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Report on the Signal-Service

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IN THE SENATE OF THE UNITED STATES.

JUNE 26, 1876.—Ordered to be printed.

Mr. SPENCER submitted the following

REPORT:

[To accompany bill S. 731.]

The Committee on Military Affairs, to whom was referred the bill (S. 731) to limit and fix the signal-service, having had the same under consideration, submit the following report:

This is a bill to establish on a defined and secure basis a service which, with only piecemeal and imperfect legislation, has, during the last six years, grown into large national importance.

A joint resolution, approved February 9, 1870, authorized the Secretary of War to "provide for taking observations at the military stations in the interior of the continent, and at other points in the States and Territories of the United States, and for giving notice on the northern lakes and on the sea-coast, by magnetic-telegraph and marine signals, of the approach and force of storms." The Secretary of War, by an order dated March 15, 1870, placed this work in the charge of the Chief Signal-Officer of the Army, whose duties, until then confined to military signaling and field telegraphy, required for their execution a detail of but a small number of officers and enlisted men. The whole system of the present signal-service has necessarily been created, and the officers and enlisted men now constituting its working force selected and instructed since that time. Additional legislation in clauses of successive appropriation acts recognized the duty as in charge of the Chief Signal-Officer, extended its scope for the benefit of agriculture as well as commercial interests, provided for signal-stations at light-houses and life-saving stations, and their connection by telegraph-lines, to be constructed and worked under the Chief Signal-Officer, and also the construction and operation under the same officer of military telegraph-lines on the Indian and Mexican frontiers to connect military posts, and better protect immigration and frontier settlements from depredations. While increasing duties were thus continually imposed by law, the service itself was not established or recognized except by a sanction (in the acts making appropriations for the support of the Army respectively, approved June 16, 1874, and March 3, 1875,) of the action of the Secretary of War regarding the enlisted men. That action had been to allow the enlistment and retention of men in number and grade substantially as in the present bill, but as no legislation alluded to their pay as a special or separate organization, it remained that of the least paid class of soldiers, that is, of those from whom neither education nor unusual skill and responsibility are required. No provision whatever has been made for the commissioned officers, who from the first have been serving merely on temporary detail. The evils of

this neglect are strongly set forth by the Chief Signal-Officer, the Secretary of War, and the President, as follows:

EXTRACT FROM THE ANNUAL REPORT OF THE CHIEF SIGNAL-OFFICER, FOR THE YEAR ENDING JUNE 30, 1875.

In the last annual report of the Chief Signal-Officer, a form of organization was recommended for the officers of the service, which was considered in the Military Committee, and was, by their authorization, brought to the notice of the House of Representatives of the United States. The experience of the past year has strengthened the Chief Signal-Officer in the view that the plan of organization then recommended is, with perhaps some slight modification, best suited to provide for the service in its present condition. Without some organization it is exposed to constant embarrassment. It is sometimes impossible to secure either the detail of officers especially desired, or to retain those who have proven themselves valuable and suited for its duties.

Often in the case of officers to whom have fallen years of study and practice, in each of which they have improved by experience, and each of which has rendered their skill not only more valuable to this service, but to the great interests which now, throughout the United States, in some degree, depend upon it, a notice of relief comes at the moment the action of Congress or the orders of the Department have burdened the corps with additional duties. Often after months of labor in the cases of newly detailed officers, and after the time of others has been taken to fit them well for the special duty, their interests or the duties of their companies call them away at the moment they had become fitted to take their share in the real labor. The work of the office is embarrassed as details change. It might be wholly broken up without intention even by a single misconceived order or one drawn in ignorance of the facts. The industries now benefited by this service, the sums which have been expended to secure its success, and the standing it has attained, are such that it ought not to be longer left without the protection of legislative enactment. To fulfill its demands reliably the employment of a selected officer once placed upon this duty and fitted for it ought to be permanent. Provision should be made for such permanent employment of its officers and for their reasonable promotion, for the same reason that it is made in the cases of the officers in every other special service.

EXTRACT FROM THE ANNUAL REPORT OF THE SECRETARY OF WAR, FOR THE YEAR ENDING JUNE 30, 1875.

The Chief Signal-Officer makes an elaborate statement, accompanied by a strong recommendation that the signal-corps be established to form one of the bureaus of the War Department. Frequently in private conversation he has urged this course, and from year to year has brought it to the attention of the Department. I have hesitated hitherto to make any recommendation that would increase the number of bureaus in the Department, but the great extent of the duties now devolving upon this branch of the service, the advantage it has been to the country, the progress that it has made in scientific knowledge, and the great favor with which the results of its efforts have been received by the people of the whole country, commend this recommendation of the Chief Signal-Officer to my attention, for which reasons I am induced to mention it especially at this time.

The officers connected with that corps, with the exception of the Chief Signal-Officer himself, are all commissioned officers of the Army, belonging to regiments of the service—artillery, cavalry, and infantry—whose companies are stationed at different points, scattered through the whole country, while they, on account of their fitness for signal-service, are detailed to perform these peculiar duties. Separated, as they are, from their commands, the companies to which they belong lose their services, and frequent applications are made by military commanders for the return of these officers to their posts.

EXTRACT FROM THE MESSAGE OF THE PRESIDENT OF THE UNITED STATES TO THE TWO HOUSES OF CONGRESS, AT THE COMMENCEMENT OF THE FIRST SESSION OF THE FORTY-FOURTH CONGRESS.

The report of the Secretary of War, accompanying this message, gives a detailed account of Army operations for the year just passed, expenses for maintenance, &c., with recommendations for legislation, to which I respectfully invite your attention. To some of these I invite special attention.

Fifth, a permanent organization for the Signal-Service Corps. This service has now become a necessity of peace as well as war, under the advancement made by the present able management.

The usefulness of the signal-service has steadily increased until it is now universally conceded. The prognostics of the weather styled "Probabilities" have, during the last nine months, with strict verification, reached the average of 90 per cent. of accuracy, while the correctness of special storm-warnings or "cautionary signals" has improved by experience in like proportion. The stations on the more dangerous parts of the Atlantic coast, with their telegraphic connection, have, by warnings signaled and prompt report of unavoidable disasters, often saved life and property, and the economic and military value to the Government of the telegraph-lines established in Texas, the Indian Territory, Arizona, and New Mexico, (where commercial lines would not have been built for many years,) has already been manifest. The special system adopted by telegraphic reports of the rise and fall of the important western rivers, with reference to a determined danger-line, has also been of recognized utility. There is abundant evidence that the growing confidence of agriculturists in guiding their operations by the weather prognostics, widely diffused by a special farmers' bulletin, has been to their advantage, and many trades and interests use them in a manner and to a degree by no means contemplated in the experimental legislation of 1870, before mentioned. This marked and rapid success of the service, which has awakened the admiration of scientists throughout the world and imitation by foreign governments, has, in great part, been owing to its administration by officers and soldiers of the Army under the discipline and restraint of military law, which has not only secured economy, but the minute accuracy and promptness which were indispensable.

The work to accomplish these results has been very great. The correspondence of the central office alone during the last year is officially reported at 867,058 letters and documents sent and received, exclusive of telegrams and publications.

The telegrams have been—cipher-words, each containing complete report of a separate instrumental observation, 870,821, and messages other than weather-reports, 11,492.

The publications distributed for the year ending December 31, 1875, were—

	Copies.
Bulletin of International Meteorological Observations.....	87, 952
Monthly Weather-Review	16, 050
Weekly Weather-Chronicle	28, 373
Manifold Bulletins	334, 462
War Department weather-maps	472, 793
Farmers' Bulletin, (printed at distributing points and displayed at post-offices	2, 817, 466

There are now reports received by telegraph from 119 regular stations of the service and from 11 others by mail. The telegraphic reports of the rise and fall of the western rivers are from 23 special stations. Fifteen stations in the British-American Provinces exchange reports by telegraph, and four others by mail. Six stations in the West Indian Islands report by telegraph during those seasons when cyclonic storms are most frequent, at other times by mail. The mailed reports from Army posts and voluntary observers furnished with forms, instructions, and some other facilities, are from five hundred different places in the United States, and those from foreign countries, whose observations are simultaneous with those taken at Washington for special use in the International Bulletin, number now 268.

During the year ending December 31, 1875, under the acts of June 23, 1874, and March 3, 1875, before alluded to, the signal-service con-

structed in Texas, 1,100 miles of telegraph-line; in New Mexico, 100; on the coast of North Carolina, 240; in all, 1,440 miles of line built in treeless and unsettled country; and in addition to this has kept in repair and operated seven hundred miles of line in Arizona, and two hundred and sixty miles on the coasts of New Jersey, Virginia, and North Carolina before constructed.

The main work of making and collating all these observations and reports, deducing and disseminating the probabilities and warnings, preparing and printing the publications, building and operating the lines of telegraph, with the necessary examinations, instruction, inspection, &c., is performed by (besides the Chief Signal-Officer) 19 commissioned officers now detailed for the purpose, and 450 enlisted men authorized to be divided into 150 sergeants, 30 corporals, and 270 privates. Their pay is no more than others in the Army of the same rank and grade receive for duties much inferior in amount, quality, and value, and it is understood that this special unrewarded work has for years been performed in the confidence of legislative recognition, also that if the latter were now withheld the consequences would be injurious to the service. A still more urgent reason for this legislation is, however, from the fact that by unwise interference of some authority, or comparatively unimportant routine arrangements of companies, this now loosely attached appendage to the War Department might on any day be crippled in its usefulness, if not wholly suspended, until Congress could supply a remedy in the manner now proposed, to guard against such quite possible contingency.

The officers authorized by this bill are only one more in number than shote now actually on duty, and the highest rank is but one grade above that held by officers now and who have been detailed. The ranks provided are no higher than properly to compensate for the labor and responsibility, and necessary for the symmetry of the organization. The officers may be permanently appointed or a part detailed until fitness for the duty is ascertained.

The number and grades of the enlisted men specified in the bill are the same as now allowed, with the addition to the maximum of 30 privates, to provide for increased work. Their pay is that of the former signal-corps established by law in the late war, and corresponds with that of other specially skilled soldiers, such as those of engineers and ordnance, *i. e.*, sergeants would receive \$34 per month instead of \$17 at present, corporals \$21 instead of \$15, first-class privates \$18 and second-class privates \$13, instead of \$13 for all privates as now.

The committee recommends the passage of the bill.

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