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LETTER

FROM

THE SECRETARY OF WAR,

TO

THE CHAIRMAN OF THE MILITARY COMMITTEE

UPON THE SUBJECT

OF AN ADDITIONAL MILITARY ACADEMY,

AND

A SCHOOL OF PRACTICE.

JANUARY 29, 1819.

Read, and ordered to lie upon the table.

WASHINGTON:

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1819.

LETTER

FROM THE SECRETARY OF WAR,

In reply to that part of your resolution requesting information in relation to the establishment of more additional military academies, and their places of location, and such other information and facts as you may deem proper to communicate on these subjects, with the probable annual expences of these establishments; I have the honor to make the following statement.

The number of cadets to be annually received into the military academy, will be governed by the number which will annually terminate their studies, and be promoted into the army. As the academy at West Point, has been one hundred and forty eight, or about eighty-four per annum; but, as it is probable that the causes which have operated to produce so many vacancies in this time have been accidental, and consequent on the change from active service to the military establishment, there will not, it is believed, in future be so many, and that the cadets who will annually terminate their studies at West Point, will be equal, or nearly so, to the annual average vacancies. In this view of the subject, an additional military academy would not now be required. But it seems to me, that the question ought not to be determined, by a reference simply to the waste of our military peace establishment, which, from our geographical situation, and the policy of our government, will always bear a small proportion to the population of the country; and to our military establishment in time of war. So far from graduating the number or extent of our military academies, by the waste or the army in time of peace, the opposite principle would probably, be more correct; that, in proportion as our regular military establishment is small, the government ought to be careful to diffuse, by education, a knowledge of the art of war. The army itself is a practical school of this art, which, except in the higher branches may, where it bears a large proportion to the population of the country, supersede other modes of perpetuating, or disseminating, this indispensable art. But in a country situated as ours is, with a small standing army, and far removed from any power from which we have much to fear, the important knowledge of the art of defending ourselves, will in a long peace, be nearly lost. The establishment of military academies, in the cheapest and safest mode of producing and perpetuating this knowledge. The government ought to furnish the means to those who are willing to learn their use to acquire it. The cheap

DEPARTMENT OF WAR,
15th January, 1819.

SIR,

In reply to that part of your letter, of the 20th of November, which requests my opinion on the expediency of establishing one or more additional military academies, and their places of location, and such other information and facts as you may deem proper to communicate on these subjects, with the probable annual expences of these establishments, I have the honor to make the following statement:

The number of cadets now authorized by law, is two hundred and fifty, who are divided into four classes; the cadets of one of which, every year, terminate their studies, and are promoted into the army. As the academy is now nearly full, it is probable that the number which will annually terminate their studies, and, consequently, will be candidates for promotion, will not be much short of fifty. The number of vacancies in the army which have occurred, from the 1st of August, 1816, to the 1st of May, 1818, has been one hundred and forty eight, or about eighty-four per annum; but, as it is probable that the causes which have operated to produce so many vacancies in this time have been accidental, and consequent on the change from active service to the inactivities of a peace establishment, there will not, it is believed, in future be so many; and that the cadets who will annually terminate their studies at West Point, will be equal, or nearly so, to the annual average vacancies. In this view of the subject, an additional military academy would not now be required. But it seems to me, that the question ought not to be determined, by a reference simply to the wants of our military peace establishment, which, from our geographical position, and the policy of our government, will always bear a small proportion to the population of the country, and to our military establishment in time of war. So far from graduating the number or extent of our military academies, by the want of the army in time of peace, the opposite principle would, probably, be more correct; that, in proportion as our regular military establishment is small, the government ought to be careful to disseminate, by education, a knowledge of the art of war. The army itself is a practical school of this art, which, except in the higher branches, may, where it bears a large proportion to the population of the country, supersede other modes of perpetuating or disseminating this indispensable art. But, in a country situated as ours is, with a small standing army, and far removed from any power from which we have much to fear, the important knowledge of the art of defending our shores, will in a long peace, without the particular patronage of the government, be nearly lost. The establishment of military academies is the cheapest and safest mode of producing and perpetuating this knowledge. The government ought to furnish the means to those who are willing to bestow their time to acquire it. The ca-

dets who cannot be provided for in the army, will return to private life; but, in the event of war, their knowledge will not be lost to the country. The government may then avail itself of their military science, and, though they may not be practically acquainted with all of the details of the duty in the army, they will acquire it in a much shorter time, than those who have not had the advantage of a military education. No truth is better supported, by history, than, that, other circumstances being nearly equal, victory will be on the side of those who have the best instructed officers. The duties of a soldier are few and simple, and, with well instructed officers, they can be acquired, in a short time; as our own experience, and that of other countries has satisfactorily proved. To form competent officers, in the present improved state of the art of war, is much more difficult, as an officer, besides a knowledge of the duties belonging to the soldier, has others of a more difficult nature to acquire, and which can only be acquired by long experience, or by a regular military education.

With these views, I would recommend one additional military academy. It ought to be placed where it would mutually accommodate the southern and western portions of our country, which are the most remote from the present institution.

Besides an additional academy, I would submit, for the consideration of the committee, the propriety of establishing a school of practice, to be fixed near the seat of government. On this important subject, I respectfully annex, as a part of this communication, a report from general Bernard and colonel M'Ree, to this Department; in which the subject is so fully discussed, as to supersede the necessity of any further observations.

The expenses of erecting the necessary buildings for an additional military academy, on a scale as extensive as that at West Point, would cost about one hundred and thirty thousand dollars, of which sum, however, but a small part would be required for this year. The current expense of the institution would, (excluding the pay of the cadets, which is sixteen dollars per month, and two rations per day,) probably amount to about twenty two thousand dollars, per annum.

For the school of practice, there would be but little expense, except the erection of the necessary buildings for the accommodation of the institution. The pay of the superintendent and professors, should they be even taken from citizens, would not exceed eight thousand five hundred dollars, which would constitute nearly the whole of the current expense, as the lieutenants of the artillery and engineers, while at the institution, will not receive any additional pay or emoluments. The expense of the buildings may be estimated at eighty thousand dollars, of which, however, but a small part would be required for the present year.

I have the honor to be,
Your most obedient servt.
J. C. CALHOUN.

Hon R. M. Johnson, Chairman of the Committee on Military Affairs, H. of Representatives.

Considerations on the Course of Instruction necessary for the Officers of the different arms of an Army.

Circumstances of locality; the nature of the operations of war; and the variety of the means employed for the purposes of destruction and preservation, have naturally led to the subdivision of an army into several parts; which differ in their manner of combatting, but which are also intended to render reciprocal aid to each other, to co-operate the most efficaciously to the same end, and to constitute, when in action, but one combined whole.

This subdivision existed among the ancients, as it does among the moderns; and with both, (the absolute and relative numerical force of these subdivisions being supposed nearly equal) the systems of war have been uniformly more perfect, aud productive of great results, in proportion as the several parts were better calculated to act with promptitude, precision, and in concert. These parts are designated in modern armies by the word arm; and consist of infantry, cavalry, artillery, and engineers. Each of these arms acts occasionally as principal, or as accessary. In a battle, the infantry is in general the principal arm; while the three others are more or less accessaries; in the pursuit of a retreating army, the cavalry becomes the principal; and in a siege, the artillery and engineers are the principal arms, and the rest are merely great auxiliaries.

Among the means which modern discipline employs, to give the greatest effect to the combined action of these arms, is instruction. And here, the same motives which have resorted to a subdivision of labour, as a powerful cause of perfection in objects of general industry, have also led to a subdivision of military instruction, as most productive of that concert and efficiency desirable in the operations of an army. This instruction, and the objects and advantages of its subdivision, are the subjects of present consideration.

To obtain, by the aid of military instruction, greater effect in the particular or conbined employment of the different arms, two modes immediately present themselves: *First*, That each arm should be composed of individuals versed exclusively in the theory and practice of that arm; *Second*, That the individuals composing each arm, should be instructed equally in the theory and practice of all the other arms. The first of these methods is insufficient; because, in giving to each individual merely the knowledge necessary to the du-

ties of his own arm, it leaves him deficient of what is necessary to connect the operations of that arm with the operations of the rest, as parts of one general system. The second is impracticable; because it is the privilege of but few individuals, to possess that facility of intellect which is requisite to embrace four branches of knowledge, as extensive as are those in question, and to practise them all, with that correctness and promptitude, which is the peculiar advantage of such as devote themselves principally to but one of these branches. In order to avoid both of these inconveniences, the theoretical and practical knowledge necessary in the conduct and operations of an army, has been divided into two distinct classes; the one embracing whatever is common to all the arms; the other confined to what particularlarly appertain to each arm. A consequent and similar division has followed in the instruction; the first branch to include what is necessary and useful to the service of every arm; the second to include the theory and practice of each arm in particular. Hence the necessity of an elementary, or common school, where the knowledge common to every arm, should be given alike to all who are intended for the army; and a school of a higher order, for the purpose of increasing (when necessary) the elementary knowledge which has previously been acquired to the extent demanded, and teaching its application to the particular objects and duties of each arm, which constitute a school of application. In those countries which have large military establishments, there is a school of application for each arm. But those nations who, in time of peace, keep but a feeble military force on foot, find it advantageous to unite, as far as possible, these different schools of application in one; where such as are admitted for the service of those arms which demand a more advanced theoretical, or more varied practical knowledge, receive their last degree of academical instruction. In this last case, the students at the school of application, receive likewise two kinds of instruction: 1st. That which is common to the several arms to which they are destined; and 2d, that which is exclusively necessary to the arm in which they are respectively to serve.

Among all nations possessing military schools, the schools of application for such as are destined for the infantry and cavalry, are the regiments of the army, in which they are to serve. It is on joining and doing duty with their respective regiments, that they learn to apply the instruction received at the elementary school, and acquire whatever relates to the discipline, the conduct, administration, and legislation of troops.

This cannot be the case, however, with those destined for the artillery and engineers, or the topographical corps. They are all, more or less, liable to be employed separately, and immediately after leaving the school; and are deprived of the advantages peculiar to the officer of infantry or cavalry, of making their first essays in their professional duties, under the eyes of their chiefs, or of those who have preceded them; and being unassisted by the advice or opinions of

their superiors in rank, knowledge, and experience, they are not only left without the means of obtaining the instruction of which they are yet deficient, but are also frequently exposed in the execution of the duties confided to them, to compromit the public service by the commission of errors, which too often lead to irreparable misfortunes, and which are productive, at least, of a wasteful expenditure of public property, always beyond, sometimes exceeding an hundred fold, the pense of giving a proper education to the individual who has not been qualified to exercise his profession, with satisfaction to himself, or usefully to his country.

These considerations alone, appear to us sufficient to show the advantage, if not necessity, of dividing the course of military instruction between two schools; the one elementary, and the other a school of application.

The elementary school at West Point, has hitherto been very inferior, as such; and altogether inadequate to the objects for which it was established. A project has been presented, however, calculated to place this school upon the footing of the most perfect of the kind which exists. As to a school of application, there is none. The degree of instruction, given to the cadets at the school of West Point, has heretofore been for the most part limited to a general acquaintance with those branches of knowledge, which are common to all the arms of an army; and which ought to have been extended, and applied to artillery, fortification, and topography. The consequence has been, that the officers of infantry, artillery, engineers and of the topographical corps, have had the same degree and kind of instruction; and the only real difference which existed between them on leaving the school, consisted in the uniform of their respective corps or regiments. If any have been so fortunate as to render themselves serviceable, either in the artillery or engineers, the cause must be sought for, in their own industry, and not in the education received by them at West Point, which was barely sufficient to excite a desire for military inquiries and of military pursuits.

It remains to enumerate the branches of knowledge which are common to all the arms; and those, which are necessary, and appertain more or less exclusively, to each or several of these arms. The subjoined table, exhibits the two principal divisions of the instruction. The first part, includes the branches of knowledge, that are necessary, to all who are destined for any arm of the military establishment; either as officers in the exercise of their immediate professional duties, or as men of information, liable, in the course of their military career to be intrusted with other interests. It is therefore, that the mathematics for instance, are extended farther than is strictly necessary to the officer of infantry; that natural and experimental philosophy, and chemistry, are inserted under the elementary division, rather as forming part of a liberal education than of mere military utility; and finally, the several kinds of drawing are only taught in the elementary

division, as an advantageous introduction to the prompt acquisition and exercise of the art of topographical delineations. This division or elementary part of the instruction, will require five professors, three teachers, and two instructors. The number of assistants, &c. depend upon the number of individuals at a school.

The same table presents the second part of the instruction, which is in addition to the first, and is necessary to those destined to the engineers, artillery, or topographical corps. Here the mathematics are carried to a higher degree, which is rendered necessary by their applications to machines, the theory of artillery, the construction of charts, &c. Descriptive geometry is applied to machines and fortification. Fortification is taught to the extent which is exclusively necessary to the officer of engineers; and artillery to the extent that is required for the officers at that arm. Geometry and trigonometry receive their application to topographical operations, and spherical trigonometry and descriptive geometry, to the projection, &c. of charts. This part of the instruction, will demand four professors. Because either these two divisions of the instruction, will be taught at one school, or at two separate schools. In the first case, the professors of the elementary course, will be insufficient, and cannot attend to the course of instruction thus extended: in the second case, the four professors before mentioned, become absolutely necessary. But whether the entire course, (or both of these divisions of the instruction,) shall be taught at the same, or at two separate schools, it will not be the less indispensable; and a division of it, similar to that here established, should still exist in fact. The question is therefore reduced to this, shall the elementary, or first part of the course of instruction, be taught at West Point, and the second part at a separate school, to be established elsewhere? Or shall the second part constitute an additional class or classes, at the school of West Point, to consist of those cadets only, who are destined for the engineers, artillery, and topographical corps, and who shall have previously passed through the elementary classes?

The second division of the course of instruction exhibited by the annexed table, and which must constitute, either a school, or classes of application, is *practical* as well as *theoretical*. The application of the elementary branches of instruction, and the higher branches of mathematics, to the theory of artillery, fortification, and topography, forming the *theoretical* or acadamic part of this division of the course of instruction, while the application of these theories to the circumstances of the ground, &c. requires, and must be taught to the students, by a course of actual experiments, and practical exemplifications in the field. It is necessary to make this remark, in order to a just appreciation of all the considerations, which should influence in the decision of the present question.

The advantages which may be derived from a union of the school of application, in the shape of additional classes, to the ele-

mentary school, are almost exclusively those of economy, and admit of being correctly ascertained; they consist,

1st. In having certain duties, that are common and necessary to both establishments, performed by the same individuals, who are now employed for those purposes at West Point. Such are the duties of the superintendent, most of the officers of the military staff, and disbursing department.

2d. In the purchase of an additional site, which will be avoided.

3d. In saving the additional expense of quarters, academical, and other buildings, to the extent that they now exist at West Point, beyond the wants of that establishment.

4th. In saving the expense of purchasing a library, instruments, &c. to the extent of those now on hand at West Point.

5th. In saving the travelling and other expenses to which the graduates of the elementary school would be subjected, in order to join and commence their course at the school of application, if these institutions were separate; and,

6th. In avoiding a loss of time on the part of the graduates, which would take place on their transfer to the school of application in the case just supposed.

The following are the considerations which oppose a union, and which consequently urge a separation of these two schools:

1st. The classes of application will consist of those individuals destined for the artillery, engineers, and topographical corps, who shall have graduated at the termination of the elementary course of instruction, and who will consequently be then promoted by brevet or otherwise, in the same manner as those destined for the infantry. There must probably be two classes of application, and the number of students of which they ought to consist, in order to supply the annual vacancies in their respective arms, will not be less than seventy. The school will therefore be augmented by this amount, and will be composed of commissioned officers, and cadets, whose rights, interests and occupations will be more or less dissimilar; and who must consequently be governed by regulations, &c. essentially different, which will at once destroy that unity of system, necessary to all military institutions.

2d. The difference in point of rank, in the students of the elementary classes, and those composing the classes of application, will originate claims to precedence and superiority on the one part, and resistance to such pretensions on the other, which no regulations can restrain within proper limits.

3d. It will be necessary to have two sets of professions at the same school, and in several instances two professors of the same department of science, who will be independent of each other. Hence increased occasions of discord. Individual interest and feelings must

of necessity, and frequently will be brought into collision; which experience has sufficiently proved, would lead, first to divisions among the academic staff, and finally, to the formation of parties among the officers and cadets, destructive of that harmony and order which should prevail, and are believed essential to the successful operations of the school.

4th. The duties of the two sets of professors, the studies and occupations of the officers and cadets, being different in their character, and requiring to be arranged differently, as to time and other circumstances, will render two distinct systems of organization and police indispensable, which frequently cannot be made to accord, without incurring some inconvenience or injury, or without the sacrifice of some advantage on the part of one or the other division of the school, and perhaps of both. The superintenent will, in fact, have two schools to govern and conduct; his time and attention will therefore be divided, alternately occupied with the peculiar concerns of each, and frequently employed in reconciling conflicting interests. The whole system of administration for the two schools, will be more or less controlled or influenced, by the inconvenient and unnecessary relations in which they are placed to each other.

The advantages and disadvantages here enumerated, as attending the union of the two divisions of the course of military instruction at the same school, are obviously too different in their kind to admit of being compared; nor is it necessary that they should be. The expense attending the separate establishment of a school of application, might be offered as a reason for rejecting it altogether; but by no means for uniting it to the elementary school, when the operations of both would be obstructed in consequence of so doing, and their ultimate success rendered more than doubtful.

Among the advantages that will be derived from the establishment of a school of application are, the means it will afford of providing for other departments of national service, besides those which have been mentioned; and by locating it immediately under the eyes of the government, the measures necessary to enlarge, or to adapt it to the particular objects in view, will be more readily ascertained, and applied with greater certainty of effect. The necessity of this institution will become urgent, in the event of one or more additional elementary schools being created. It will then be expedient, for those very reasons of economy which now form the only objections that can be opposed to it; and it will be necessary, because it will enable the respective candidates for the engineer, artillery, and topographical corps, to be assembled at the same school, and to receive in common their last degree of instruction; and because, that, by no other means, can that uniformity in the instruction and duties of each of these arms be attained, which is essential to their perfection.

We are, therefore, of opinion, that a school of application is decidedly necessary to the military service of the country; that, to be rendered efficient, it ought to be separate from all immediate connexion with any other institution; and that it should have a central location, and as little removed as possible from under the observation of government.

Which is respectfully submitted to the honorable J. C. Calhoun, Secretary of War.

(Signed) BERNARD,
Brigadier General.

WM. M'REE,
Major Engineers.

TABLE

Of a course of Instruction for Officers of the various Arms of an Army.

The course of Instruction necessary for the Officers of Infantry, Artillery, Engineers, and Topographical Corps.

Division of Instruction, common to Infantry, Artillery, Engineers, and Topographical Corps.

Mathematics	Arithmetic, including Logrithms Geometry Algebra Plane Trigonometry Mechanical Powers	1 Professor.
Natural and Experimental Philosophy	Of Bodies Laws of Motion and Forces, Gravity and Attraction, &c. Properties and Theory, of Air, Water, Light, Heat, &c. Theory of Electric, Galvanic, and Magnetic Fluids Geology Elements of Astronomy	1 Professor.
Chemistry	Animals, Vegetables, and Mineralogy	1 Professor.
Descriptive Geometry and Fortification	Elements of Descriptive Geometry Castrametation, and Field Fortification Attack and Defence of Field Fortifications, and Retrenched Posts, &c. Military Reconnoitrings	1 Professor.
Artillery	Elements of Artillery Garrison and Field Services, of Artillery, &c.	1 Instructor.
Infantry	Drill of the Soldier, School of the Platoon, Battalion, Evolutions of the Line, &c. Elements of Grand Tactics, and Strategy	1 Instructor.
Drawing	Human Figure, Landscape, and Topographical Delineations	1 Master.
French Language	- - - - - - -	1 Master.
Riding and Sword Exercise	- - - - - - -	1 Master.

Division of Instruction necessary to the Artillery, Engineers, and Topographical Corps.

Mathematics	Conicsections Spherical Trigonometry Fluxtions Mechanics Application of Fluxtions and Mechanics to Machines	1 Professor.
Descriptive Geometry and Fortification	Application of Descriptive Geometry to Machines and to Fortifications Fortification (permanent) of Places, Seacoasts, and Retrenched Camps Attaque and Defence of Fortresses, &c. Mines Construction of Works, of Fortifications and Military Edifices	1 Professor.
Artillery	Constructions of Small Arms, Cannon, Mortars, Howitzers, &c. Gun Carriages, Caissoons, &c. Service in Sieges, in the Field, &c. &c. Preparation of Munition of War, Fire Works, &c.	1 Professor.
Topography	Application of Descriptive Geometry, &c. to the projection of Geographical Charts. Geodesy Topographical Surveys and Representations of Ground Knowledge and Practice of Instruments, employed in the operations of Topography, Geography and Geodesy	1 Professor.

NOTE.—This presents only the heads of instruction; an analysis of each, would enlarge the table, to a volume.