

**ELEMENTS OF MILITARY
SCIENCE: FOR THE USE OF
STUDENTS IN COLLEGES
AND UNIVERSITIES**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649571994

Elements of Military Science: For the Use of Students in Colleges and Universities by James S. Pettit

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JAMES S. PETTIT

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ELEMENTS

—OF—

MILITARY SCIENCE

REVISED EDITION

For the Use of Students in Colleges and
Universities

BY
JAMES S. PETTIT
Captain First United States Infantry

NEW HAVEN:
THE TUTTLE, MOREHOUSE & TAYLOR PRESS
1895

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PREFACE.

Upon taking charge of the Department of Military Science at Yale University, the first difficulty encountered was the lack of a suitable text-book, one which was elementary and progressive, and at the same time sufficiently technical and advanced to appeal to the interest and ability of the students in this Department. This little work is the result of an effort to supply the deficiency.

It is, of course, largely a compilation. Military men, in common with other scientific men, are essentially borrowers, and I acknowledge fully my indebtedness to the works and authors mentioned below :

- Col. Maillard—Elements de la Guerre.
- Rustow—La Petite Guerre.
- Blumé—Strategie.
- Prof. Mercur—Elements of the Art of War.
- Col. Derrecagaix—La Guerre Moderne.
- Woolwich—Text-book of Fortifications, 2 vols.
- Precis of Modern Tactics—Pratt.
- Field Artillery—Pratt.
- Col. Robert—"Tactique de Combat," etc., 2 vols.
- Jomini—Art of War.
- Letters on Infantry, Hohenlohe.
- " Cavalry, "
- " Artillery, "
- Sir Ed. Hamley.
- Armies of To-day—Harper Bros.
- Maj. Henderson.
- Col. Clerry.
- Col. Hozier.
- Capt. Shaw.
- Col. Dyke.
- Memoirs of Gens. Grant, Sherman and Sheridan.
- U. S. Drill Regulations.
- Capt. Hensch—Tactique d'Aujourd'hui.
- Current Military Journals and Periodicals, and to Lient. Alex. Dyer, Fourth U. S. Artillery, for valuable suggestions.
- Col. Brackenbury.
- Wheeler's Art of War.
- Aide Memoire De l'Officier d'Infanterie.



CHAPTER I.

INTRODUCTION.

Before entering upon a course of study in any branch of science, it is well to take a preliminary survey of the subject, with a view to getting some idea of its extent, its main subdivisions and ramifications and the sequence in which they should be considered.

In the study of a physical science we start with the preliminary definitions; we then proceed to the elementary principles upon which it is based, and through these to their combinations, and up to the more occult problems, passing finally to the application of the deduced laws to known phenomena.

Military science should be studied in the same way. It is as truly a science as chemistry or philosophy; it makes all of the physical sciences its handmaidens, and even extends into the domains of law, politics and religion—chemistry, mechanics, light heat, sound, electricity and hydro-dynamics are necessary in some department of military science.

I shall, then, endeavor to follow the methods employed in instruction in other scientific studies, starting with elementary ideas and ending with an illustration of the application of the principles in some of the great campaigns or battles of modern times.

MILITARY SCIENCE.

The characteristics of a good soldier are, the love of country, subordination, confidence in his superiors, fortitude, temperance and a robust constitution.

An officer must, in addition, possess an accurate knowledge of military science, and an intimate acquaintance with the details of his own arm of the service. He must be ready to make any

personal sacrifice, even to his life, if the success of his cause demands it.

A general officer must in addition to the above, be familiar with the capabilities and proper use of all arms of the service and have a knowledge of the principles of strategy. The soldier's proudest possessions are his honor, his courage and his unselfishness. These are the qualities upon which great nations are founded; war is not wholly evil, then, since it fosters these noble qualities, and history informs us that decay quickly comes upon a nation that has lost its love for martial glory and the powers of arms.

War is a science and an art, as a science it organizes and administers the affairs of armies and puts them into action. The art lies in the application of the principles laid down in the science. War is an experimental science; its rules are based upon the experiences of past wars and upon observations made in time of peace. Great generals have furnished the facts upon which lesser lights have based the science. The study of the military history of great campaigns is an absolutely necessary part of a soldier's education; it is the most fruitful of all branches of military knowledge; its lessons are inexhaustible.

Military science comprises all knowledge necessary to the preparation for and the carrying out of war.

Its subdivisions are not sharply defined, but I will assume the following as sufficiently comprehensive.

1 Organization	{ Line	{ Artillery.	/	1 Adjutant general and aids.
		{ Infantry.	/	2 Quartermaster's department.
		{ Cavalry.	/	3 Subsistence department.
	{ Staff	- - - - -	/	4 Ordnance department.
2 Military administration			/	5 Military law.
3 Logistics			/	6 Paymaster's department.
			/	7 Engineer department.
			/	8 Medical department.
			/	9 Signal corps.
			/	10 Inspector general's department.
4 Tactics of	{ Security	{ Outposts	} for	{ Infantry } Separate
	{ Marches	{ Advance Guard		{ Cavalry } and
	{ Supply	{ Rear Guard		{ Artillery } Combined.
	{ Camp	{ Convoys		
	{ Combat	{ Escorts		
5 Strategy				{ 1 Field works.
6 Engineering		{ Fortification		{ 2 Permanent works.
		{ Reconnaissance		