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INCREASE IN OUR ARTILLERY URGENTLY NEEDED.

It was only a few years ago that the country awoke to the fact that it was absolutely without modern sea coast defenses. To-day it finds itself in possession of a growing number of forts and guns, but has not sufficient trained gunners to man them. The successful agitation for the building of forts and guns may be said to date more particularly from the time of our trouble with Chile, when it was realized that the Pacific coast ports were defenseless against the cruisers of a fifth rate power.

It now appears that although the work of reconstruction has been carried on with commendable zeal, no provision whatever has been made for manning the guns, and we are now at a stage where the question of an immediate increase in the artillery must be faced without delay. The problem is clearly set forth by Gen. George W. Wingate, president of the National Guard Association, in the current number of The Journal of the Military Service Institution of the United States.

Gen. Wingate insists that modern guns without gunners are as useless as guns without gun carriages, and that the calmness with which the present critical condition of affairs is borne by the nation is nothing less than wonderful. Our press and members of Congress are "fierce to resent the slightest infringement upon American rights," and we have "apparently cast off the restraint which diplomacy has imposed upon official communication between the representatives of civilized countries;" nevertheless, we leave our new defenses and high power guns without men enough to man them, as if they were a sort of "military scarecrows which would in themselves keep away an enemy as a farmer's old clothes frighten birds away from his grain."

There is a danger lest the present generation, in looking at the final triumphs of the civil war, should lose sight of the difficulties experienced at the outset in securing arms, officers or discipline. Hasty levies of patriotic citizens are at the first little better than armed mobs, and the necessity for preliminary training which was made clear in that war is trebly strong in these days of complicated long range ordnance. In working the modern gun, with its long range and high velocity, the gunner, during the heat of an action, when shells are bursting overhead, has to work out a problem which has to include the distance of the ship, the angle of approach, the speed, the strength of the wind and its direction, the temperature and the barometer. If he makes a mistake in any one factor of the equation, or, having solved it correctly, lays the gun with a variation of sight greater than one-fiftieth of an inch, his shot is wasted.

Good work of this kind can only be obtained from carefully trained men. It is granted that in time of war a proportion of the detachment of a heavy gun may consist of new enlistments, but the proportion of these cannot safely exceed three-quarters. All the gunners must be experienced and disciplined at the outset. When the new system of forts is completed 29,000 artillerists will be required to provide one relief for the guns. Three reliefs are required in war. The present fortifications around New York alone require 7,000 men to man them, and when all are completed the force necessary at this port will be 13,000. As the entire artillery force of the United States at present numbers only 3,890 men, including ten batteries of light artillery, it would not provide even half the number of men necessary to man the present fortifications of New York. As the system of defenses when completed will contain nearly 2,000 guns and mortars, the present force of artillerists would not provide two men to a gun. It is idle to think of having less than two skilled gunners to a gun to make it effective in time of war, and this would call for 4,000 skilled men. Army officers agree that not one-half of the present enlisted force of artillery is capable of becoming efficient gunners; so that to secure the 4,000 gunners would require an enlistment of at least 7,500 men.

It is not at present practicable to provide these forces from the National Guard of the States. What is needed, and needed at once, is a sufficient force of trained gunners, men who devote their entire time to their duties and are always in a state of high efficiency. It will be their duty to aid in "licking into shape" the additional artillerists enlisted in time of emergency. This force of 7,500 should be composed of men of a high grade of intelligence. If it is understood that this branch of the service is to be a select one, with good pay and comfortable quarters, there should be no difficulty in securing the enlistment of good mechanics, with sufficient technical training to render them competent to hold the position of officers and non-commissioned officers who would control the artillery force when expanded to a war footing. The

training of this force should include a large amount of practice in target firing, and this could be carried out at moderate cost by fitting the large guns with auxiliary barrels of small caliber.

Although Gen. Wingate does not think it practicable to utilize our civilian soldiers in manning our heavy guns, he thinks that the government should encourage the National Guard to form field batteries, as the service of a light battery is acquired with much less difficulty than that of heavy artillery. The theory and practice can be obtained in the various armories. Government aid in the formation of such batteries has hitherto been absurdly inadequate; but if it would adopt the policy of lending to the States the guns and equipments, charging only for the perishable parts, the number of light batteries would be largely increased. One or more army officers should be detailed to each State to assist the National Guard officers in learning their duties, and a general invitation should be extended to the latter to undertake a brief course of practical instruction at the different army posts at which a regular battery is established.

The risks of war are as certain as any other risks to which a nation is exposed, and for New York the risk of bombardment, on account of the vast concentration of wealth and property, is doubly great. The Fire Department costs \$1,500,000 a year and the city pays annually \$6,000,000 in premiums against fire risk. Contrast this with the fact that the amount which the States are authorized to draw from the government for the militia is less than half a million, and it will be seen that the provision is absurdly inadequate. The estimate that \$2,000,000 per annum represents the proper amount to be appropriated for military purposes is conservative and fully justified by the facts. Of this, one million should go to increase the sea coast artillery, one-half million for the benefit of the regular infantry force, and another half million for the benefit of the National Guard, particularly in increasing the field artillery and supplying it with ammunition for the regular practice, without which it would be of doubtful value.

REPORT OF THE INTERSTATE COMMERCE COMMISSION.

The Ninth Statistical Report of the Interstate Commerce Commission for the year ending June 30, 1896, has just been submitted. It is stated in the beginning of the report that there were 151 roads in the hands of receivers, a decrease of 18 on the previous year. The length of operated mileage represented was 30,475, a decrease of 7,380 on the total of the year before. The capital stock represented by these bankrupt roads was \$742,597,698 and the funded debt was \$999,733,766.

The total mileage was 182,776, an increase of 2,119 for the year. The largest increase, 233 miles, was in Georgia and the next largest, 202 miles, in California. The aggregate length, including all tracks, was 240,129 miles. The length of second track was 10,685 miles; of third track, 990 miles; of fourth track, 764 miles. The mileage of yard track and sidings alone was 44,912 miles.

The total number of locomotives in service was 35,950, an increase of 251 over the preceding year. The number of cars was 1,297,649, an increase of 27,088. The United States employ 20 locomotives and 713 cars per 100 miles of track, and each locomotive hauled on an average 51,471 passengers, the passenger miles accomplished per locomotive being 1,312,381. The work of each freight locomotive is represented by 37,634 tons and 4,684,210 ton miles.

This vast system employed 826,620 men, an increase of 41,586. Of these, 31,792 were employed in the general administration; 243,627 in maintenance of track and structures; 167,850 in the locomotive and car shops; and 373,747 in conducting transportation. The total amount paid out in wages and salaries was \$468,824,531.

The amount of railway capital at the close of the year was \$10,566,865,771, or \$59,610 per mile. The funded debt was \$5,340,338,502. The amount of stock paying no dividend was \$3,667,503,194. The amount of funded debt which paid no interest was \$860,559,442. The total amount of dividends was \$87,603,371, which would be produced by an average of 5 1/2 per cent on the amount of stock on which some dividend was declared.

The number of passengers carried during the year was 511,772,737, an increase of 4,351,375 on the preceding year. The year was remarkable as witnessing the largest total of freight carried in the history of railroads in this country. It amounted to 765,891,385 tons, an increase of 69,130,214 tons over the previous year. The density of the freight traffic is shown by the number of tons of freight carried one mile per mile of line, which was 523,831, an increase of 44,342 ton miles per mile of line.

The gross earnings for the year were \$1,150,169,376, an increase of \$74,797,914. This was made up mainly as follows: Passenger revenue, \$266,562,533; carriage of mails, \$32,379,819; express matter, \$24,880,383; freight revenue, \$786,615,837. The passenger revenue showed an increase of over 14 millions and the freight revenue of over 56 millions. The operation expenses were \$772,989,044, an increase of over 47 millions on the year.