

ORDNANCE DEPARTMENT.

The Ordnance Department was first established by the Act of 14 May, 1812, and consisted of a Commissary General of Ordnance, with the rank, &c., of a Colonel of infantry; an Assistant Commissary General of Ordnance, with the rank, &c., of a Major of infantry and three additional rations; four Deputy Commissaries of Ordnance, with rank, &c., of Captain of infantry and two additional rations; and as many assistant deputies, with rank of Second Lieutenant of infantry and one additional ration, as might be required by the exigencies of the service.

At that time there were no regular arsenals in existence, the depositories of arms &c., being little less than temporary depots, and they few in number. The two national armories (Springfield and Harper's Ferry) were in operation, however, under the supervision of a civil superintendent for each.

The requirements of the service in 1813 necessitated an increase of officers in the Ordnance Department, and by the Act of 2 August of that year, five Deputy Commissaries of Ordnance were added.

In placing the military establishment on a peace footing, at the close of the War of 1812 and 1814, it was deemed expedient to retain the Ordnance Department and perpetuate it under an organization similar in outline to the Department which had been devised in 1812. Accordingly, by the Act of 8 February, 1815, the national armories and the arsenals of the country were placed under the control of a "Colonel of Ordnance," under the immediate direction of the Secretary of War, and the following number of subordinate officers and enlisted men were authorized, viz: 1 Lieutenant Colonel, 2 Majors, 10 Captains, 10 First Lieutenants, 10 Second Lieutenants, and 10 Third Lieutenants, and as many enlisted men as the service of the Ordnance Department might demand.

In this year the military peace establishment was fixed at an aggregate of 10,000 men for all arms of service. The census of 1810 indicated the total population of the country to be 7,239,881 souls, distributed over a territory of 1,746,543 square miles.

In that year the sites of the following arsenals, besides the land, buildings, &c., of the two national armories, were under the control of the Ordnance Department, viz: Watervliet, Washington, Baton Rouge, Rome, and Allegheny. The sites of Bellona Arsenal, near Richmond, Va.; Frankford Arsenal, near Philadelphia; Pikesville Arsenal, near Baltimore, Md.; Watertown Arsenal, near Boston, Mass.; Champlain Arsenal, Vergennes, Vt.; Augusta Arsenal, Ga., and of the rifle factory at Harper's Ferry, Va., were purchased during the years 1815 to 1818, inclusive.

In the organization of the General Staff in 1816 (Act of 24 April of that year) the Ordnance Department was continued as organized under the Act of 8 February, 1815, and was placed on a footing with the Engineer Department in the matter of assignments to duty with the staff of the army.

By the Act of 2 March, 1821, the military peace establishment was reduced to four regiments of artillery and seven regiments of infantry, and such staff officers as were specially named. In this great reduction of the military establishment the old outline of the army was maintained so far as it was possible with the limited number of officers allowed. The provision made for the Ordnance Department was the retention of a supernumerary Captain of artillery to each of the artillery regiments, who was to be assigned permanently to ordnance duty.

As the ordnance duties of the army could not possibly be performed by these four Captains, the Act further provided for the detail of such additional officers of

artillery as might be "necessary to perform ordnance duties." The enlisted men in the Ordnance Department were by the same Act reduced to fifty-six.

The population of the country had increased in 1820 to 9,633,822, distributed over an area the same as the census of 1810. The number of arsenals in that year, in addition to the two national armories, was eleven, as before enumerated.

The returns of the Ordnance Department for September, 1822, show that there were then 7 artillery officers on duty in the Ordnance Department, as follows: 1 Lieutenant Colonel, 6 Captains, 14 First Lieutenants, 14 Second Lieutenants, and 12 Brevet Second Lieutenants, besides 5 Military Storekeepers.

The plan of making periodical details of artillery officers for duty at the various ordnance stations was faithfully tried during the eleven years succeeding 1821; and before half that time had elapsed the defects of the system had become apparent to all, and especially to those who had been most assiduous in advocating the organization of 1821.

The recommendations of the senior officer of the department to the Secretary of War, the annual reports of that officer, the communications sent to Congress and to Congressional committees, and the debates on the floor of Congress, during the latter half of those eleven years, attest with what anxiety a return to a separate organization was desired.

The Ordnance Department was accordingly resuscitated in 1832, by the Act of 5 April of that year, and placed upon a basis which has continued to the present time. The officers authorized for the performance of its duties were 1 Colonel, 1 Lieutenant Colonel, 2 Majors, 10 Captains, and a detail of as many Lieutenants of artillery as might be necessary for the performance of the duties of the Department. An average of 15 Lieutenants of artillery were constantly on duty in the Ordnance Department, from the year 1832 to 1838, taken by periodical detail, as above provided. There were besides 5 Military Storekeepers on duty in the Department.

The number of enlisted men were increased to 250. There were in that year eighteen arsenals and two armories, the following having been added since the year 1821: Charleston Arsenal, at South Carolina; Detroit Arsenal, at Dearbornville, Michigan; Fort Monroe Arsenal, at Old Point Comfort, Virginia; Kennebec Arsenal, at Augusta, Maine; New York Depot; Mount Vernon Arsenal, near Mount Vernon, Alabama; and St. Louis Arsenal, at St. Louis, Missouri.

The population of the country in 1830 had increased to 12,886,020, distributed over an area of 1,805,811 square miles.

The Ordnance Department was increased under the thirteenth section, Act of 5 July, 1838, by the addition of two Majors, and the transfer of ten First Lieutenants and ten Second Lieutenants from the artillery; but by the Act passed two days subsequent the number of Lieutenants was limited to twelve. This number was divided equally between the two grades of Lieutenants, and the increase of the department was six First Lieutenants and six Second Lieutenants accordingly, in addition to the two Majors already mentioned. The strength of the department then stood, one Colonel, one Lieutenant Colonel, four Majors, ten Captains, six First Lieutenants and six Second Lieutenants, and 250 enlisted men.

The number of arsenals had been increased since 1832, by the addition of the arsenal at Chattahoochee, Florida; Fayetteville, North Carolina; and Little Rock, Arkansas.

The population of the country had increased in 1840 to 17,069,453, distributed over an area of 1,805,811 square miles.

Pending the Mexican War, the department was further increased by the addition of two Captains and six First Lieutenants, making the strength of the department as follows: one Colonel, one Lieutenant Colonel, four Majors, twelve Captains, 12 First Lieutenants, and six Second Lieutenants. This strength was maintained until 1861, when the department was again increased on account of the exigencies of the war then pending.

The number of arsenals in 1860 had increased to twenty-four, the following have been added since 1838; Arsenals at San Antonio, Texas; Fort Union, New Mexico; and Fort Leavenworth, Kansas.

The population of the country in 1860 was 31,443,321, distributed over an area of 3,001,002 square miles.

The Act of 3 August, 1861, increased the strength of the Ordnance Department, by the addition of the following grades, viz: one Chief of Ordnance, with rank, &c.,

of Brigadier General; one Lieutenant Colonel and six Second Lieutenants. The department was again increased in 1863, (Act 3 March,) by the addition of the following grades: one Lieutenant Colonel, two Majors, eight Captains, and eight First Lieutenants.

By the Act of 28 July, 1866, to fix the military peace establishment, the grades of the officers of the Ordnance Department were fixed as follows: one Brigadier General, three Colonels, four Lieutenant Colonels, ten Majors, twenty Captains, sixteen First Lieutenants, ten Second Lieutenants, and thirteen Military Storekeepers.

The sixth section of the Act of 3 March, 1869, prohibited any more new appointments or promotions in the Ordnance Department. Since that time ten vacancies have occurred, the total strength at this time being one Brigadier General, two Colonels, two Lieutenant Colonels, nine Majors, fifteen Captains, thirteen First Lieutenants, eight Second Lieutenants, with eleven Storekeepers.

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The number of arsenals now under the control of the Ordnance Department is twenty-four, with one armory. The value of the arsenals and armories of the United States in 1858, just previous to the war, together with all the military material they contained, was estimated at \$21,670,022.19. The money value of the property of the Ordnance Department at the present time, similarly estimated, is \$52,535,354.19.

The following table shows the money value of the property of the department for nineteen years just previous to the war; the monetary importance of the department as indicated by the amounts of annual appropriations during the time; the industrial energy of the department, as indicated by the average number of hired workmen employed per month during each year of that time; the strength of the enlisted force, and the rank of the officers of the department, throughout the time. The like information is appended for the years 1869, 1870, 1871 and 1872, which is deemed sufficient for the purposes of a comparison. A study of this table, it is thought, must convince any one of the vast increase in responsibilities of the department over any which existed in ante-war times. The ratio of money responsibility per officer, (supposing it divided equally,) is very considerably greater, and the average command of each officer, (upon a similar supposition in respect to the hired and enlisted men,) is greatly increased. The existence, therefore, of the increased rank of the officers of the department at the present time is more than justified by the comparison, and the comparison, it will be observed, is made within the sphere of the department itself. Additional justification might be sought in a comparison between the duties and responsibilities of other branches of the military service and those of the Ordnance Department. In the present organization of the cavalry, the ratio of officers to enlisted men is about one to twenty-four; in the artillery it is about one to fourteen, and in the infantry about one to eighteen, while the ratio of money responsibilities, in each of these arms, can bear no comparison with the figures of the Ordnance Department. Each of these arms is accountable over to the Chief of Ordnance for the money value of all ordnance stores issued to them.

Year.	Number of Ordnance Officers in the Department authorized by law.	Value of Lands, Buildings and Stores in the custody of the Department.	Appropriations for the Department for each year. (The fiscal years 1840-41-42 ended December 31; those subsequent ended June 30.)	Total money responsibility of the Department for the year.	Ratio of responsibility per Officer, supposing it equally divided among them. (Approximate.)	Average number per month of hired workmen employed in the Ordnance Department during the year.	Number of Enlisted Men authorized in the Department.	Average number of men (hired and enlisted) under command of each officer supposing them to be equally divided among the officers of the Department.	Acts establishing the rank of Officers of Ordnance Department.	Rank of Officers of Ordnance Department.					
										Brigadier General.	Colonel.	Lieutenant Colonel.	Major.	Captain.	First Lieutenant.
1840	28	\$16,943,519 25	\$983,265 00	\$17,926,784 25	\$640,000 00	1,126	250	49	April 5, 1832, } July 5, 1838, } July 7 1838, } April 5, 1832, } July 5, 1838, } March 3, 1843, } July 28, 1866, }						
1841	28	16,980,170 33	1,271,600 00	18,251,770 33	670,000 00	1,070	250	47							
1842	28	17,322,469 95	1,121,350 00	18,443,819 95	659,000 00	816	250	38							
1843	28	17,393,021 07	.....	.....	.....	845	250	39				
1844	28	16,993,708 02	1,075,200 00	18,068,968 02	645,000 00	851	250	39							
1845	28	16,519,192 00	848,000 00	17,367,192 00	620,000 00	1,083	250	53							
1846	28	15,994,921 28	1,027,500 00	17,0,2,421 28	608,000 00	1,469	250	67							
1847	36	17,373,795 82	2,654,977 00	20,028,772 82	556,000 00	1,689	250	53							
1848	36	18,192,083 65	1,520,379 00	19,712,462 65	548,000 00	1,184	250	41							
1849	36	17,626,385 68	1,201,429 00	18,827,814 68	523,000 00	1,120	250	42							
1850	36	18,033,332 71	1,184,581 00	19,247,913 71	535,000 00	1,118	250	42							
1851	36	18,640,463 63	1,093,240 00	19,733,703 63	548,000 00	1,073	250	41							
1852	36	19,485,970 65	972,686 00	20,458,646 65	552,000 00	1,075	250	41							
1853	36	20,163,183 09	793,435 00	20,956,618 09	552,000 00	852	250	36							
1854	36	20,151,036 70	1,000,665 00	21,151,751 70	604,000 00	1,052	250	35							
1855	36	20,668,000 95	1,098,895 00	21,766,895 95	604,000 00	1,052	250	41							
1856	36	20,244,955 13	1,133,933 55	21,378,888 68	591,000 00	1,155	250	43							
1857	36	21,289,452 83	1,248,049 00	22,537,501 83	626,000 00	1,236	250	48							
1858	36	21,670,022 99	1,735,517 00	23,405,540 99	650,000 00	1,292	250	47							
1869	*61	64,037,880 96	981,680 00	65,019,560 96	1,066,000 00	1,965	745	44							
1870	*55	60,006,878 48	1,448,893 20	61,455,771 68	1,117,090 00	1,972	745	49							
1871	*51	53,832,111 02	762,912 55	54,595,023 57	1,070,000 00	2,390	475	56							
1872	*50	52,535,354 19	2,022,804 00	54,558,158 19	1,091,000 00	1,738	475	144							

* Actual number.

† Under the present organization of the cavalry, artillery and infantry, the average number of men to each officer is as follows: Cavalry, 1 officer to 23.55 men; Artillery, 1 officer to 13.37 men; Infantry, 1 officer to 17.28 men.

The actual strength at present time of Officers of Ordnance Department is: 1 Brigadier General, 2 Colonels, 2 Lieutenant Colonels, 9 Majors, 15 Captains, 13 First Lieutenants, 8 Second Lieutenants, on account of Section 6, Act 3 March, 1869, which prohibits promotions and new appointments.

The discrepancy between the value of the property of the Department in 1870 and 1871 was caused by sales of Ordnance Stores and the transfer of some of the Lands and Buildings of the Department to the Quartermaster's Department.

An exhibit of the expansion of our population since the foundation of the Ordnance Department is of interest in considering the present magnitude of the department, especially as it is the duty of the Department to provide for the armament of the whole body of the militia of the Union.

As population increased the Department has increased, and as the Department increased the responsibilities and rank of its officers has increased also.

The following exhibit shows at one view the comparative growth :

Years	Population.	Area, square miles.	Ratio, per square mile.	Number of Arsenals and Armories.	Laws fixing the personnel of the Ordnance Department.	Number and Rank of Officers.												
						Brig. General.	Colonel.	Lieut. Colonel.	Major.	Captain.	First Lieut.	Second Lieut.	Third Lieut.	Total.				
1810	7,239,881	1,746,543	4.10	2 Armories.	April 2, 1794.	..	..	..	..	..	..	..	..	..	..	..	..	..
1812	7,239,881	1,746,543	4.10	.... do ...	May 14, 1812.	..	1	..	1	4	..	8	..	..	..	..	..	16
1813	7,239,881	1,746,543	4.10	.... do	March 3, 1813.	..	1	..	1	4	16	..	..	..	..	..	..	22
1815	7,239,881	1,746,543	4.10	... do ...	Aug. 2, 1813.	..	1	..	1	9	16	..	..	..	..	..	..	27
1820	9,633,822	1,746,543	5.52	.... do	Feb. 9, 1815.	..	1	1	2	10	10	10	10	10	10	10	10	44
1821	9,633,822	1,746,543	5.52	11 Arsenals and 2 Armories.	March 2, 1821.	..	..	..	..	*4	..	..	..	..	..	..	..	*4
1830	12,866,020	1,805,811	7.12	.... do ...	April 5, 1832.	..	1	1	2	10	..	..	..	..	..	..	..	14
1832	12,866,020	1,805,811	7.12	18 Arsenals and 2 Armories.	July 5, 7, 1838.	..	1	1	4	10	6	6	..	..	..	..	..	28
1838	12,866,020	1,805,811	7.12	21 Arsenals and 2 Armories.	March 3, 1847.	..	1	1	4	12	12	6	..	..	..	..	..	36
1840	17,069,453	1,805,811	9.45	.... do	Aug. 3, 1861.	1	2	2	4	12	12	12	..	..	..	..	..	45
1847	17,069,453	1,805,811	9.45	.... do	March 3, 1863.	1	2	3	6	20	20	12	..	..	..	..	..	64
1850	23,191,876	2,073,502	7.80	.... do	July 28, 1866.	1	3	4	10	20	16	10	..	..	..	..	..	64
1860	31,443,321	3,001,002	10.47	.... do														
1861	31,443,321	3,001,002	10.47	24 Arsenals and 2 Armories.														
1863	31,443,321	3,001,002	10.47	.... do ...														
1866	31,443,321	3,001,002	10.4	24 Arsenals and 1 Armory.														
1870	38,558,371	3,001,002	12.18	.... do														

In order that an opinion may be formed of the number of officers required for the performance of ordnance duties, it is proper that the character, extent, and responsibilities of those duties should be briefly stated. These duties are defined by law, and consist in providing, preserving, distributing, and accounting for every description of artillery, small arms, and all the munitions of war which may be required for the fortresses of the country, the armies in the field, and for the whole body of the militia of the Union. In these duties are comprised that of determining the general principles of construction, and of prescribing in detail the models and forms of all military weapons employed in war.

They comprise also the duty of prescribing the regulations for the proof and inspection of all these weapons, for maintaining uniformity and economy in their fabrication, for insuring their good quality, and for their preservation and distribution.

The extent of these duties may be perceived by referring to the fact that, for carrying into effect the general purposes here stated, large annual appropriations are made, and that, in order to fulfill these purposes, extensive operations are conducted at the national armories, arsenals, and ordnance depots. These establishments are situated in the different parts of the Union, and they employ from 1700 to 2000 workmen monthly, consisting of artificers, mechanics, and laborers. They are conducted under the general supervision and immediate and special direction of the Ordnance Department.

To this brief outline of the character and of Ordnance duties it seem proper to add a few remarks on the responsibilities which are involved in their proper discharge. These are, in some respects, peculiar to this branch of service, and do not exist in other branch of the military service.

The appropriations for the ordnance service are applied to the production of arms and other military supplies of a durable character, which are stored in depot for future service, and are reserved to meet the future exigencies and defence of the country; they are not consumed and extinguished in the current service of the day like most of those which are obtained by the expenditures of other branches of the military establishment. The value of ordnance supplies now in store, which have been accumulated under former appropriations, amounts to \$40,000,000.

The business of disbursing large annual appropriations, and the preservation of forty millions' value of military stores, considered merely as a matter of ordinary business transaction, must, to be well performed, be conducted by persons experienced in such business. But the duty of devising and of deciding on the plans and models of all the various arms, artillery, and other military equipments which are provided by the Ordnance Department, is a matter of a much more important character, and requires much higher and more varied attainments in those who perform it. The qualifications requisite for a judicious performance of this branch of service, involving, as they do, a familiar acquaintance with the exact sciences and with mechanical philosophy, both theoretical and practical, are to be attained only by long experience and zealous application, joined with an aptitude to such pursuits.

The ordnance branch of service is, therefore, responsible that all the various munitions of war are provided in due proportion to the wants of the service, and are constructed on the most approved models and of suitable quality; that the whole body of the militia be efficiently armed and equipped to the fullest extent of the means appropriated to that object; that large annual disbursements be faithfully made and promptly accounted for; that they be applied to authorized purposes and no other, and that they produce a just and substantial equivalent in military supplies, of enduring value to the country, and that the accumulating product of these expenditures be securely preserved and duly accounted for.

From the general character of these duties it may be readily perceived that experienced officers are necessary for their proper performance. They differ from those which are practiced in other branches of service. No other department is charged with the duty of devising and determining plans and models of military weapons, nor with the supervision of extensive mechanical operations and fabricating establishments. No other performs any duties in immediate connection with, or for promoting the efficiency of, the whole body of the militia, and none other is charged with the care and preservation of a vast amount of munitions of war, the responsibility of the ordnance in this respect being greater than that of all other departments united. It is, besides, the only department, except the Engineer's, whose duties are but little affected by any change from peace to war or from war to peace, whose services have no immediate connection with the line of the army, and whose duties would remain the same whether the peace establishment be large or small or be entirely abolished, and hence should be so organized as to require no augmentation in war. Its most important labors are performed in peace; it is then that arms must be fabricated, and every munition prepared, and that depots should be established on all the great avenues leading to the frontiers.

As its labors have but little relation to the peace establishment, but depend upon the whole military force, regular as well as militia, either in service or liable to be called into service, in war it is of the utmost importance to the future defence of the country, perhaps to its security in the preservation of its liberties, that the officers be separated from the body of the army, in order to devote themselves exclusively to their own peculiar duties. It is desirable not only that our whole population be armed, but that the arms be of the best quality, for on their excellence as well as on the skill of those who use them depends their effect.

But the nature of the service gives it a still deeper interest than the pecuniary considerations connected with it. Unless our arms are well fabricated and preserved, and in sufficient abundance, and unless we keep pace with the improvements which modern science and ingenuity are making, the consequences may hereafter prove disastrous.

The necessary provision for these objects cannot be made without much time and experience, and that they may be ready for war they must be procured in peace. A stable and efficient organization is therefore essential to the Ordnance Corps.

The question as to what shall be the rank of the Chief of Ordnance is to be decided solely upon a consideration of the duties and responsibilities of the office as they now exist by law.

From the first establishment of the Ordnance Department to the breaking out of the rebellion the rank of its chief was that of Colonel, and it is fair to presume that that rank was commensurate with the importance of the duties and responsibilities during that period. But the duties and moneyed and property responsibility of the Department have now vastly increased over what they were in former times. The table heretofore inserted will show a comparison between these duties and responsibilities for nineteen years before the war, and the same since that time.

The period of nineteen years just previous to the war is selected as being the best basis of a fair comparison for the present purposes. To have gone back either to 1832, 1815, or 1812 (in each of which years the rank of the Chief of the Department was fixed as Colonel) would have been to exhibit a much more striking comparison. The duties and responsibilities of the Chief of Ordnance have increased by a steady progress since the foundation of the Department. The rank of Brigadier General was bestowed in 1861 in expanding the Department to meet the exigencies of war. The duties and responsibilities of the office during the war were in their magnitude equal to those of a Major General commanding a division of 10,000 men, for the records of the Department show that in 1863 there was an average of nearly 500 enlisted men, and an average of 8000 hired workmen employed per month throughout the Department. In 1864 the enlisted force was 600 men, and the average number of hired workmen per month over 9,000. The division Major General commanded men only, while, superadded to the command of so large a force as named above, the Chief of Ordnance controlled the disbursement of millions of treasure in providing the arms and munitions of war which these Major Generals were to use.

Besides commanding at the present time a force of enlisted men nearly equal to the established strength of an infantry regiment, and supervising the care, preservation, and proper application of over \$52,000,000 public property within his Department, he is required to keep proper accounts of all the ordnance stores distributed in the hands of the army, to call to account all persons to whom such stores are issued, and, in case of delinquency, to state the value of all articles unaccounted for in such delinquency to the accounting officers of the Treasury Department for final settlement. The law requires him "to direct the inspection and proving of all pieces of ordnance, cannon balls, shot, shell, small arms, and side-arms and equipments procured for the use of the army of the United States, and to direct the construction of all cannon and carriages, and every implement and apparatus for ordnance, and all ammunition wagons, travelling forges, and artificers' wagons, the inspection and proving and the preparation of all kinds of ammunition and ordnance stores; to furnish estimates, and, under the direction of the Secretary of the Department of War, to make contracts and purchases for procuring the necessary supplies of arms, equipments, ordnance, and ordnance stores." It is his duty to supervise the determination of the principles of construction of all ordnance materials; to maintain uniformity in their fabrication; to secure their good quality, and to provide for their preservation and distribution. The munitions of war required for the fortresses of the country, the standing army, and the militia must be provided by him, and the responsibility of selecting the best models and methods of construction rests principally upon him. The disbursements of the large appropriations made annually by Congress must be made under his immediate supervision and control. In fine, the duties of his office are varied and extensive, and are inherent with great cares, anxieties, and responsibilities. They are not confined, as in the case of regimental Colonels, to the economical details of a few military posts, but are seen to be co-extensive with the whole army, and to reach, in his *civico-military* capacity, beyond the limits of the army itself to the ramified interests of our citizens at large.