports that "officers have been kept with all detached parties and at the advance of columns to communicate with headquarters during marches; and stations of observation have been established during marches,

and stations of observation have been established during marches and at halts ; and thus far our operations have met with the approval of the commanding general."

This detachment has continued to follow the fortunes of the army, doing whatever service was in its power. (Appendix C, papers B, M, T.)

Casualties.—One officer and nine enlisted men taken prisoners.

DEPARTMENT OF THE GULF.

In this Department, Captain Wm. B. Roe, Chief Signal Officer, with his whole party, reported for duty to Major General Franklin, for the Sabine Pass expedition, September 1, 1863.

On September 8th, the gunboats attacked the fort at Sabine Pass. 1st Lieutenant H. C. Dane was stationed on the "Sachem," and 2nd Lieutenant J. W. Dana on the "Clifton." These officers were subjected to a very severe fire from the enemy's works, they having occupied a very exposed position to enable them to communicate with each other, and also with General Franklin. During the engagement constant communication by signals was maintained between General Franklin's headquarters and the gunboats. The "Sachem" and "Clifton" were compelled to surrender, and two officers and four enlisted men were taken prisoners. Immediately upon their surrender, orders were sent by signals to the different gunboats to get under way and move to the mouth of the Mississippi river and there await orders.

First Lieutenant T. S. Seabury is reported as entitled to much credit for the faithful manner in which he performed his duty, and also for remaining on board the steamer "Crescent" when others abandoned her, and rendering great assistance in getting her off the bar. Meritorious mention is also made of 1st. Lieutenant S. M. Eaton, Captain Roe says in his report of these operations: "The brave and gallant conduct of Lieutenants Dane and Dana can hardly be overestimated. Never have I seen Signal Officers subjected to as hot a fire as were they; and in no case were they found absent from their posts of duty."

In the Teche campaign, which immediately followed the Sabine Pass expedition, Captain Roe lost 1st Lieutenant J. L. Hallett, 2d Lieutenant G. R. Herbert and three enlisted men, taken prisoners.

In the Texas coast expedition, from November 1st to January 1st, 1864, there were transmitted over five hundred official messages. During the prevalence of fierce weather there were days when the only available communication between the army and fleet was by signals. 1st Lieutenant T. S. Seabury, by incessant application impaired his eye-sight to such a degree as to necessitate his withdrawal from military service. 1st Lieutenant S. M. Eaton was in charge of the signal party, and received from Major General Banks the following honorable mention: "In our recent movements upon the coast of Texas it was the only means of communication (the Signal Corps) between the inland bays and the coast; and without the assistance of the Signal Officer, it seems as if we would sometimes have been deprived of the power of communication. The importance of its service in this case can hardly be overestimated. The same is true of its services on land."

Especial attention is invited to the establishment of signal communication, in January, between Fort Jackson and the head of the passes of the Mississippi river. This line commanded all entrances to the river.

About this time the mysterious departure of the steel-clad steamers from England, the reported rendezvous of rebel cruisers in the Gulf, and bold sorties from Mobile to the passes of the Mississippi, with the consequent insecurity of the telegraph line upon the river bank, combined to make signal communication at the points specified of vital importance.

This line was continued for several weeks, and was so thorough that information could, at any time, have been communicated by either flags, torches, or rockets of the appearance of any strange sail or fleet off the mouth of the river or in its passes.

Captain F. W. Marston, Chief Signal Officer, under date of May 9th, makes mention of the meritorious conduct of Captain

W. A. Pigman and 1st Lieutenant A. B. Jerome. The former was severely wounded, late in the action of April 8th, while encouraging the troops at a critical moment. He has received favorable mention in the report of the Major General commanding the 19th army corps, and has displayed, upon all occasions, great personal bravery, sound judgment, and cheerful obedience to orders. Lieutenant Jerome was on duty with Admiral Porter during the operations of the Navy above Grand Ecore. While the gunboats were engaging the enemy's guns and cavalry, he directed their fire from an exposed post, within short range of the enemy's musketry, receiving a slight wound while thus employed. (Appendix C, papers F., N.)

Casualties.—Two officers taken prisoners and two wounded; two enlisted men killed, two died of disease, and six taken prisoners.

DEPARTMENT OF WASHINGTON.

The detachment serving in this Department was organized during the past summer. The only opportunity afforded it for active operations was during the month of July, when the enemy appeared before Washington. Captain William B. Roe, Chief Signal Officer, directed the operations of this detachment on that occasion with consummate ability. From personal observation I can testify to the important service rendered.

This service has also been acknowledge by the Major General commanding. Captain Roe commends the officers and men of his command for zeal and faithfulness. He calls especial attention to 2d Lieutenat Asa T. Abbott, whose station was continually under the enemy's fire, who many times narrowly escaped being struck by the enemy's bullets, and who maintained his position and continued to work his station, under fire, for nearly two days. (Appendix C. paper C.)

Casualties.—Three enlisted men died of disease.

MILITARY DIVISION OF WEST MISSISSIPPI.

Colonel Albert J. Myer was made Chief Signal Officer of this Division, May 17. He immediately applied for the Field Trains in the Military Division, which since their transfer from the Corps had not been used. Upon this application the Major General commanding ordered all Signal Telegraph Trains in or near the city of New Orleans, together with suitable material therefor, and accompanied by the officers, men and animals serving therewith, to be fully equipped and in readiness for instant service in the field, to be forwarded, without delay, to the mouth of Red river, Louisiana.

On May 30th, the Major General commanding issued a circular requiring deserters, refugees, and other persons coming in at any military post in the division of West Mississippi, or at any of the posts on the east bank of the Mississippi river to be carefully examined by a discreet officer, and the information obtained from them to be compared and collated with that derived from scouts and other sources and reported direct to the Chief Signal Officer, at the headquarters of the division. When information thus elicited was of immediate interest to any other commander, a copy of the report was to be sent direct to that commander. Information thus obtained, was to be communicated only to the division, department, or district commanders; except in the case of subordinate commanders specially interested. In all cases it was to be confidential.

On July 11th Colonel Myer succeeded in having adopted a code of signals known as the "General Service Code," whereby the land and naval forces can co-operate. The "General Service Code" is intended to be used for general communication between different vessels, or between vessels and parties on land. It was designed to transmit only such messages as may constantly occur in service, and concerning which it does not matter whether they are interpreted by the enemy or not.

Ciphers, either to be agreed upon by particular commanders or published generally through the command, must always be

used in the transmission of messages of importance, or for any communication which might give information to the enemy.

Any Signal Officer can devise a cipher for this purpose.

In the combined land and naval operations against the lower lines of defenses of Mobile there was a signal party, with the field telegraph, assigned to Major General Granger, and a signal party assigned to each vessel of the fleet.

Instructions were given to those on the fleet to watch for signals from the "Hartford," the flagship, during the operations; and to the officers with the Army to open communication from the inside of Dauphin Island with the flagship, immediately after the fleet should anchor inside the harbor.

These instructions to the Signal Officers were faithfully carried out. While opposite Fort Morgan, exposed to its fire, and that of four gunboats, several important messages were transmitted from the flagship to the "Brooklyn," which having the advance, had stopped under the fire of the fort and gunboats, delaying the further progress of the column in the order previously assigned. Captain E. A. Denické, on the "Brooklyn," and 1st Lieutenant J. C. Kinney, on the flagship, received and transmitted these messages with coolness and precision, while exposed to the heaviest fire.

Shortly after the passage of the forts by the fleet, and while most of the ships were at anchor, the rebel ram "Tennessee" steamed rapidly up the harbor, and directly to the position of the wooden vessels. Admiral Farragut called upon Captain F. W. Marston to signal the ships to get under way and run down the ram.

This message was immediately transmitted to the "Brooklyn," "Richmond" and "Lackawanna," and was promptly obeyed.

After the action with the ram a large number of official messages was sent from ship to ship. The communication between the fleet and the army on Dauphin Island was valuable, and was kept open until the surrender of Fort Gaines.

During the transfer of the troops from Dauphin Island to Mobile Point, preparatory to the investment of Fort Morgan,

the services of the Signal Officers were constantly in demand. A station was established on Mobile Point, communicating with the navy, and with the boat "Laura," the headquarters of Major General Granger. This station was equally as valuable as that on Dauphin Island.

Captain F. W. Marston mentions the name of Captain E. A. Denické for gallant and meritorious conduct on the occasion of passing the forts, and for subsequent close attention to his duties; that of 1st Lieutenant J. C. Kinney, for gallant and meritorious conduct on the same occasion; and that of 2d Lieutenant C. F. M. Denické, for displaying energy and attention to duty during the entire operations.

With the field lines in possession, the "General Service Code" for the Army and Navy adopted, and the office of the Chief Signal Officer made the bureau of all information for the commanding general, this detachment has been enabled to render itself eminently useful, and to illustrate what the Signal Corps can accomplish when its legitimate duties are intrusted to it.

Major F. W. Marston has been in command of this detachment since August 5th, and has displayed the requisite energy and ability for so important a trust. (Appendix C, papers V, F, E.)

Casualties.—One enlisted man killed, and one died of disease.

DEPARTMENT OF THE OHIO.

The detachment serving in this department has been small, and has worked under great disadvantages. Many times it has been on foot, with little or no transportation; yet, under all circumstances, it has preserved its *esprit de corps*, and done valuable service.

May 1st, Captain W. G. McCreary, Chief Signal Officer, reported to Major General Schofield, at Charleston, Tennessee. He immediately took steps to co-operate with the detachments of the Tennessee and the Cumberland. The Army being almost

constantly on the move during this month, the principal duties were those of observation, and reading and reporting rebel signals.

In the early part of June a station of observation was established on Stoneman's Hill, the highest accessible point from which the rebel signal station on Lost Mountain was watched, and its messages deciphered and referred to the commanding General. When Pine Mountain fell into our possession, communication was opened with Major General Sherman. No sooner had our cavalry driven the enemy from Lost Mountain than it was occupied as a signal station. The value of Lost Mountain, as a signal station, consisted in its being in direct communication with the various headquarters. All communication from one to another had to be sent by that line. No direct communication could be opened from one station to another; hence messages were sent from General Schofield to Lost Mountain, thence to Pine Mountain, and from thence to General Sherman, a distance of about twenty miles by the line and about ten miles by air-line. Communications of forty words, in cipher code, were sent over the line and answers returned in thirty minutes.

During the month of June, Sergeant A. G. Blood was wounded, and Private E. T. Marshal died.

Captain McCreary reports the officers and men as being faithful and attentive to their duties.

Casualties.—One officer wounded, one enlisted man wounded, and three died of disease. (Appendix C, papers R, S.)

ARMY OF THE POTOMAC.

The following was the organization of this detachment on the 4th of May, when our army crossed the Rapidan: Four officers with the 2d, two with the 5th, and two with the 6th Army Corps, and one with each cavalry division, leaving twelve with the reserve detachment. Attached to the reserve party were

twenty-five men equipped as pioneers, whose duty it was to construct stations. In addition, accompanying each officer and detachment, were the enlisted men used as flagmen, lookouts, etc.

Two circumstances prevented this detachment from being as efficient as it otherwise would have been: 1. The army operated constantly as a unit, and the field telegraph, formerly in possession of the Corps, enabled the commanding general to be in constant telegraphic communication with the several corps commanders; 2. The country through which our army operated was covered with dense and extensive forests, and so devoid of prominent points as to render flag-signals almost impossible. The officers of the reserve detachment were instructed to keep themselves upon the flanks and advance of our army in order to gather and forward to the commanding general any information that might be of service to him. The officers with the army corps had general instructions to make themselves useful as "additional aides when the nature of the country prevented them from doing signal service."

During the battle of the Wilderness, the battles in front of Spottsylvania Court House, the march to the North Anna thence to Cold Harbor, and in the several battles attending these latter movements, the officers were almost constantly engaged in reconnoitering, and made numerous reports of the enemy's movements and positions; which aided the commanding general, more or less, in determining the movements of our army.

Upon the 19th and 20th of May, the reports of Colonel Beals, commanding the enemy's cavalry covering the right flank of his army, to General Lee, were intercepted, and forwarded to the Chief of Staff.

May 30th, 1st Lieutenant J. E. Holland and 1st Lieutenant W. H. R. Neel were directed to occupy a station at Shelton House, where our batteries were established to direct their fire and give the commanding general any information of the enemy's position and movements they might observe. The enemy's batteries were posted on the opposite side of a creek, not more

than seven hundred yards distant from ours, and kept up a fire during the entire day. Lieutenants Holland and Neel remained on duty at this station when every person around them had left, and sent frequent reports for the information of the commanding general, besides directing the fire of our batteries. "Fifty shots from the enemy's batteries passed through the house upon the top of which Lieutenants Holland and Neel were stationed, and solid shot cut down trees all around them; yet they remained firm at their post of duty. General Hancock, on hearing of their behavior on this occasion, sent at once a special dispatch to General Meade commending his Signal Officers for great gallantry, mentioning the names of Lieutenants Holland and Neel."

On the 12th of June our army commenced moving in the direction of the James river, and, on the 13th of June our advance reached the vicinity of Wilcox's Landing, where signal communication was immediately opened with Fort Powhattan and Wilson's Wharf. The General commanding was thus placed in immediate communication with General Butler's command, and was enabled to call for the necessary means to transport the Army of the Potomac to the South bank of the James. During the passage of our troops from Wilson's Wharf to Windmill Point communication was kept open between the opposite sides of the river, enabling corps commanders to issue their instructions conveniently and speedily; thus facilitating and expediting the crossing of the commands.

June 22d, the five following very important stations were established:

No. 1 at the Walthall House, upon the extreme right of our lines, commanding a view of the city of Petersburg and a section of the Weldon railroad, near the depot; a broken view of the country extending from Cemetery Hill (southwestward) to the Lead Works, and thence around several miles, westward of the city, to the line of the Appomattox; also, a view of the left bank of the Appomattox from the hills back of Pocahontas to Fort Clifton, with all the batteries or works between these two

points. In addition, the officer upon this station intercepted the daily reports of observations made by the enemy's signal officer from the Chesterfield Heights.

No. 2 upon the "Jordan House," which commanded a point on the street in Petersburg leading to the bridge crossing the Appomattox river from Petersburg to Pocahontas. It likewise had a sweeping view of the left bank of the river, and the officer upon the station was frequently employed by the artillery officers in that vicinity to note the effect of shots fired at the enemy's batteries at "Archer's" and other points, thus aiding in directing the firing.

No. 3 was located upon a hickory tree, near the Prince George Court House road, at an elevation of eighty-five (85) feet. This afforded a view of the lines from the Appomattox to the vicinity of the Plank Road, of Cemetery Hill, the city, the country for several miles west of the city, and a small section of the Richmond pike, about one mile from Pocahontas.

No. 4 was established upon the "Avery House," giving a close view of the works east of Cemetery Hill, and thence southward; also, a section of a road northwest of the city, running toward Richmond.

No. 5, near the Jerusalem Plank Road, (now in Fort Davis,) commanding a good view of the first and second lines of the enemy's works, from the east side of Cemetery Hill to west of the Weldon railroad; also, of the roads leading out of the city in the vicinity of the Lead Works, such as the Weldon railroad, the Boydtown Plank Road, and the Squirrel Level Road.

Upon the 23d of June our lines having been extended west of the Jerusalem Plank Road, were drawn out toward the Weldon railroad, and the enemy detached a portion of his army to operate against that flank. This movement, made by about ten thousand infantry and several batteries of artillery, was discovered from the Plank Road station and reported to the General commanding, thus affording him timely information to take the necessary precaution to thwart any design the enemy might have.

Upon the 27th of June the enemy concentrated, in the vicinity of Ream's Station, a force of cavalry and infantry in order to intercept, as events proved, the returning expedition under the command of General Wilson. The movement of these forces from the vicinity of Petersburg, by the way of Squirrel Level Road, was discovered and reported.

Upon the 29th of July the information was forwarded to the commanding General of the withdrawal of a portion of the enemy's troops from the vicinity of Petersburg. This knowledge gave that officer positive information of the success of his feint upon the north bank of the James River and promised success in the assault upon the enemy's lines on the morning of the 30th of July.

From dawn until dark, of each day, a careful watch was kept from the several stations of each new work, of every change in the enemy's line considered of any importance, and all movements of troops were immediately reported.

During this campaign, from the crossing of the Rapidan to Petersburg, this detachment occupied over seventy stations of observation and established eleven lines of communication.

Major B. F. Fisher, Chief Signal Officer, bears testimony to the energy and zeal displayed by the officers and men of the Corps generally, and calls especial attention to Captain P. A. Taylor, serving with General Hancock; Captain D. E. Castle, serving with General Warren; Captain J. C. Paine, serving with General Burnside; and Captain C. L. Davis, in command of the reserve detachment. "Through the efforts of the latter officer few means were untried by which service might be rendered." First Lieutenants G. J. Clark and W. H. R. Neel, and 2d Lieutenant J. B. Duff are commended for their energy, faithfulness and gallantry. Sergeants H. W. Fulton and Van Buren Sleeper are reported as worthy of especial mention for being attentive, faithful and intelligent.

July 30, the Burnside mine was exploded and an assault made upon the enemy's works. Signal officers occupied all possible points along the lines and reported each charge.

August 6th, twelve thousand infantry, with sixty wagons, were reported as moving toward our right; also, that the enemy had placed a battery of five pieces in the redoubt in the rear of Whiehead's factory, on the north bank of the Appomattox river.

On the 12th of August, the Second Corps moved from its camp, near the "Deserted House," to the north side of the James river, at Strawberry Plains, where it arrived August 14. The Tenth Corps, under General Birney, crossed the James at the same time at Deep Bottom. The whole force was under the command of Major General Hancock. Communication was opened, and kept open between Generals Hancock and Birney, across "Four Mile Creek," until the 15th, when General Birney joined General Hancock on the east side of the creek. This line was of considerable importance, enabling the commanding General to direct the movements of the troops beyond "Four Mile Creek."

August 14, a station of observation was established at the "Potteries," overlooking the enemy's position on Spring Hill and a road upon which he moved to reinforce different parts of his lines. A number of important movements was observed and reported by Captain P. A. Taylor and 1st Lieutenant W. H. R. Neel.

A station of observation was also established just in rear of our picket line, near the New Market Road. This station overlooked the enemy's lines for a considerable distance.

August 24, the enemy moved about 12,000 infantry in the direction of Ream's Station. This movement, in all its details, was promptly reported by signals.

August 25, the enemy made a heavy attack upon the line of the Second Corps, near Ream's Station. Captain I. Thickstun occupied a station upon the skirmish line until it was driven back. Some important messages from the enemy's signal stations were intercepted by our stations on the right and promptly reported.

September 14 and 15th, the enemy was reported as moving infantry from the Weldon Railroad in a westerly direction, and

down the Squirrel Level road. This was the support to the cavalry upon what has been termed the "cattle raid." The following is a resume of Major Fisher's evening report to the commanding general, September 29th:

"During the morning the actions of the enemy in their camp indicated preparations being made for a movement. At 11 A. M. a column of two thousand (2,000) infantry and trains moved toward Richmond. About the same hour, four thousand (4,000) infantry moved into Petersburg from the south. At 12.25 P. M., six (6) regiments and a battery of artillery moved toward Petersburg from the extreme left, near the Weldon Railroad. At 12.30 P. M., one thousand (1,000) infantry and two hundred (200) cavalry moved southward from Petersburg, disappearing behind Cemetery Hill. At 1 P. M., about four thousand (4,000) infantry passed southward, disappearing behind Cemetery Hill. At 3.30 P. M., about three thousand (3,000) infantry moved toward Richmond, north of the Appomattox. At 3.45 P. M., two thousand (2,000) infantry and a battery of artillery moved toward Richmond, north of the Appomattox. At 4.30 P. M., three batteries of artillery and a herd of cattle passed toward Richmond. Trains moving almost constantly northward, on the Richmond turnpike. At sunset, a column, numbering about three thousand (3,000) moved from roads west of Petersburg, bearing to the right."

The efficiency of this detachment was much impaired by the removal of the field telegraph.

Major B. F. Fisher, Chief Signal Officer, has been indefatigable in his exertions to render it as efficient as possible.

Casualties.—Two officers taken prisoners; one enlisted man killed, six taken prisoners, three died of disease, and one drowned. (Appendix C, papers A, H, N, O.)

RECAPITULATION OF CASUALITIES.

Rank.	Killed.	Drowned.	Died.		Wounded.	Missing in Action.	Prisoners of War.	Aggregate.
			From Wounds.	By Disease.				
Captains.....	—	—	—	—	3	—	1	4
1st Lieutenants....	1	—	1	—	3	—	1	6
2d Lieutenants....	—	—	—	—	1	—	3	4
Sergeants.....	—	—	1	2	2	—	1	6
Privates.....	5	1	3	20	2	2	25	58
Totals.....	6	1	5	22	11	2	31	78.

Testimonials to the efficiency of the Corps, and the service rendered by it, are herewith submitted. (Appendix D.)

RECONNOISSANCE OF THE MISSISSIPPI RIVER.

In compliance with the special instructions of the Secretary of War, of December 5th, 1863, Colonel A. J. Myer made a preliminary reconnoissance, with reference to the establishment of telegraphic communication, by a line of signal stations, from Memphis to Cairo. He reports, in substance, as follows: The route by the valley of the Mississippi was found to be the best.

In making the reconnoissance, he availed himself of an actual examination of the river, and the points selected for stations; a careful study of a map intended for the movement of vessels upon the river, made from the surveys of pilots, and having marked upon it the most elevated points; and the experience and personal knowledge of pilots and river men.

The Mississippi flows in a broad, low valley, or bottom. Bluff or high grounds touch the river at but very few points of its course. The land of this bottom is of alluvial formation. The

banks of the river are, as a general rule, higher than the country on either side of it. The headlands of islands are higher than their lower extremities.

The up-river sides of points are higher than the down-river sides.

The height of the trees of full growth, on the banks of the river and on islands, is everywhere about the same, say one hundred and forty feet.

To extend a line along any portion of the river, all that will be needed will be signal towers, erected at chosen elevations upon the banks, at an average air-line distance of nine miles apart. To extend a line from Memphis to Cairo, twenty of these signal towers would be required; which, it is computed, would cost thirty thousand dollars.

In the establishment of a line of stations from Memphis to Cairo, part of that line would be exposed to the enemy. Each station thus exposed should be garrisoned by at least two companies. This garrison ought to be protected by such earthworks and defenses as the men could construct, and should have several light guns or howitzers. Stations should also be placed, when possible, at all the principal crossings of the river likely to be used by the enemy; where main roads come into the river by which the enemy may approach its banks; and, generally, on such points of the river bank, that the garrison, posted for the protection of the station, may afford protection to the inhabitants of the vicinity and secure the safety of commerce.

For telegraphic communication on so long a line, each tower ought to be furnished with a simple semaphoric apparatus or machine for aerial telegraphy; which, it is thought, would secure greater accuracy in telegraphing at great distances.

The establishment of such a line, it is supposed, would insure the holding of the Mississippi river to whatever extent the signal lines were posted.

The fact of the garrisons being known to communicate with each other would deter the assault of the enemy. No temporary attack on the intrenched posts would be likely to be successful;

and no prolonged attack could be undertaken on a post which could call thus readily on others without encountering concentrated land and naval forces.

Troops stationed in this way would become acquainted with the people of the country, and their hunting parties and scouts would become familiar with the paths and roads. Small settlements too, would gather round these posts, and it would soon become difficult for any considerable parties of the enemy to even approach the river without detection. It would be dangerous for small parties to do so. Should there be need of escorts for particular purposes, small parties could be furnished from post to post, or gunboat convoys could be telegraphed. This plan adopted, the settlements would realize and appreciate the protection thus extended; the banks would be in our power, and the river could then be announced as safely open to commerce (Appendix C, papers C, A, B, C, D.)

SIGNAL CAMP OF INSTRUCTION,

This Camp has, in addition to being a school of instruction for officers and men, been a depot for the recruits of the Corps.

New experiments are made here for the improvement of the Signal Service. 1st Lieutenant E. H. Russell, ably assisted by 1st Lieutenant P. H. Niles and 2d Lieutenant Asa T. Abbott, has labored zealously and faithfully in the discharge of his responsible duties.

The good results of this school have been particularly manifest this year. It was not possible to give the requisite discipline and instruction to the raw recruits, as the exigencies of the service required them in the field; but a few weeks stay in the camp was invaluable to them.

RECRUITING SERVICE.

Recruiting stations for the Corps were opened between June 3d, 1863, and September 8th, 1864, in Pennsylvania, New York, Ohio, Indiana, Rhode Island and Massachusetts, in addition to

those in the field. Recruiting in the States was stopped September 8th. The number of original enlistments is nine hundred and forty-eight; and of re-enlistments one hundred and twenty-seven; making a total of one thousand and seventy-five.

These men passed a mental as well as physical examination. They are young, intelligent men, and will make first-class soldiers.

The recruiting service was under the immediate management of 1st Lieutenant R. P. Strong, who conducted it with marked ability and success. All officers and men on this duty worked with commendable zeal. (Appendix E.)

ECONOMY OF THE SERVICE.

The entire expense of the Acting Signal Corps for the year ending June 30th, 1862, was one hundred and ninety-two thousand five hundred and twenty-three dollars and forty cents (\$192,523.40); for 1863, five hundred and forty-five thousand, six hundred and twelve dollars and sixty-four cents (\$545,612.64); and for 1864, eight hundred and forty-eight thousand, five hundred and eighth-four dollars (\$848,584.00).

This includes pay for officers and men, clothing, transportation, forage, arms, and signal apparatus and stores. The total expense for Signal Service for the three years ending June 30th, 1864, is one million, five hundred and eighty-six thousand, seven hundred and twenty dollars and fifty-four cents (\$1,586,720.54); making the average expense for one year five hundred and twenty-eight thousand, nine hundred and six dollars and eighty-three cents.

This economy challenges comparison with that of any other organization in the army. (Appendix F.)

I have the honor to call the attention of the Hon. Secretary of War to my communication of September 24th, 1864, recommending the adoption of a "General Service Code," therewith submitted for the Army and Navy of the United States. I also have the honor to testify to the indomitable energy, patriotic zeal, and

cheerful obedience to orders of both officers and men since November 15th, 1863, when I was placed in command of the Corps. (Appendix G, papers A, B.)

Captain Joseph H. Spencer has been Disbursing Officer of the Corps during the past year.

Captain Henry S. Taftt was Adjutant of the Corps till relieved, in August, by Captain Stephen M. Eaton. These officers deserve special mention for their zeal, ability and assiduity in the discharge of their respective duties.

Very respectfully, sir, your obedient servant.

W. J. L. NICODEMUS,

Lieut. Col. and Acting Signal Officer of the Army.

To the Hon. E. M. STANTON,
Secretary of War.