UNITED STATES MILITARY ACADEMY

WEST POINT • NEW YORK

1965–1966 CATALOGUE

ONE HUNDRED SIXTY-FOURTH YEAR

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MISSION OF THE MILITARY ACADEMY

The mission of the United States Military Academy is to instruct and train the Corps of Cadets so that each graduate will have the qualities and attributes essential to his progressive and continued development throughout a career as an officer of the Regular Army.

Inherent in this mission are the following objectives:

1. Mental—To provide a broad collegiate education in the arts and sciences leading to the Bachelor of Science degree.

2. Moral—To develop in the cadet a high sense of duty and the attributes of character with emphasis on integrity, discipline, and motivation essential to the profession of arms.

3. Physical—To develop in the cadet those physical attributes essential to a lifetime career as an officer of the Regular Army.

4. Military—To provide a broad military education rather than individual proficiency in the technical duties of junior officers. Such proficiency is, of necessity, a gradual development, the responsibility for which devolves upon the graduates themselves and upon the commands and schools to which they are assigned after being commissioned.

THE HONOR CODE

The development of character and integrity in the members of the Corps of Cadets is a basic objective of the Academy. The Cadet Honor Code and System are officially recognized as primary means through which this objective is attained.

From the earliest days of recorded history it has been universally recognized that unquestioned integrity is an essential trait of the military leader. Colonel Sylvanus Thayer, the father of the Military Academy, determined that the Academy should produce leaders whose foundation was built on honor, integrated with a strong sense of discipline and excellence of knowledge. Since his day the role of honor has been maintained by the Corps and fostered by the authorities of the Academy. General Douglas MacArthur, shortly after World War I, was instrumental in formalizing the Honor Code and System and making them officially sanctioned means of building character. Today, the Honor Code is a most cherished possession of the Corps of Cadets and of the "Long Gray Line" of graduates.

The Honor Code has never outgrown its original and simple meaning—that a cadet will not lie, cheat, or steal. The Code requires complete integrity in both word and deed of all members of the Corps and permits no deviation from those standards. Not only is the cadet expected to tell the truth on all occasions, but also to avoid quibbling or evasive statements. In the classroom a cadet does his own work. Under no circumstances will he take unfair advantage of his classmates. The maintenance of these high honor standards is the responsibility of each cadet, and each cadet is expected to report himself or any other cadet for violations of the Honor Code. These exacting standards are rigidly enforced, and any intentional violation by a cadet is cause for separation from the Military Academy.

The Honor System is an integral part of the Honor Code and is the method by which the Honor Code is applied in the highly organized life of a cadet. As an example, cadets may account for their absence from their rooms simply by marking their absence cards. This marking is accepted as the cadet's word that his absence is authorized, and that he will take no advantage of this privilege. Cadets are also often required to indicate by signature that they have complied with official instructions. These devices are part of the Honor System that requires the cadet to make decisions based on his sense of honor many times a

day during his 4 years at the Academy. In this respect the Honor System serves as a training vehicle to instill within each cadet the desire to abide by the precepts of the Honor Code.

For its success the Honor Code depends upon the Corps. The Cadet Honor Committee, elected by the Corps, monitors the operation of the Honor Code and System. It explains to the Corps the principles upon which the Code is based, and guards against practices inconsistent with that Code. Thus, this Committee insures that the high standards of the Code are maintained and transmitted, undiluted, from class to class. Its procedures follow a set pattern, and its members have responsible authority. The Committee has no punitive powers, its functions being entirely investigative and advisory. If the Committee reports a cadet to the Commandant for an honor violation, the Commandant takes appropriate official action to insure that the standards of the Code are upheld while protecting the rights of the cadet in accordance with the provisions of the Uniform Code of Military Justice.

One of the Honor Committee's most important tasks is to supervise the indoctrination of the New Cadets in the principles of the Code. This indoctrination is both intensive and continuous and includes informal discussions, as well as scheduled lectures. Though New Cadets do not take an active part in the Honor System until they have received adequate instruction, they are expected to adhere to the same standards as other cadets under the Honor Code. It is soon apparent to New Cadets that all members of the Corps share an inherent pride in upholding the exalted position of the Code. This observation, coupled with the indoctrination program, raises the varying standards of honor of an entering class to the uniformly high plane which the Corps has established, and expects from its members.

The devotion of the Corps to the Honor Code is especially strong. In the opinion of both cadets and graduates, it is a particularly vital part of their education, training, and character-building at the Academy and makes a lasting impression on them.

ADMINISTRATION

The United States Military Academy is under the general direction and supervision of the Department of the Army. The Secretary of the Army has designated the Chief of Staff of the Army as the officer in direct charge of all matters pertaining to West Point.

The immediate government and military command of the Academy and the military post at West Point are vested in the Superintendent. The Dean of the Academic Board coordinates the activities of the academic departments and advises the Superintendent on academic matters. The administration and military training of the Corps of Cadets are under the responsibilities of the Commandant of Cadets, who is also head of the Department of Tactics.

SUPERINTENDENT:
Maj. Gen. James B. Lampert, USA.

CHIEF OF STAFF:
Col. Ernest P. Lasche, GS.

AIDE-DE-CAMP:
Capt. Francis W. Matthews, Inf.

SECRETARY OF THE GENERAL STAFF:
Lt. Col. John H. Madison, Jr., GS.

DEAN OF ACADEMIC BOARD:
Brig. Gen. John R. Jannarone, USA.

ASSOCIATE DEAN:
Lt. Col. Dallas L. Knoll, Jr., CE.

COMMANDANT OF CADETS:
Brig. Gen. Richard P. Scott, USA.

DEPUTY COMMANDANT:
Col. John G. Wheelock, III, Arm.

INFORMATION OFFICER:
Lt. Col. Robert E. Kren, Arty.

DIRECTOR OF ADMISSIONS AND REGISTRAR:
Col. Robert S. Day, USA.

CHIEF, ADMISSIONS DIVISION:
Lt. Col. George A. Garman, Jr., Arty.

HISTORY OF WEST POINT

The United States Military Academy was established officially on 16 March 1802 at West Point, a key Hudson River military fortress during the Revolution, and was opened on 4 July 1802.

Two compelling reasons made the formation of an American military academy at that time both logical and necessary: the experience of the Revolutionary War; and the ominous international political situation when Thomas Jefferson became President in 1801.

The experience of the Revolutionary War, during which America had to rely in large part on foreign drillmasters, artillerists, and trained engineers, made the military and political leaders of the day energetic backers of a military academy. The earliest proposal was in 1776 by Col. Henry Knox who recommended "An Academy established on a liberal plan . . . where the whole theory and practice of fortification and gunnery should be taught." The papers of Gen. Benjamin Lincoln, Gen. Jedediah Huntington, Secretary of War Timothy Pickering, John Adams, Alexander Hamilton, and George Washington mention time and again the need for an academy. In his annual messages to Congress, Washington always included a plea that the Congress provide facilities for the study of military art. In 1797 in his eighth annual message, for example, he said:

> The institution of a military academy is also recommended by cogent reasons. However pacific the general policy of a nation may be, it ought never to be without a stock of military knowledge for emergencies. . . . [The art of war] demands much previous study, and . . . [knowledge of that art] . . . in its most improved and perfect state is always of great moment to the security of a nation. . . . For this purpose an academy where a regular course of instruction is given is an . . . expedient which different nations have successfully employed.

The military academies that "different nations" had "successfully employed" and that Washington likely had in mind were England's Royal Military Academy at Woolwich, founded in 1741, and France's Ecole Polytechnique, founded in 1794. The Royal Military College at Sandhurst in England was founded the same year as our own Academy, 1802. And Washington quite obviously realized that complete independence for America called not only for the severance of political ties from England and the formation of an independent political state, but also for independence in every facet of national life and culture: in law, religion, agriculture, shipbuilding, trading, manufacturing, and military

science. How deeply he continued to feel about the need for an Academy appears in a letter written 2 days before his death and addressed to Alexander Hamilton:

> The establishment of an Institution of this kind, upon a respectable and extensive basis, has ever been considered by me as an object of primary importance to this country; and while I was in the Chair of Government, I omitted no opportunity of recommending it, in my public speeches and other ways, to the attention of the Legislature.

The second compelling reason for the immediate establishment of an American military academy was the ominous international political situation of 1801–02. The previous two decades had been troublesome ones. The weak and ineffectual Articles of Confederation and Perpetual Union, trouble with the Barbary pirates, Shays' rebellion, boundary disputes, frontier battles, currency quarrels; these had plagued the young nation, and now it was threatened by the danger of involvement in the complexities that were coming as an aftermath of the French Revolution of 1789. Public opinion moved toward more energetic national government and better trained armed forces.

So it was that Congress, by its Act of 16 March 1802, authorized a Corps of Engineers, set its strength at 5 officers and 10 cadets, and provided that it be stationed at West Point in the State of New York and constitute a Military Academy.

The garrison site of West Point, consisting of 1,795 acres purchased from Stephen Moore in 1790, had been occupied by the Army since 1778. Hence barracks and other buildings, while inadequate, were available for housing and instruction, and Maj. Jonathan Williams, grandnephew of Benjamin Franklin and Chief of the Corps of Engineers, who had been appointed as the first Superintendent, was able to open the Academy on 4 July 1802 with 10 cadets present.

The initial purpose of the Academy was to train military technicians for all branches of the military service, to encourage the study of military art nationally and thus raise the level of training of the militia, and to encourage the practical study of every science. This last, it should be noted, at a time that many other American academic institutions looked at the sciences with suspicion and hostility. How well the Academy succeeded in its purpose for the first 10 years of its existence was summarized by the most authoritative historian of that period of American life, Henry Adams. In his History of the United States (9 vols., 1889–91), covering the Jefferson and Madison administrations, Adams offers the tribute that American scientific engineering ". . . owed its efficiency and almost its existence to the military school at West Point established in 1802."

In the year 1812 the growing threat of war with England impelled Congress to pass the act of 29 April 1812 by which the strength of the Corps of Cadets was increased to 250, the academic staff enlarged, and the cadets placed under the discipline of published regulations. A chaplain was authorized who in addition to his religious duties was "to officiate as Professor of Geography, Ethics, and History." The act required also that the cadets be taught "all the duties of a private, a noncommissioned officer, and an officer." This requirement, says Emory Upton in The Military Policy of the United States (1904), was the "key to the character for efficiency and discipline which the graduates have since maintained."

The record of the War of 1812 shows that the Academy graduates served their country well. A quarter of the more than 100—all under 30 years of age—who saw action were killed or wounded; and not one of the fortifications constructed under their direction was captured. Henry Adams was appreciative of their technical skill. "During the critical campaign of 1812," he wrote, "the West Point Engineers doubled the capacity of the little American army for resistance."

The experience of the War of 1812, that gave the Nation new self-assurance, affected the Academy's educational aims in the period of peace which followed. No longer was the enemy an immediate threat on our borders; American nationality had been firmly established. National interest called now for canals, roads, railroads, and the exploitation of the soil and its mineral wealth. The accurate mapping of rivers, the deepening of their channels, the constructing of lighthouses and beacon lights: these were needed to make communication easier. And the preliminary work of prospecting and surveying had to be done.

That the Academy graduates of this era were men who through force of character and training could assume leadership in the performance of these tasks was due largely to the genius of Col. Sylvanus Thayer, Superintendent from 1817 to 1833. The "Father of the Military Academy" had one ideal before him: to produce men who would be trained and worthy leaders. He demanded of the cadets excellence of character and excellence of knowledge, the two integrating qualities of such leadership. But he knew that to achieve his ideal he must master and guide the day-to-day routine of the Academy, and so it was that he let no detail of character training or discipline, of curriculum content, of textbooks, of teaching methods, of extracurricular activities, of physical plant escape his attention.

Thayer grasped at once the need of the country for engineers, and therefore made courses in civil engineering the core of the curriculum.

Under his direction, instruction in that subject eventually included the properties, preparations, and use of materials for construction; the art of construction generally, including decorative architecture; the manner of laying and constructing roads; the construction of bridges; the principles regulating the removal of obstructions impeding river navigation; the survey, location, and construction of canals and railroads; and the formation of artificial and the improvement of natural harbors.

A list of the Academy's achievements in the field of civil engineering that can be attributed to the farseeing genius of Thayer would include trigonometrical and topographical surveying; methods of triangulation; magnetic declination; and the systems used in locating, surveying, and dividing the public lands of the United States. Francis Wayland, the president of Brown University from 1827 to 1855, said in 1850 in a report to the Corporation of Brown University that West Point graduates did "more to build up the system of internal improvement in the United States than [the graduates of] all other colleges combined."

To provide objective criticism of his work, Thayer had the aid of a Board of Visitors. A regulation for the Government of the Military Academy, approved by Secretary of War William H. Crawford on 1 July 1815, provided for the appointment of such a Board to consist of five "competent gentlemen," with the Superintendent as President, who should attend at each of the annual and semiannual examinations and report thereon to the Secretary. This excellent custom of having a Board of Visitors has lasted to the present day. From the beginning their criticism was pertinent and helpful; nor is this surprising when the long list of those who have been members is scanned, for thereon the names of men like Edward Everett, George Bancroft, George Ticknor, Horace Mann, and Daniel Coit Gilman appear. Thayer knew the value of the intelligent lay point of view and welcomed the Board's comments on his curricular shift to civil engineering, his innovations in educational method, and his system in general.

His innovations in educational methods insured that the cadets not only learned but retained their subjects. Basically, he demanded that the cadets develop habits of mental discipline and maintain standards of scholarship that have grown in importance the more they have been tested through the years. He emphasized habits of regular study, he laid down the rule that every cadet had to pass every course—any deficiency had to be made up within a specified time or the cadet would be dropped. To carry out these rigorous standards he limited the classroom sections to from 10 to 14 members; he rated these sections in

order of merit and directed that cadets be transferred from one to the other as their averages rose or fell.

These methods and standards of Thayer's system are still used at the Academy, and Thayer's insistence on leadership integrated by excellence of character and excellence of knowledge has been the cornerstone of the Academy's training since his day. Emerson, visiting West Point in 1863, spoke of the "air of probity, of veracity, and of loyalty" the cadets had; and when in 1898 the present coat of arms was adopted, the motto thereon of "Duty, Honor, Country" was but a later generation's attempt to put Thayer's ideal into words.

To the casual student it might seem that until about 1860 West Point was filling the almost dual roles of national military academy and of national school of civil engineering. But despite the curricular emphasis on civil engineering and the renown of her graduates in that field, the Academy never forgot her deepest and most abiding obligation to the Nation: to send forth graduates trained in the art and science of war. That the obligation was fulfilled is attested for these early years by the records of the Mexican and Civil Wars. The record of the Mexican War is told best in the words of Gen. Winfield Scott:

> I give it as my fixed opinion, that but for our graduated cadets, the war between the United States and Mexico might, and probably would, have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns we conquered a great country and a peace, without the loss of a single battle or skirmish.

The record of the Civil War shows that the Confederacy used graduates whenever and wherever possible; the Union, in the beginning, used "political" generals. Defeat after defeat proved the need for professionally trained officers and, in the last year of the war, all senior commanders of the Union armies were Academy graduates. Grant, Lee, Sheridan, Jackson, to name but a few on both sides, were all from West Point.

After the Civil War, changing conditions necessitated a shift in the Academy's curriculum away from the emphasis on civil engineering. The first Morrill Land-Grant Act of 1862, granting Federal land to each state "for endowment, support, and maintenance of at least one college where . . . military tactics . . . [and] . . . such branches of learning as are related to agriculture and the mechanic arts [shall be taught]," enabled American education to be enormously expanded. New technical and engineering schools, supplementing those that had been founded in the second quarter of the nineteenth century, made it

possible for West Point to drop its strong emphasis on engineering subjects. But even had these new schools not come into being, the Academy would have found it impossible to keep on producing both adequately trained Army officers and adequately trained engineers. The tremendous expansion of the body of scientific knowledge during these years—the last half of the nineteenth century—was enforcing specialization in all technical fields. And since the science of war likewise expanded greatly it became obvious that the Army officer would need specialization in his particular branch of service.

The Academy met these changed conditions by severing its direct relationship with the Corps of Engineers; from 1866 on it was no longer mandatory that the Superintendent be a member of that Corps. To take care of officer-specialization demand, several Army post-graduate schools were set up, and West Point gradually came to be looked on as only the initial step in the Army officer's education. As the Academy approached its centennial, the military objective of the curriculum came to be the giving of general instruction in the elements of each military branch.

After its centennial, in 1902, the Academy underwent a thoroughgoing structural renovation and became known as the New West Point. Coincident with this reconstruction, Gen. Albert L. Mills, the Superintendent, had the entire curriculum, military and academic, reassessed. As a result, military instruction was transformed from a series of mechanical drills to practical training in minor tactics and field work. Complete correlation was developed between instruction and actual field conditions. One of Mills' special hobbies was English; he believed that the Army officer should be able to express himself clearly in speech and writing. To that end, he strengthened greatly the course in English. A gradual liberalization of the curriculum went on until the outbreak of World War I.

World War I tested and proved, as never before, the soundness of the Academy's curriculum and training. Although in order to meet the sudden and great demand for trained officers the course was shortened and a number of classes graduated early, the qualities and abilities of the graduates remained high.

After the close of the war the Academy's further development was placed in the hands of Gen. Douglas MacArthur, who became Superintendent on 12 June 1919. General MacArthur's primary concern was an adaptation of the curriculum in terms of the recent war. It was known, for instance, that the concept of total war, new in military his-

tory, required cadets to have a knowledge of national production, transportation, and social problems; that something of the new developments in weapons and tactics had to be incorporated into cadet instruction; and that shortcomings in the officers' physical development, seen clearly in the stress of battle, made a longer and more vigorous physical training program necessary. But at the same time it was realized that the tremendous advances in the art and science of war, made under the pressure of actual conflict, presaged further development of Army postgraduate schools, and hence a growing emphasis upon a more broadly conceived basic curriculum at West Point. The belief was reached that the Academy would serve best by giving the cadets a combination of general and technical education, in this way providing a solid foundation for a professional military career.

The part of the curriculum General MacArthur changed with the greatest vigor was that relating to physical education. He believed firmly that physical fitness was a basic requirement of an officer; and he planned a strenuous program of compulsory gymnastic instruction complemented by an intramural program of 14 sports in which every cadet had to take part. The wisdom of his foresight has been reflected ever since in the excellent physical condition of all cadets at all times.

Soon after General MacArthur's incumbency the policy of a liberal as well as a technical education got renewed emphasis by the introduction of a course in economics and government under the Professor of English and History. In 1926 the Department of English and History was reorganized into the Department of Economics, Government, and History; and a separate Department of English established. In succeeding years curricular reforms took place in modern languages, natural philosophy, and mathematics.

All phases of training were greatly intensified during the rearmament years, 1939–41; and the excellence of the curriculum and the methodology of the Academy was clearly demonstrated by the performance of its graduates in World War II.

But much was learned from World War II and Korea. A series of studies and reviews by distinguished educators and military leaders led to revised concepts of what professional military education should mean. A comprehensive analysis conducted from 1956 to 1960 of the entire curriculum and training program resulted in increased emphasis on modern technological advances and the increasingly complex aspects of national security and international relations. Related courses have been coordinated to bring their direction and emphasis into common focus.

Because of the increased technological character of the weapons and techniques of war, the coverage of chemistry, nuclear physics, electronics, and basic astronautics has been increased. Similarly, the assignment of officers early in their service to friendly foreign countries in military assistance advisory capacities and the greatly increased participation of officers later in their careers in international and national agencies concerned with national security policies has led to improved coverage of geography, history, government, economics, and ideologies of countries throughout the world. In order to challenge each cadet and to enable him to proceed as rapidly as his capabilities permit, the number and scope of advanced courses were expanded, and in order to capitalize on the aptitudes and interests of individual cadets, an elective program was introduced. Cadets of proven aptitude and abilities were authorized to pursue courses in addition to those prescribed. In 1964 the opportunity of cadets to participate in the electives program was doubled. Every cadet can now choose and pursue an elective in each semester of his last 2 years at the Academy. Thus he can pursue at least 4 courses of his own choice. He can choose any 4 of the elective courses offered; he can choose those lying in broad areas of elective emphasis or he can follow a related or sequential program in more defined educational areas.

The academic and military training program is a vital, everchanging one that is continuously examined and adjusted to the changing times, and yet the Academy builds always on the cornerstone of the Thayer system: leadership integrated by excellence of character and excellence of knowledge.

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FACILITIES

General

The military reservation at West Point consists of 16,011 acres. The original purchase of 1,770 acres was made from Stephen Moore in 1790; additional purchases made in 1824, 1879, 1889, 1903, 1905, and 1909 brought the acreage to 3,570.

From 1938 to 1945 the acreage was more than tripled by the acquisition of 11,401 acres to allow for the development and expansion of training facilities. On 1 December 1959 a gift of 1,040 acres by Mr. and Mrs. Gene Leone increased the holdings to the present total.

Of this total, 2,520 acres are the Post proper; they comprise the area lying south of Storm King Mountain between the old Storm King Highway and the Hudson River. Access to the Post proper is by three gates: the Thayer Gate (South Gate), from Highland Falls; the Lee Gate (North Gate), from the old Storm King Highway (Route NY 218); and the Washington Gate (West Gate), from the new Storm King Highway (Route US 9W).

The expansion since 1938 has been toward the west almost as far as Central Valley, N.Y., and toward the south almost as far as Route US 6. Route NY 293 runs from southwest to northeast on about the midline of the entire reservation.

Buildings

ADMINISTRATION BUILDING (1909). Designed by Cram, Goodhue, and Ferguson in Gothic style. It is located on Thayer Road and contains the offices of the Superintendent, the Dean, the Academic Board, the General Staff, the Director of Admissions and Registrar, the office of the cadet hostess, and the Information Office. The USMA Archives also occupy a portion of the building.

BARTLETT HALL (1913, 1938). Formerly the East Academic Building, it is named in memory of Col. William H. C. Bartlett, Professor of Natural and Experimental Philosophy, 1836–1871. The original building, 1913, was designed by Cram, Goodhue, and Ferguson; the east wing, 1938, by Paul Philippe Cret. Both are in Gothic style. Located between Thayer and Cullum Roads, north of the Administration Building. In addition to classrooms and laboratories it contains the offices of the Departments of Electricity, Mechanics, and Physics and Chemistry.

CADET CHAPEL (1910). Designed by Cram, Goodhue, and Ferguson in Gothic style. Located west of, and 300 feet above, the cadet barracks, it dominates the Post proper. The stained glass window over the altar has 27 panels, each depicting a militant Biblical character. The window at the entrance pictures The Revelation of St. John the Divine; it shows also the designs of the Medal of Honor and the Distinguished Service Cross. The windows in the nave are gifts of the several classes; the flags hanging in the nave were used in the War of 1812, the Mexican, Civil, and Spanish-American Wars. The Chapel Organ is the largest church organ in the Western Hemisphere, and contains over 14,000 pipes. The seating capacity is 1,500.

CENTRAL BARRACKS (1851, 1882, 1921). The designers of the 1851 and 1882 sections are not known, although it is likely that Maj. Richard Delafield had much to do with the design of the 1851 section and a Board of Engineers with the 1882 section. Capt. A. B. Proctor, Quartermaster Corps. designed the 1921 section. All are in Tudor style. The three sections form the three sides of a rectangle of which the East Barracks, located at Thayer and Jefferson Roads, forms the fourth side. The headquarters of the Commandant of Cadets is in a wing at the eastern end of the south section.

CHAPEL OF THE MOST HOLY TRINITY (1900). Designed by Heins and La Farge in Gothic style. Located at Mills and Washington Roads, on a sharp rise of ground, this Roman Catholic chapel is a copy of the St. Ethelreda Carthusian abbey parish church in County Essex, England. The Chapel, expanded in 1958 according to plans prepared by architect Alfred Reinhardt, now has a seating capacity of 550.

CULLUM MEMORIAL HALL (1899). Designed by McKim, Mead, and White in Greco-Roman style. Located on the east side of Cullum Road, across from Doubleday Field, and named after Major General George W. Cullum, USMA 1833, Superintendent 1864–1866, who gave it to house trophies of war and "statues, busts, mural tablets, and portraits of distinguished deceased officers and graduates of the Military Academy."

EAST BARRACKS (1895). Formerly the West Academic Building, located on Thayer Road opposite Bartlett Hall, designed by Richard M. Hunt in Gothic style. It was converted to cadet barracks in 1958–1959.

FIELD HOUSE (1939). Designed by Paul Philippe Cret. Located on Tower Road southwest of the West Shore Railroad. Used for indoor athletics and graduation ceremonies.

First Class Club or The Compound (1837). Benton, Benet, Crozier Halls, formerly known as the Ordnance Compound, named for Colonel James G. Benton, USMA 1842, first Professor of Ordnance and Gunnery; for Major General Stephen Vincent Benet, USMA 1849, the second Professor of Ordnance and Gunnery; and for Major General William Crozier, USMA 1876, a Chief of Ordnance, serves as an activity center for First Classmen and their guests.

Grant Hall (1931). A wing of the South Barracks on Thayer Road directly across from the Administration Building. It is the cadet reception hall.

Gymnasium (1910, 1933, 1937, 1947). The East Gymnasium (1910) was designed by Cram, Goodhue, and Ferguson; the North Gymnasium (1933) by the Quartermaster Corps; the West Gymnasium (1937) by Paul Philippe Cret; and the Central Gymnasium (1947) by Delano and Aldrich. All are in Gothic style. The gymnasium buildings are west of the Superintendent's quarters and north of New North Barracks.

Hospital (1923, 1934, 1960). New buildings were constructed in 1923, William Gehron, architect, and in 1934, York and Sawyer, architects; extensive alterations were done in 1960. Located on the west side of Thayer Road, south of New South Barracks.

Laundry (1956). Designed by John and Drew Eberson; located in the north portion of Post off Washington Road near Washington Gate.

Library (1964). Designed by Gehron and Seltzer of New York in granite-faced Gothic style. Located at Jefferson and Cullum Road on the former site of the old Library which had outlived its usefulness. The new building will accommodate 450,000 books, reading rooms, seminar rooms, microfilm and audio-visual facilities, as well as space for military and rare book collections.

Michie Stadium (1924, 1963). The football stadium between Delafield and Mills Road, west of the reservoir, designed in 1924 by the Osborn Engineering Co., and in 1963 by Roberts and Schaefer Co., Inc. Named for 1st Lt. Dennis Mahan Michie, USMA 1892, Captain of the first West Point football team, killed in action at San Juan, Cuba in 1898. The seating capacity is 29,425.

Superintendent's Quarters (1820). Architect unknown. Designed in Colonial style, and located on Jefferson Road. Col. Sylvanus Thayer was the first Superintendent to live there. Directly to the north are the Commandant's Quarters at the southwest corner of Parke and Washington Roads.

New North Barracks (1939). Designed by Paul Philippe Cret in Gothic style. Located south of the gymnasium and west of North Barracks. Sometimes called West Barracks.

New South Barracks (1961). Designed by O'Connor and Kilham, in Gothic style. The new barracks, consisting of two buildings, are located on the site formerly occupied by the north wing of the Hospital. Completed in July 1962, they permit the Corps, for the first time in 40 years, to be housed two cadets per room.

Non-Commissioned Officers' Mess (1958). Located in the north portion of the Post off Washington Road, it was designed by Greenberg and Ames.

North Barracks (1908). Designed by Cram, Goodhue, and Ferguson in Gothic style. Located at Jefferson Road and Scott Place. The chaplain's office is on the ground floor in the southeast corner.

Old Cadet Chapel (1837). Architect unknown. Designed in Greco-Roman style. It was located originally where Bartlett Hall now stands; in 1911 it was moved to its present site at the entrance to the cemetery. The American artist, Robert W. Weir, professor of drawing at the Academy from 1834 to 1876, painted the mural, entitled "War and Peace," on the wall behind the altar. The chapel is used now for funeral services, and for Jewish religious services. The seating capacity is about 450.

Ordnance Automotive Laboratory (1939). Designed by Paul Philippe Cret in Gothic style. Located on Howard Road.

Post Chapel (1944). Constructed from a standard design used during World War II for chapels erected on military reservations. Located between Merritt Road and Biddle Loop. The seating capacity is about 325.

Power House (1909, 1945, 1947). The original building was designed by Cram, Goodhue, and Ferguson in Gothic style; the alterations of 1945 and 1947 were done by the Engineer Corps. Located just south of Thayer Hall on Cullum Road.

Smith Rink (1931). The indoor ice-skating rink, located on the east side of Mills Road south of the reservoir. It is named after Maj. Gen. William R. Smith, USMA 1892, Superintendent 1928–1932.

South Barracks (1931). Designed by William Gehron in Gothic style. Located at the southwest corner of Thayer and Brewerton Roads.

THAYER HALL (1958). This is an entirely new structure, built within the walls of the old Riding Hall. The building, designed by Gehron and Seltzer of New York, is of structural steel framing with reinforced concrete, completely air conditioned, and practically windowless. Besides administrative space for the Departments of English, Foreign Languages, Law, Mathematics, Military Art and Engineering, Military Psychology and Leadership, Ordnance, and Social Sciences, it includes 98 classrooms, two 200-seat writ rooms, two 200-seat map-problem rooms, an 800-seat auditorium, a 1,500-seat auditorium, a materials testing laboratory, and space on the first and second floors for the Museum which was formerly in the Administration Building. Roof parking for 200 automobiles also has been provided.

UNITED STATES HOTEL THAYER (1926, 1948). Designed by Caugey and Evans in Tudor style. Located on the east side of Thayer Road just north of the Thayer Gate. It is owned by the Government. Including the addition completed in 1948, there are accommodations for 500 guests.

UTILITIES BUILDING (1935). Designed by the Quartermaster Corps in Tudor style. Located at Ruger and Tower Roads. It contains the Post Exchange and the Commissary; and the offices of the Engineer, the Quartermaster, and the Transportation Officer.

WASHINGTON HALL (1929). Designed by William Gehron in Gothic style. Located on Jefferson Road between Central Barracks and North Barracks. It is the Cadet Dining Hall, and has a seating capacity of 2,500. The offices and drafting rooms of the Department of Earth, Space, and Graphic Sciences are on the fifth floor.

WEST POINT ARMY MESS (1903, 1963). The official name of the Officers' Club. Designed by McKim, Mead, and White in Classic style. Located on Cullum Road, south of Cullum Hall.

Monuments

AIR CADET MEMORIAL (1944). Located on Mills Road at the north end of Lusk Reservoir. Erected by members of the Classes of '43, '44, and '45 to the memory of Air Cadets of the Academy who lost their lives while undergoing flying training.

BATTLE MONUMENT (1897). Designed by Stanford White, executed by Frederick MacMonnies. Located at Trophy Point at the northern limit of the Plain, and a little to the west of Washington Monument. It is dedicated to the memory of soldiers and officers of the Regular Army killed in action in the Civil War.

DRINKING FOUNTAIN (1957). Located at the corner of Thayer and

Patton Monument

Jefferson Roads, it was presented to the Academy by the Class of 1915.

FRENCH CADET MONUMENT (1919). Presented by the cadets of L'Ecole Polytechnique. Located on The Parade directly opposite Central Barracks.

KELLEHER-JOBES MEMORIAL ARCH (1939). Located at the north entrance to Flirtation Walk; erected by the Class of 1941 in memory of two outstanding athletes, Cadets William P. Kelleher and Charles S. Jobes, who died during their Third Class year.

KOSCIUSZKO MONUMENT (1828). Designed by John H. Latrobe, USMA 1822. Located to the north of Fort Clinton. Given by the Corps of Cadets in honor of Col. Thaddeus Kosciuszko, who helped plan the fortifications at West Point during the Revolutionary War.

PATTON MONUMENT (1950). Dedicated to the memory of Gen. George Smith Patton, Jr., USMA 1909, and presented by the officers and men of the units he commanded. Located across Jefferson Road from the Library.

ROBINSON MEMORIAL (1940). Located on Mills Road, west of gymnasium, in memory of Col. Wirt Robinson, Professor of Chemistry, Mineralogy, and Geology.

SEDGWICK MONUMENT (1868). Dedicated to the memory of Maj. Gen. John Sedgwick, USMA 1837, killed at Spotsylvania, 1864. Made from cannon captured by his corps, it is located at the northwest corner of The Parade.

SHERIDAN MEMORIAL (1932). Located on Flirtation Walk, in a small cove northwest of Gee's Point. Erected by the Corps of Cadets in honor of Cadet Richard Brinsley Sheridan, Jr., who was fatally injured on the gridiron of Yale Bowl, 24 October 1931.

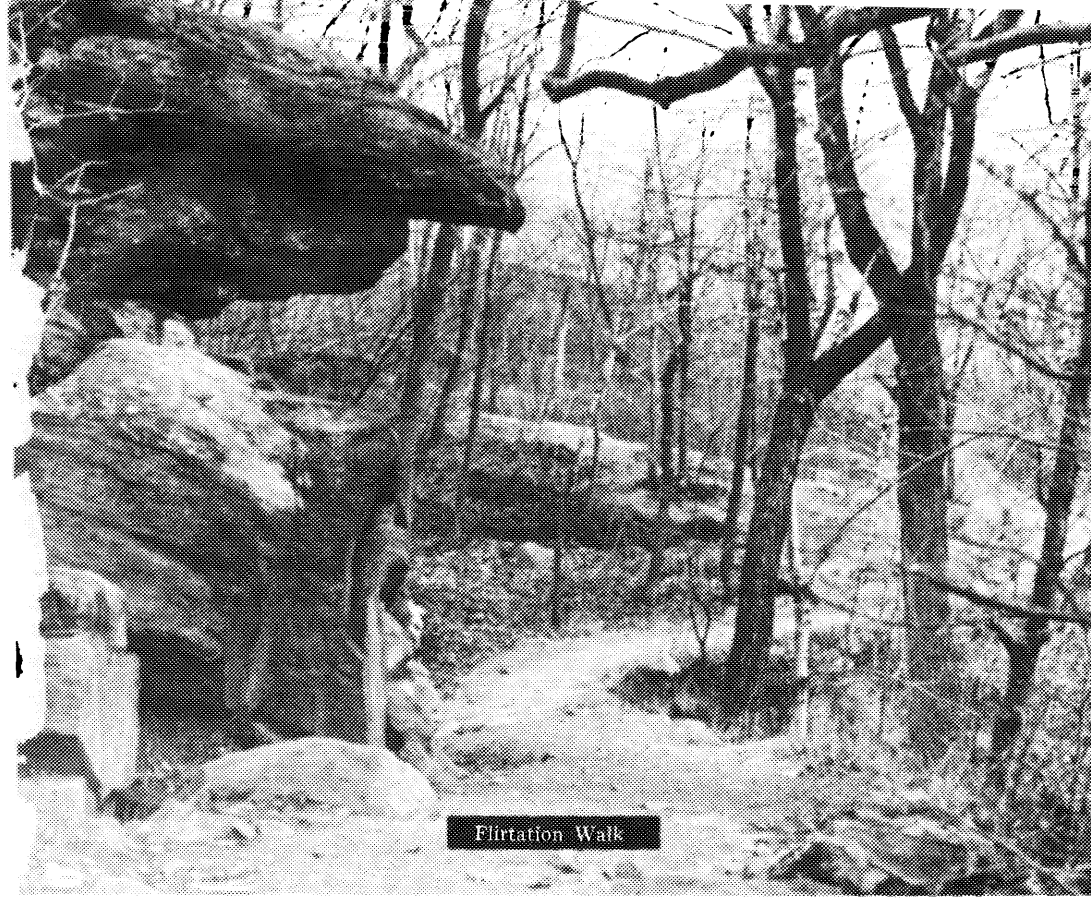
THAYER MONUMENT (1883). Dedicated to Col. Sylvanus Thayer, the "Father of the Military Academy." Located on The Parade directly across from the entrance to Washington Hall.

WASHINGTON MONUMENT (1916). Located in the circle at the corner of Cullum and Thayer Roads. It is a replica of the Washington Monument in Union Square, New York City.

Grounds

CAMP BUCKNER (1945). The summer training camp for the Third Class, located on the reservation five miles southwest of the Post proper, and known formerly as Camp Popolopen. Renamed in honor of Lt. Gen. Simon Bolivar Buckner, USMA 1908, killed at Okinawa in 1945.

CEMETERY (1816). Located at Washington and Ruger Roads.



Flirtation Walk

Among others, it contains the graves of Margaret Corbin, Revolutionary War heroine, and of Generals Scott, Custer, and Goethals.

CLINTON FIELD. Located immediately north of Doubleday Field and west of Fort Clinton. The name of the field derives from the Fort, named for a Revolutionary War general. Clinton Field was the site of the cadet's summer encampment from 1819 to 1942. It is used now for soccer, football, and lacrosse.

CONSTITUTION ISLAND. Donated to West Point in 1909 by Mrs. Russell Sage and Miss Anna B. Warner. About 280 acres, it is located opposite the north area of the Post proper. One end of the Great Chain, stretched across the Hudson to obstruct British navigation of the river during the Revolutionary War, was anchored in Martelaer's Rock, at the western point of the island.

DELAFIELD POND. The outdoor swimming pool, located on Delafield Road. Named after Maj. Gen. Richard Delafield, USMA 1818, Superintendent, 1838–1845 and 1856–1861.

DOUBLEDAY FIELD (1939). Baseball field, located between Thayer and Cullum Roads, east of The Parade. Named in honor of Maj. Gen. Abner Doubleday, USMA 1842, who is said to have laid out the first modern baseball diamond at Cooperstown, N.Y., in 1839.

FLIRTATION WALK. A foot trail extending three-quarters of a mile along the river from Cullum Road to Battle Monument and open only to cadets and their guests. It is probable that the early Chain Battery Walk is now included in Flirtation Walk.

FORT CLINTON (1778). Designed and begun by Lt. Col. Louis de la Radiere and completed by Col. Thaddeus Kosciuszko. Located at Cullum Road and Clinton Place. Originally called Fort Arnold, but after Arnold's treason in 1780 was renamed Fort Clinton, after Gen. George Clinton.

FORT PUTNAM (1778; partly restored, 1907–1910). Designed by Col. Thaddeus Kosciuszko and built by troops of Gen. Rufus Putnam. It is located on Mount Independence, 451 feet above tidewater, and is reached by foot trail from Mills Road.

GREAT CHAIN. The chain stretched across the Hudson from just north of Gee's Point to Martelaer's Rock on Constitution Island to obstruct navigation of the river by the British during the Revolutionary War. It was fastened in place on 11 April 1781. A number of the links are at Trophy Point.

HOWZE FIELD. Located directly south of Michie Stadium, and bounded by Mills Road on the east, by Howze Place on the south, and by Delafield Road on the west. A large recreation field, it was named in honor of Maj. Gen. Robert Lee Howze, USMA 1888, Commandant of Cadets, 1905–1909.

LUSK RESERVOIR (1898). One of the water supply reservoirs for West Point. It is located on Mills Road directly across from Michie Stadium, and has a capacity of 89,000,000 gallons.

THE PARADE. The drill and parade field, bounded by Jefferson Road on the south and west, by Thayer Road on the east, and Washington Road on the north.

THE PLAIN. That portion of the ground embracing The Parade, Clinton Field, and Doubleday Field.

SHEA STADIUM (1958). Track and field stadium, located northwest of the Field House. Named for Lt. Richard Thomas Shea, Jr., USMA 1952, captain of the 1952 track and field team, star athlete and record holder, killed in Korea in 1953 and posthumously awarded the Medal of Honor.

STILWELL DAM AND STILWELL LAKE (1949). Located on the reservation about four miles southwest of the Post proper. Named in honor of Gen. Joseph Warren Stilwell, USMA 1904, Commanding General U.S. Forces China-Burma-India 1942–1944, and Commanding General U.S. Tenth Army 1945.

TROPHY POINT. A small plot of ground located north of The Parade where are grouped many trophies captured in war by American forces. Several links of the Great Chain are there.

THE WEST POINT MUSEUM

Director: Mr. Richard E. Kuehne, B.A.
Curator of History: Mr. Gerald C. Stowe, B.S.
Curator of Art: (Vacant)
Curator of Design: Mr. Ray W. Moniz, B.F.A.
Assistant Curator of Design: Mr. James H. Kinsley, Jr.

The West Point Museum is located in Thayer Hall, occupying the first and second floors of the southwest portion of this academic building. Its galleries and special displays are open without charge to the public throughout the year, every day of the week, from 10:30 a.m. to 4:30 p.m. The Museum is closed only on Christmas and New Year's Day.

Adjacent to the public galleries are the storage and research rooms maintained by the Museum to carry out its primary duty as a college museum by supporting the academic and military education of cadets of the Military Academy. To this end it maintains a continuous series of changing exhibits in cadet areas, arranges lectures and demonstrations, and opens its collections for loans to instructors and cadets. To this end also it maintains a considerable display of portraits and paintings, battle flags and other exhibits in various buildings on the post. Some of these paintings and flags can be seen by the public in the Library, the Cadet Chapel, and in Grant Hall.

The West Point Museum was established in 1854 but its collections actually date back to 1777. After the Battle of Saratoga in October of that year, much of the ordnance captured from the British was sent to West Point. A little later, part of the famous Great Chain stretched across the Hudson at West Point to bar navigation of the river to British men-of-war was stored here.

Throughout the first half of the 19th century the custom of sending trophies of war and objects of national historic interest to the Military Academy was maintained. In 1843, for example, the Secretary of the Treasury presented West Point with a brass culverin 6 pounder that had been given to the Continental Congress by Lafayette. After the close of the Mexican War in 1847, Gen. Winfield Scott sent large numbers of captured flags, cannon, and other war trophies to the Military Academy.

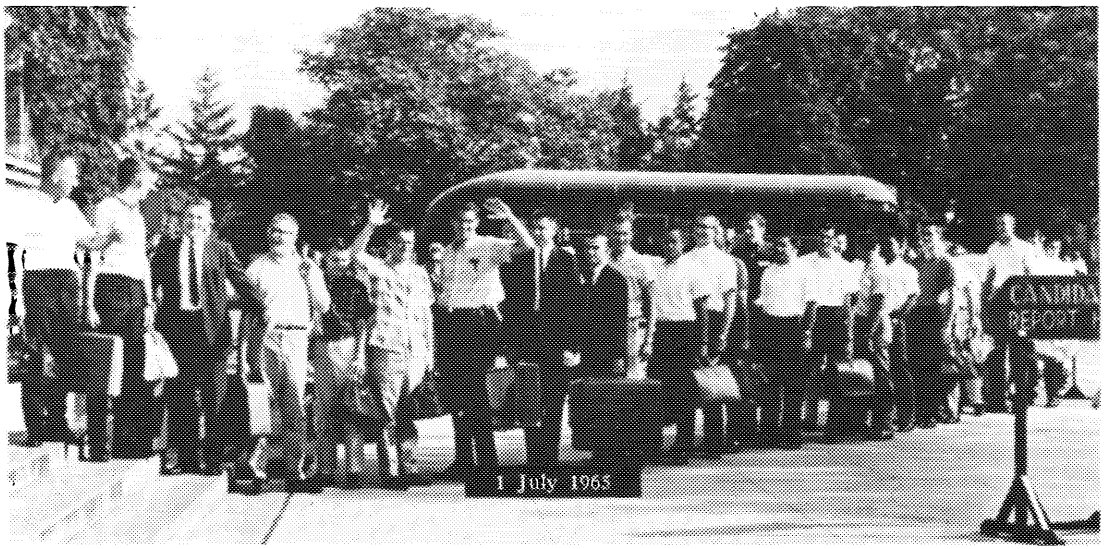
In 1848, the Secretary of War formally directed in the name of the President that West Point be the "depository of the trophies of the

successful victory of our arms in Mexico." The authorities realized that permanent provision was needed for the ever-growing collections, and in 1854 they officially created the Ordnance and Artillery Museum, and established it on the third floor of the Academy, a building erected in 1838 on the site of the present East Cadet Barracks. Custodianship of relics, however, was not the new museum's only mission; for most of the next century it served as the laboratory for cadet instruction under the Department of Ordnance.

In 1909 the Museum was moved to the Administration Building where it remained until 1958. It was removed from the Department of Ordnance in 1948 and placed on an independent status. A full-time director was appointed in 1949 and given a professional staff.

The West Point Museum has probably the largest collection of military items in the Western Hemisphere. Unlike most military museums the story it tells is not confined to a national scene. One gallery is devoted to the development of military institutions and the art of war from the days of the Romans until the present; while others deal with ordnance, logistics, medals and decorations and kindred aspects of the military history of the Western World. The visitor is introduced to the important developments in tactics, to the Great Captains of History, and to the everyday life of the soldier. He is given to understand something of the impact on warfare of such historic events as the Industrial Revolution and nuclear fission.

The visitor's understanding of such matters is heightened by an extensive use of dioramas and full scale models. The visitor can, for example, stand behind a palisade of the days of the Indian Wars in America, or walk through a portion of a World War I trench. He can view episodes in important battles from Cynoscephalae in the year 197 B.C. to Gettysburg of 1863. In keeping with developments in other American museums, the West Point Museum has endeavored to fulfill its historical mission by treating, in part at least, with intangible cultural concepts and movements as well as with tangible objects.



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ADMISSIONS

General

In one major respect the requirements for admission to the Military Academy differ from those of a civilian college or university. A young man who desires to enter the Academy must first obtain from an authorized source permission to be examined for appointment to the Military Academy. Receipt of this permission is called a nomination. Having received a nomination, a candidate must undergo examinations to determine his academic, medical, and physical aptitude qualifications. If determined fully qualified in these three areas by the Military Academy Academic Board, the candidate is then authorized to receive a Cadetship. Selection (appointment) of those fully qualified candidates to fill cadetships for the class of 1970 is dependent on the type of nomination(s) the candidate holds and the number of vacancies to be filled.

It is important that prospective candidates make their interest in attending the Military Academy known to appropriate nominating sources as early as possible. The spring of the junior year in secondary school is ideal; however, most nominating sources will consider later requests.

Requirements

In order for a young man to be eligible for appointment to the Military Academy, he must meet the following requirements:

Age. On 1 July of the year he is to be admitted a candidate must have attained the age 17 years and must not have reached the age of 22.

Citizenship. A candidate must be a citizen of the United States at the time of entry. (Foreign students nominated by mutual agreement between the United States and the countries concerned are exempt from this requirement.)

Marital Status. A candidate must never have been married. A cadet may not marry until he has graduated from the Academy.

Character. Each candidate's record must show positive evidence that he is responsible, trustworthy, emotionally stable, and of good moral character.

Motivation. A candidate must have a strong desire to become a cadet and pursue a military career. Experience has indicated that lack of motivation frequently results in failure to remain at the Academy.

Potential Leadership. Each candidate's record must include information concerning the effectiveness of his personality and the extent to which he has participated in school and community affairs.

Physical Condition. A candidate must be physically fit. He must successfully undergo qualifying medical and physical aptitude examination before he may be appointed.

Scholastic. A candidate's secondary school academic record, to include his performance on specified College Entrance Examining Board Tests, must show adequate preparation and indicate he has the potential to succeed in the academic curriculum at the Military Academy. Details are discussed in the following sections.

PREPARATION

ACADEMIC

General

The kind and amount of preparation a candidate brings to the Academy are of vital importance to his successful pursuit of the academic courses at West Point. Once the academic year begins, the pace is rapid and basic knowledge of fundamental secondary-school subjects is assumed. A well-prepared cadet, therefore, finds himself in an enviable position.

The majority of candidates admitted to the Military Academy enter directly from secondary schools. Those who have graduated in the top portion of their high-school classes and have attained good grades in their mathematics and English courses should be able to qualify academically for admission. Experience has shown that in order to pursue successfully the academic courses at the Military Academy, it is essential that a candidate should have completed 4 years of English, at least 3 years of mathematics but preferably 4, 2 years of a foreign language, a year of laboratory science, and a year of United States History. The candidate's scholastic record must show adequate preparation in these respects in order for him to qualify for admission. Furthermore, his preparation should include additional courses in the mathematical sciences and the humanities. In addition, candidates are encouraged to submit for validation consideration College Entrance Examination Board Advanced Placement test results.

Candidates unable to obtain appointments for admission to the Military Academy immediately following graduation from secondary school are encouraged to attend a civilian college or university pending receipt of an appointment to West Point. The undergraduate courses taken by the candidate should be substantial ones which will further prepare him for the rapid pace and high standards of academic accomplishment that are required at West Point.

For the guidance of prospective candidates and their counselors the recommended preparation in English, mathematics, foreign languages, sciences, and United States History is shown in the following paragraphs.

English

Composition

Grammar, spelling, and punctuation.
Types of paragraphs and methods of developing paragraphs.
Organization of themes.
The techniques of summarizing.
Methods of research and use of the library.
Practice in speechmaking.

Literature

Ability to read with reasonable speed and good comprehension.
Familiarity with major patterns of writing, such as the essay, the drama, the stort story, and the novel.
Some acquaintance with poetic forms, such as epic, narrative, dramatic monologue, ode, and sonnet.
Some familiarity with meter, stanza forms, and figures of speech.
Acquaintance with several plays of Shakespeare.
Some knowledge of representative English and American writers.

Mathematics

General

In order to succeed in mathematics at USMA, it is essential that the candidate have completed at least 3 years of college preparatory mathematics to include algebra, geometry, and trigonometry as outlined below. A candidate's scholastic record will not be considered qualifying for admission if it is deficient in any of the foregoing respects. It is especially important that the USMA applicant be studying mathematics in the year of school immediately preceding his intended enrollment at West Point, as this will facilitate his rapid adjustment to the demanding requirements at the Academy. A fourth year of college-preparatory mathematics is urged for all who have the opportunity for such instruction in their precollege academic training. Moreover a fourth year is *essential* for those who wish to study mathematics at West Point beyond the minimum required for graduation: see page 61 for comments pertaining to the Advanced Studies Program.

The necessary scope of preparation in algebra, geometry, and trigonometry is given in the following sections:

Algebra

Emphasis in this area is placed on the following qualifications: (1) firm grounding in basic concepts and definitions; (2) a facility with basic techniques; and (3) the ability to apply logical analysis to the solution of problems. The candidate should be prepared in the following:

Applications of the fundamental operations.

Special products and factors.

Operations with fractions.

Radicals; fractional and negative exponents.

Systems of linear and quadratic equations.

Rectangular coordinates; the graphing of linear and quadratic equations in one and two variables.

Ratio, proportion, variation.

Common logarithms and applications.

Progressions, arithmetic and geometric.

The binomial theorem; the binomial formula with fractional and negative exponents.

Mathematical induction.

Elementary numerical trigonometry.

Geometry

As with algebra, careful preparation in the fundamentals of plane geometry and selected topics from solid geometry is necessary. The candidate should possess: (1) a knowledge of the basic concepts, definitions, and theorems of plane geometry; (2) an acceptable understanding of the nature of direct and indirect proof, and a facility with careful deductive reasoning as evidenced by his ability to prove standard theorems; (3) familiarity with the geometric properties of common plane figures; (4) a knowledge of spatial relationships, particularly those pertaining to lines and planes in space; and (5) familiarity with the definitions and geometrical properties of prisms, pyramids, cylinders, cones and spheres. The candidate should be prepared in the following:

Congruency theorems, and related theorems on triangles.

Inequalities of lines and angles.

Parallel and perpendicular lines.

Properties of quadrilaterals.

Circles: chords, central angles, arcs, tangents, secants.

Concurrent lines.

Similar triangles.
Areas of polygons.
Constructions.
The area of a circle as a limit.
Relations of lines and planes in space.
Definitions and properties of prisms, pyramids, cylinders, cones and spheres.

Trigonometry

In this subject the following qualifications are emphasized: (1) a knowledge of the concept of function and precise definitions of trigonometric functions of any angle; (2) thorough familiarity with the basic trigonometric identities; and (3) ability to apply logical analysis to the solution of problems. The candidate should be prepared in the following:

Angles and their measure, standard position.
Trigonometric functions of angles and real numbers.
The Unit Circle.
Graphs of functions in rectangular and polar coordinates.
Applications of logarithms to trigonometry.
Fundamental identities, trigonometric equations.
Double and half-angle formulas.
Product, sum and difference formulas, and applications.
Solution of oblique triangles, law of cosines and law of sines.
DeMoivere's Theorem, complex numbers.

Advanced Programs

The Military Academy offers advanced programs in mathematics during the first two years, including from 2.5 to 10.0 credit hours of mathematics in extra (advanced) courses beyond those required as standard for graduation from USMA. These courses are offered initially to selected cadets whose pre-USMA academic record shows: (1) high quality of performance in the standard preparation outlined above in algebra, geometry and trigonometry; (2) not less than 4 years of college-preparatory mathematics including elementary plane analytic geometry; (3) active study of mathematics during the final year before entering the Military Academy. If a cadet meets these requirements and is assigned to an advanced program, he must also achieve high standing in mathematics during his early months at West Point in order to remain in the program. A candidate aspiring to such

a program is urged to take the Level II rather than the Level I Mathematics achievement test of the College Board.

Foreign Languages

Preparation

Two years of high-school study of any foreign language will normally prove to be a helpful background for any of the languages taught at West Point. Those interested in taking one of the advanced language courses would do well to take 3 years of the same language (French, German, or Spanish) before entering the Academy. For those interested in studying Portuguese, previous courses in Latin and/or Spanish are advisable. For those desiring to study Russian, courses in either Latin or German, or preferably both, are recommended. (If previous Russian study is possible, it would, of course, provide the best preparation.) Regardless of the language studied, applicants should concentrate on the basic organization of the language, including word forms and functions and sentence structure; on basic vocabulary, to include the common idiomatic expressions; and on accurate pronunciation and proper intonation in word groups and sentences. Courses offering extensive practice in speaking and aural comprehension, without ignoring the fundamentals of the language, should provide excellent preparation for the courses at the Military Academy.

Advanced Program

Standard courses in five modern languages are offered at West Point: French, German, Portuguese, Russian, and Spanish. Each cadet studies one of these languages during his first 2 years at the Academy. Cadets are normally assigned to study the language of their choice; but it is sometimes necessary to assign a cadet to the language of second choice, in cases where quotas are oversubscribed. Advanced courses are conducted (during the same time and in lieu of the standard courses) in French, German, and Spanish, for those who qualify in a special placement examination consisting of several written parts, a dictation, an aural comprehension test, a passage to be read aloud, and oral replies to a number of simple questions in the language. Advanced courses may be conducted in Portuguese and Russian provided a sufficient number of cadets qualify therefor. A minimum of 2 years of high-school study of the language or 1 year of college study is the prerequisite for consideration for the advanced course. Cadets who

have completed 2 years of high-school study but who fail to qualify for the advanced course may normally take the standard course in the same language. Cadets having more than 2 years of previous high-school study or more than 1 year of college study must, if they do not qualify for the advanced course in that language, select another language for study at the Military Academy.

Science

Preparation should include, as a minimum, a standard secondary-school course (including laboratory) in general science, physics, or chemistry. Experience has indicated the desirability of including all three courses in secondary-school preparation.

United States History

The candidate should know the facts and understand the chronological and other relationships concerning the major developments in American History, to include:

Settlement and growth of the English Colonies.
The American Revolution.
Growth of American democratic institutions.
Expansion of the United States.
The Civil War.
Economic development of the United States.
Growth of American social and cultural patterns.
International Relations.

Physical Conditioning

Because of the nature of the new cadets' training during their first 2 months at West Point, physical demands upon them are necessarily great. Experience indicates that those cadets who, prior to admission, have conditioned themselves physically are best able to meet the training requirements. The candidate should strive for the degree of conditioning required for vigorous team sports. He is advised to practice heavy physical conditioning exercises (such as pull-ups, sit-ups, and push-ups) until many repetitions of the exercises can be performed without severe physical strain. In addition, he should strengthen his legs and wind by regular cross country running and by fast climbing on steep slopes. A program of vigorous competitive sports should be followed, with emphasis on variety of sports rather than on one favorite activity. Any candidate in doubt about his physical-conditioning methods would be well-advised to consult a high school or college physical education department.

NOMINATION

General

Each cadetship at the Military Academy is allocated to a specified Member of Congress, to the Governor (or Commissioner) of a U.S. Territory, or to the Secretary of the Army. When a cadetship becomes vacant, due to graduation or other causes, the authority to whom the vacancy is allocated transmits to the Department of the Army the names of up to six young men he nominates to fill the vacancy. He further indicates the method to be used by the Military Academy in selecting the candidate to be appointed to the cadetship.

Congressional Nominations

Cadetships allocated to Members of Congress and Commissioners or Governors are termed CONGRESSIONAL and are listed below:

Vice President	5
100 Senators (5 each)	500
435 Representatives (5 each)	2175
District of Columbia Commissioners	5
Canal Zone Governor	1
Puerto Rico Resident Commissioner/Governor	6
Guam, Virgin Islands, American Samoa Governors	1
TOTAL	2693

The law requires that candidates nominated from the states at large, from congressional districts, from the District of Columbia, from the Canal Zone, and from Puerto Rico, be domiciled in the geographical unit from which nominated.

The Vice President nominates from the United States at large. United States Senators and Representatives-at-Large nominate from their respective states at large. U.S. Representatives, other than those at large, nominate from their districts. The Commissioners of the District of Columbia nominate from among the residents of the District. The Governor of the Canal Zone nominates from among the sons of civilians residing in the Canal Zone, and from among sons of civilian personnel of the U.S. Government and the Panama Canal Company residing in the Republic of Panama. The Governor of Puerto Rico must nominate a native of Puerto Rico to fill his single cadetship. The Resident Commissioner nominates from among residents domiciled in Puerto Rico to fill the five cadetships allocated to him. The Governors of Guam, of the

Virgin Islands, and of American Samoa nominate from among the sons of U.S. citizens or nationals residing on their respective Islands.

As most Congressional sources conduct preliminary screening interviews and tests before selecting their nominees, it is important that each young man interested in entering the Military Academy apply for consideration to his authorized nominating sources at least one year prior to the time he expects to enter the Academy (July).

Congressional nominating authorities specify to the Department of the Army, the method to be used in making the final selection of the candidate to fill the vacant cadetship. The most common methods are described below:

Competitive Method. Members of Congress, when making their nominations for each vacancy, authorize the Academic Board, USMA, to select the best qualified of their nominees. Such nominees are termed "Congressional Competitors."

Principal-Alternate Method. Members of Congress using this method may nominate six candidates, one being named as principal, one as first alternate, one as second alternate, one as third alternate, one as fourth alternate, and one as fifth alternate. The first alternate, if qualified, will be admitted if the principal fails; the second alternate, if qualified, will be admitted if the principal and first alternate fail; and so on for succeeding alternates.

Army Nominations

The Secretary of the Army's allocation of cadetships, termed ARMY, is distributed to specific categories below for the class entering in July 1966.

Presidential	27
Members of the Regular Army	27
Members of the Army Reserve	27
Sons of Deceased Veterans	13
Honor Military and Honor Naval Schools	13
Sons of Persons Awarded the Medal of Honor	Unlimited

Appointments to vacancies within each of the Army categories are awarded to best qualified candidates within each category on a competitive basis. Each Army candidate, with the exception of those from the Regular Army category, must complete all required College Board examinations on or before the December 4, 1965, test administration. Failure to do so will cancel his nomination. Results of later College Board administrations (January or March 1966) will not be considered except in cases where the candidate holds one or more Congressional

Nomination(s) in addition to an Army nomination. Regular Army nominees are authorized to submit with their records the results of January 1966 College Board tests. (See Summary—page 43). A fuller discussion of the competitive nomination categories follows below.

Presidential:

Presidential nominations are reserved for the sons of members of the Regular components of the Army, Navy, Air Force, Marine Corps and Coast Guard, who are still in service, are retired, or are deceased. These nominations are administered in Headquarters, Department of the Army. Interested young men should make application by letter to The Adjutant General, ATTN: AGPB-M, Department of the Army, Washington, D.C., 20315, no later than 15 November 1965. An adopted son is eligible if he was adopted prior to his 15th birthday: a copy of the order of court decreeing adoption, duly certified by the clerk of the court, must accompany the application. Letters requesting nomination should include the following:

Name, address, and date of birth of applicant.

Name, Grade, Service Number, Component and Branch of Service of the parent.

Retired or Deceased (furnish date and copy of retirement orders or casualty report)

Enlisted Men—Attach statement prepared by personnel officer listing date of enlistment, date of expiration of enlistment, component and branch of service.

Regular Army:

Nomination of candidates to fill the 27 annual vacancies held for members of the Regular Army is outlined in detail in AR 350–55. This publication may be obtained from the nearest Army installation; by writing to Headquarters, Department of the Army, ATTN: AGPB–M, Washington, D.C., 20315; or by writing to The Director of Admissions and Registrar, West Point, N.Y., 10996. All Regular Army nominees are required to attend the USMA Preparatory School at Fort Belvoir, Virginia, during the year prior to entering the Military Academy (Appendix E).

Army Reserve:

Nomination to fill the 27 Annual vacancies held for members of the Reserve Components are outlined in detail in AR 350–55. This publication may be obtained from the nearest Army installation; by writing to Headquarters, Department of the Army, ATTN: AGPB–M, Wash-

ington, D.C., 20315; or by writing to the Director of Admissions and Registrar, West Point, N.Y., 10996.

Sons of Deceased Veterans of World War I or II or the Korean War:

Forty (40) cadetships are provided for the sons of members of the Armed Forces of the United States who were killed in action or who died of wounds, injuries, or disease resulting from active service during World War I or II or between June 27, 1950 and midnight of January 31, 1955. The Veterans Administration determines the eligibility of all applicants, and its decisions are final and binding on the Department of the Army. Application should be made by letter (no form is prescribed) addressed to The Adjutant General, ATTN: AGPB–M, Headquarters, Department of the Army, Washington, D.C., 20315. Application must be made prior to 15 November 1965. The letter of application should state the full name, date of birth, and address of the applicant (complete service address should be given if the applicant is in the Armed Forces); and the name, grade, service number, and last organization of the veteran parent, together with a brief statement concerning the time, place, and cause of death. The claim number assigned to the veteran parent's case by the Veterans Administration should also be furnished.

Honor Military and Honor Naval Schools:

Thirteen (13) cadetships are provided annually for graduates of Honor Military and Honor Naval schools. Each such school, designated as an honor school by annual Department of the Army and Department of the Navy inspections, is invited to nominate three candidates annually from among its honor graduates. The thirteen cadetships will be filled by selecting the thirteen best qualified candidates regardless of the school from which nominated. The candidates need not be members of the graduating class of the current year, but in each instance the head of the school must certify that the candidate (1) has been a member of the ROTC unit at least two years; (2) has been, or is to be graduated within the upper third of his class; (3) has demonstrated in his academic, extracurricular, and ROTC activities that he possesses outstanding qualities of leadership, character and aptitude for the Military Service; (4) has shown proficiency in not less than 15 units in subjects prescribed for admission to the Military Academy; and (5) has met all other requirements of law and regulations prescribed for admission to the Military Academy. Honor School nominations must be received by

The Adjutant General, ATTN: AGPB–M, Headquarters, Department of the Army, Washington, D.C., 20315, before 15 November 1965.

Sons of Persons Awarded the Medal of Honor:

Sons of recipients of the Medal of Honor may be nominated and appointed to the Military Academy. The administration of these nominations is in the Department of the Army. Application by those eligible should be made by letter (no form is prescribed) to The Adjutant General, ATTN: AGPB–M, Headquarters, Department of the Army, Washington, D.C., 20315. The letter should contain the applicant's full name, address, and date of birth (complete service address should be given if the applicant is in the Armed Forces); the name, grade, and branch of service of the parent; and a brief statement of the date and circumstances of the award. Candidates within this category of nomination must qualify in the same manner as a Congressional principal candidate. (See qualification section.) There is no annual limitation upon this category and all candidates who are found fully qualified will be admitted as cadets.

Allied Cadets

Young men from the allied countries listed below may be designated by their governments to take the entrance examinations and, if qualified, be authorized to receive instruction at the Military Academy. No Physical Aptitude Test is required. Applications must be submitted to the United States Government by the government concerned. Requirements for the admission, advanced from class to class, and graduation of foreign cadets are the same as those for cadets of the United States. While a cadet, they receive the same pay and allowances as cadets appointed from the United States. They are not entitled, however, by reason of their graduation, to appointment in the Armed Forces of the United States.

Republic of the Philippines. One Philippine National, from among those designated by the President of the Republic of the Philippines, selected on the basis of his academic record and College Board test scores, is authorized to enter with the new class each July.

American Republics. A total of not more than 20 citizens of the American Republics may receive instruction at the Military Academy at any one time. Selection will be determined in the same manner as for nominees from the Republic of the Philippines. Not more than three persons from any one country may be cadets at the same time.

Other Foreign Countries. From time to time, citizens of other foreign countries have been permitted to attend the Military Academy upon specific authorization of the United States Congress. Selection will be determined in the same manner as for nominees from the Republic of the Philippines.

When To Take Qualifying Examinations (Class of 1970)

CATEGORY	NOMINATION	COLLEGE BOARD EXAMINATIONS [1]				PHYSICAL APTITUDE EXAMINATION			MEDICAL EXAMINATIONS [3]
		Any Prior Test Period	Not Later Than			Any Prior Test Period	Not Later Than		
			Dec 1965	Jan 1966	Mar 1966		Jan [2] 1967	Mar 1966	
Congressional	Competitor	X			X	X		X	AT ANY AUTHORIZED ARMY, NAVY OR AIR FORCE MEDICAL FACILITY LISTED IN 1965–1966 USMA CATALOGUE—AT ANY TIME PRIOR TO MARCH 1966—BY INDIVIDUAL ARRANGEMENT—OR AT DESIGNATED TEST SITE IN JANUARY OR MARCH 1966
	Principal-Alternate	X			X	X		X	
	Competing Alternate	X			X	X		X	
Army	Presidential	X	X			X		X	
	Regular Army	X		X		X		X	
	Army Reserve	X	X			X		X	
	Sons of Deceased Veterans	X	X			X		X	
	Honor Military and Naval Schools	X	X			X		X	
Special	Sons of Persons Awarded Medal of Honor		X		X	X		X	
	Allied		X		X	Not Required			

[1] College Board Tests required of all nominees: Scholastic Aptitude Test, English Composition, Math Level I or II.
NOTE: College Board Tests may be taken locally or at designated military test sites in January or March 1966.
[2] Candidates tested in January will have PAE results used for all nominations held at that time.
[3] All Candidates must take a qualifying medical examination within the year prior to admission.

QUALIFICATION

General

The Adjutant General, Department of the Army will send to each candidate his official letter of nomination. This letter will authorize the candidate to take the academic, medical, and physical aptitude examinations required to establish qualification for appointment to the Military Academy to fill the vacancy for which nominated. The Adjutant General will include with his letter, detailed instructions as to tests required, examination dates, and the personal and scholastic data he must send, or cause to be sent, to the Military Academy.

January and March Examining Centers

A candidate's letter of nomination from The Adjutant General, Department of the Army, will instruct him to report to a military installation near his home for testing on Wednesday, either 5 January or 2 March 1966 (see Appendix D). There he will be given the opportunity to take all of the qualifying examinations required for admission to the Military Academy. The Medical and Physical Aptitude Examinations will be administered first and normally should be completed by Friday. On Saturday 8 January, and on 5 March, the College Board tests will be given to those candidates who desire to remain at the test site. No pre-registration for the College Board tests is necessary.

During the examination period living accommodations and meals will be provided to candidates at a minimal cost. Except for active duty servicemen, travel and personal expenses will be met by the candidate.

The authority to report for testing in January or March should not deter a candidate from arranging to take his qualifying medical examination at some earlier time. It is to the candidate's advantage to do so in order that he may determine his chances for qualification as early as possible. The same consideration applies for his taking the required College Board tests. A candidate who has previously completed his medical examination and has taken, or is registered to take, the required College Board tests in his local area, should be able to return home on Thursday following the administration of the Physical Aptitude Examination.

Failure of any competitive candidate, nominated before March, to complete all examinations by 8 March 1966 will cause his nomination to be nullified. Similarly, the nomination of a Congressional principal or

an alternate will be nullified unless he can establish that the reason for his failure to take the examination by 8 March 1966 was due to sickness or other unavoidable circumstance. In each such case of unavoidable absence, the principal or alternate may request of The Adjutant General permission to take the tests in June 1966, at West Point. Conflicts with academic schedules and athletic contests are not considered unavoidable and do not constitute justification for postponement of the examinations.

June Examination at West Point

A special administration of all required examinations will be conducted at West Point during the period 12–17 June 1966. This administration is limited to candidates nominated after the March examination period, and to principal or alternate candidates who for unavoidable causes were unable to take the March tests. During the June Examination period, meals and living accommodations will be furnished at a nominal cost; however, travel costs to and from West Point will be borne by the candidate.

Academic Qualification

General: A candidate's academic qualification is determined by the Military Academy's Academic Board based on the following:

1. A review of his entire scholastic record in secondary school (and college, if appropriate) to determine that he has the aptitude and demonstrated capability to succeed in the demanding curriculum required of all cadets.

2. Acceptable performance on the following College Entrance Examination Board tests:

Scholastic Aptitude Test

English Composition Achievement Test

Level I or Level II Mathematics Achievement Test *

3. Recommendations from the Principal, counselors, teachers, and other school officials in position to judge accurately the academic performance and potential of the candidate.

* Scores on either the Level I or Level II Mathematics achievement test will be accepted by the Military Academy. No adjustment is made on the scores because of any possible difference in the degree of difficulty of the two tests; however, an individual who has done well in three years of college-preparatory mathematics and is enrolled in a fourth year should be adequately prepared for the Level II test and should not hesitate to take it.

Scholastic Record

Upon receipt of his letter of nomination and its accompanying materials, the candidate must complete the enclosed School and Personal History forms promptly and transmit them to the Military Academy. A secondary-school transcript, including grades for the latest completed term, should also be forwarded by the school. If a candidate is in college, a transcript covering his college work must also be forwarded to the Military Academy.

College Board Examinations

Each candidate must submit to the Military Academy results of the College Entrance Examining Board tests for Scholastic Aptitude, English Composition, and Level I or Level II Mathematics. Results of tests taken before December 1965 may be submitted by any candidate or, depending on his category of nomination, he may submit results from the December 1965, January, or March 1966 administrations. (See summary—page 42: "When To Take Qualifying Examinations".)

A candidate who desires to take the tests in December 1965, or in January, or March 1966, is encouraged to do so in his local area.

At the time he registers for the tests, he must designate the Military Academy as an institution to receive the results.

If a candidate desires that results from tests previously taken be considered, he must contact the College Entrance Examining Board, Princeton, N.J. or Berkeley, California (as appropriate), and request that such results be sent to the Military Academy. He must enclose one dollar ($1) with his request to cover handling and mailing costs.

It is desirable that a candidate inform the Military Academy of the College Board test results he wishes to be used in determining his qualification. If no such instructions are received, the latest results will be given primary consideration, consistent with his category of nomination. Candidates who designate specific test results, as indicated above, will be notified of their qualification as soon as the test results, plus other required academic data, are received and evaluated at the Military Academy.

In addition to the local College Board examining sites, the 8 January and 5 March 1966 tests will be conducted at various military test sites (Appendix D). Each candidate will be notified in his letter of nomination to report for a medical and/or physical aptitude test at one of these sites on 5 January or 2 March 1966. Upon completion of these latter tests, he may remain to take the required College Board tests or he may return home to take them in his local area. If he decides to remain at the test site, no test preregistration is necessary.

Expenses, incident to taking the College Board tests, whether in a local area or at a military test site, will be borne by the candidate.

Physical Aptitude Examination

General: Each candidate is required to establish his qualification in Physical Aptitude. Qualification is determined by an examination designed by the Military Academy to measure strength, coordination, muscular power, endurance, speed, and agility. It is given at the military test sites (Appendix D) in January and March 1966. For candidates nominated after March, the test will be given at West Point in June 1966.

Qualification is determined on the basis of total performance in five or six physical performance tests (see examples Appendix A). A poor performance on a single test will not necessarily result in disqualification.

A candidate who has qualified in Physical Aptitude in previous years is not required to reestablish his qualification during the current year unless, as a competitive candidate, he desires to take the test again in order to establish a higher test qualification score. Decision in this regard rests with the candidate and no recommendation will be offered by the Military Academy. Primary consideration will be given to the latest test results.

A candidate who is found disqualified on the January 1966 Tests will be authorized no further testing for nominations he holds at that time. Should he receive an additional nomination prior to March, he will be authorized to retake the examination at the time of the regularly scheduled March Examination. A candidate nominated after March will be authorized to take the examination in June at West Point.

Preparation for Examination: Candidates are advised to prepare for this examination by engaging in vigorous activities such as running, general conditioning exercises, and competitive games rather than in practicing on specific test items.

Medical Examination

General: Every candidate, regardless of the type or source of his nomination, must undergo a qualifying medical examination during the twelve months preceding 1 July 1966. This examination may be scheduled by the candidate at one of the authorized medical facilities listed in Appendix C at any time following receipt of his nomination; or he may take the examination at the test site designated in his letter of nomination at the same time he reports for the Physical Aptitude Examination. Regardless of the number of nominations a candidate receives, he need take the

medical examination only once. Qualification, or unacceptability, determined by that examination will stand for all nominations held. A General Outline of Medical Considerations is found n Appendix B.

Procedures: As soon as possible after receipt of his letter of nomination, the candidate is encouraged to make arrangements with the nearest Authorized Medical Testing Facility (Appendix C) to take the medical examination. To do this, he should contact the Physical Examining Section of the Facility, preferably in writing, requesting an appointment to take the *QUALIFYING MEDICAL EXAMINATION* for candidates to the Military Academy. Travel and personal expenses incurred in taking the examination are the responsibility of the candidate. When the examination is completed, all forms and records will be sent by the Examining Facility to The Surgeon General, Department of the Army, for evaluation and determination of qualification. (The examining facility does not have the authority to make a qualification determination on any candidate for the Military Academy.) Within eight weeks following the date of examination, the candidate should receive notification of the results from The Adjutant General, Department of the Army.

A candidate wearing contact lenses must remove them at least 72 hours prior to reporting for the medical examination. At the time of the examination, it is important that he report all previous injuries and operations in order to assist the examining officer and to obviate possible uncertainty in the findings reported.

Should a candidate be unable to make satisfactory arrangements before his designated test period in January or March 1966, he will be afforded the opportunity to take the medical examination at that latter time. Similarly, a candidate who is required to report to West Point for the June 1966 qualification examinations will also be authorized to receive the medical examinations during the same period.

Qualification: Final qualification is determined by The Surgeon General, U.S. Army. A candidate who is found qualified will not be required to take another medical examination for subsequent nominations. If he is found disqualified due to a non-remediable condition, no further testing as a candidate for the Military Academy will be authorized. If the disqualification is determined remediable, he will be notified by The Adjutant General, Department of the Army, of the corrective measures he must take in order to be reexamined. All inquiries pertaining to final medical qualification should be directed to The Adjutant General, Department of the Army, ATTN: AGPB–M, Washington, D.C., 20315.

Medical Examinations Taken for Other Service Academies

The Medical Qualifying examination for the Military, Naval, and Air Force Academies is the same although the qualification requirements differ somewhat due to the commissioning requirements of various services. If a candidate for the Military Academy desires to have copies of his examination forwarded for consideration by the Navy or the Air Force, he must request the Chief of the Examining Facility to do so at the time he is examined. For the Naval Academy a candidate should request copies be sent to: The Board of Medical Examiners, United States Naval Academy, Annapolis, Maryland. In the case of the Air Force Academy a candidate should request copies be sent to: The Director of Admissions, United States Air Force Academy, Colorado Springs, Colorado. A candidate who takes a qualifying medical examination for another Service Academy and desires that it be used in support of his Military Academy nomination, must take steps analogous to those indicated above. The copies should be sent to: The Surgeon General, Department of the Army, ATTN: Physical Standards Branch, Washington, D.C., 20315. It is the candidate's responsibility to insure that the examination results are so forwarded.

Determination of Qualification

All candidates have their academic, physical aptitude, and medical qualifications determined in the same way. For Principal-Alternate candidates, simple qualification is all that is necessary because their order of consideration has already been designated by the nominating authority. For CONGRESSIONAL and ARMY competitors, their Academic and Physical Aptitude records are evaluated and weighted in order to develop an order of merit within each nominating group. This weighting is made by giving 60% to scholastic factors, 30% to leadership potential and 10% to the results of the Physical Aptitude Examination.

As soon as a qualification in any of the three test areas—Academic, Physical Aptitude, Medical—is determined the candidate is notified by the Department of the Army. Unless a CONGRESSIONAL candidate requests specific College Board test results be used in determining his academic qualifications, qualification will not be resolved until after the end of the March 1966 test period.

For ARMY competitive candidates, academic qualification will be determined upon receipt of the required scholastic background data, plus the results of the College Board tests taken not later than the December

1965 Test Administration. (Not later than January 1966 for Regular Army Candidates.)

A candidate who takes the Physical Aptitude Test in January 1966 will have that score applied to all nominations held at that time. Should he subsequently receive a new nomination and desire to retake the test in March, he will be authorized to do so; however, the results of this re-take will apply to the new nomination only. A candidate may elect to have the January results apply to the new nomination.

A candidate who has been notified of his qualifications in the three test areas, need not retake any examinations for an additional nomination received before July 1966. Nevertheless, as a CONGRESSIONAL candidate, he is authorized to do so as outlined in the paragraphs above. In all cases, the latest information, concerning test results and related qualification data, available at the Military Academy, consistent with cutoff dates, are given primary consideration in the final determination of qualification.

Disqualification

A candidate who fails to submit the required College Board results, taken on or before the time specified for his category of nomination, automatically nullifies nomination. His candidacy will no longer be considered. Similarly, a candidate who fails to take the Medical and Physical Aptitude Examinations on or before the March 1966 Test Period will cause his nomination to be nullified unless he is authorized to be tested, at West Point, in June 1966.

When, in the processing of a candidate's record, it is determined that he is unacceptable academically or in physical aptitude, he will be so notified. No further processing of his records will be conducted and no further testing will be authorized for those nominations held at that time. Should he subsequently secure an additional nomination, then his file will be reopened and he will be authorized to submit additional test data in support of this new nomination only.

A candidate who is found to be medically unacceptable will not be authorized further testing as a candidate to the class entering in July 1966.

Nominees Who Were Candidates in a Prior Year

A nominee who was a candidate in a prior year and found to be fully qualified but not selected as an appointee, may have the prior academic and physical aptitude examination results used in determining his cur-

rent qualification. He *MUST* retake the medical examination. In addition, he must submit to the Military Academy transcripts of his academic work through his latest completed term in college. If he holds a competitive nomination, he may retake any or all of the required College Board and the Physical Aptitude Examinations.

A candidate (except an ex-cadet) once found academically qualified for admission will *normally* be considered academically qualified under any subsequent nomination. Exception to this policy will be made by the Academic Board on an individual case basis.

A nominee who was a candidate in a prior year and found to be unacceptable academically and/or in physical aptitude must retake the required College Board tests and/or Physical Aptitude Examination before his qualification can be determined. If previously qualified in either of these two areas, he is not required to retake the test for that area.

Appointment

By early May 1966, each fully qualified candidate nominated before March 1966, and selected for admission with the Class of 1970, will be notified of his appointment status by The Adjutant General, Department of the Army. Such appointees will be directed to report to West Point on 1 July 1966.

Those post-March candidates who are tested at West Point in June will receive notification approximately 25 June 1966.

Qualified Alternates and Qualified Competitors

If it is determined that the number of appointed candidates to the Class of 1970 will not fill the available vacancies allocated for the class, the Academic Board will recommend for appointment candidates who have been found fully qualified but who failed to receive the appointment to the particular vacancy for which they were nominated. In making its selection, the Board will consider the following factors: academic ability based upon the candidate's entire scholastic record; character and other personal attributes, as shown by statements furnished by principals, teachers, and other school officials; evidence of exceptional capabilities; and leadership potential. *No application by a candidate is necessary. All fully qualified unappointed candidates will be considered.* Candidates appointed under this procedure are not charged to the CONGRESSIONAL or ARMY quotas under which they were originally nominated.

Reapplication

A candidate who qualified for appointment, but is not selected for a class entering the Academy, is encouraged to reapply for a nomination in a subsequent year. Policies as to whether or not the results of previously taken examinations will be considered in such cases are set forth in the section on Examinations.

Guidance for Appointees—Class of 1970

Preparatory Physical Conditioning: Because of the nature of new cadets' training during their first 2 months at West Point, physical demands upon them are necessarily great. Experience indicates that those cadets who, prior to admission, have conditioned themselves physically are best able to meet the training requirements. The candidate should strive for the degree of conditioning required for vigorous team sports. He is advised to practice heavy physical conditioning exercises (such as pull-ups, sit-ups, and push-ups) until many repetitions of the exercises can be performed without severe physical strain. In addition, he should strengthen his legs and wind by regular cross country running and by fast climbing on steep slopes. A program of vigorous competitive sports should be followed, with emphasis on variety of sports rather than on one favorite activity. Any candidate in doubt about his physical-conditioning methods would be well-advised to consult a high school or college physical education department.

Deposit Upon Entrance: Because the purchase of his uniforms, textbooks, etc., requires a heavy expenditure of funds during his first year, the appointee should make a deposit of $300 prior to 15 June of the year of his entrance to the Academy. When such deposit is in the form of a check, it should be made to the Treasurer, USMA, and mailed to him at West Point. The deposit is credited to the cadet's account.

Immunizations: The appointee is required to furnish the Surgeon, USMA, by mail, evidence from a physician of successful smallpox vaccination, including type of reaction, given within six months prior to entry to the Military Academy. Candidates examined at West Point in June will be required to submit such documentary evidence, by mail, as soon as possible thereafter. A list of other vaccinations or inoculations received by the appointee should be included.

Travel Expenses: New cadets who were members of the Armed Services on active duty are entitled to permanent change of station allowances as provided under the Joint Travel Regulations. New cadets who were not previously members of the Armed Services on active duty are entitled to the permanent change of station allowances for travel

actually performed, not to exceed the official distance between the place which the cadet certifies was his actual permanent place of abode, home or school, at the time such travel to the Academy commenced. The allowance for travel at personal expense is 6 cents per mile. Payment of the travel allowance is usually made in the month of September and is credited to the cadet's account. Should the deposit upon entrance plus the travel allowance exceed $300, the cadet may submit a request to have the excess over $300 returned to his parents. No action is taken on any request for the return of excess deposit until the travel allowance has been paid. The request for return of excess allowance to parents must be initiated by the cadet.

Oath of Allegiance: Each appointee (except a foreign candidate) takes the oath of allegiance to the United States in a formal ceremony on the day of admission.

Engagement For Service: Upon admission each cadet (except a foreign cadet), with the consent of his parents or guardian, if he is a minor, must sign articles by which he shall engage, unless sooner separated by competent authority—

To complete the course of instruction at the United States Military Academy.

If tendered an appointment as a commissioned officer in a Regular component of one of the armed services upon graduation from the United States Military Academy, to accept such appointment and to serve under such appointment for not less than five consecutive years immediately following the date of graduation.

In the event of the acceptance of his resignation from a commissioned status in a Regular component of such armed service prior to the sixth anniversary of his graduation, or in the event of an appointment in such Regular Service not being tendered, to accept a commission which may be tendered in a Reserve component and not resign therefrom prior to such sixth anniversary.

In the event of his separation or the acceptance of his resignation from the Corps of Cadets, to accept, if qualified, transfer to the Army Reserve in an appropriate enlisted grade and complete the six-year service obligation, including active duty training if required. Further, notwithstanding any of the aforegoing, in the event of his separation or the acceptance of his resignation from the Corps of Cadets, to accept, if qualified, transfer to the Army Reserve and to remain subject to being ordered to active duty in an enlisted grade for a period not in excess of four years.

ACADEMIC PROGRAMS

MISSION

To provide a broad collegiate education leading to the Bachelor of Science degree.

To build an academic foundation for future graduate study.

To stimulate and challenge intellectual curiosity and individual talents.

To develop powers of analysis, reasoning, and expression.

To contribute to the building of character.

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ACADEMIC CALENDAR 1965–66

1965

1 July	Thursday	New Fourth Class enters (Class of 1969).
4 July	Sunday	Independence Day.
5 July	Monday	Duties suspended.
29 August	Sunday	Beginning of Reorganization Week.
4 September	Saturday	End of Reorganization Week.
6 September	Monday	Labor Day. Duties suspended.
7 September	Tuesday	First Term begins.
1–3 October	Friday–Sunday	Homecoming Weekend.
11 November	Thursday	Veterans Day. Classes suspended.
22 December	Wednesday	Christmas leave begins at 12:00 noon.

1966

3 January	Monday	Christmas leave ends at 5:30 p.m.
22 January	Saturday	First term ends at 12:00 noon.
24 January	Monday	Second term begins.
2 February	Wednesday	Graduate Record Exam for 1st Class.
22 February	Tuesday	Washington's Birthday. Classes suspended.
24 March	Thursday	Spring Leave for three upper classes begins at 3:15 p.m.
28 March	Monday	Spring Leave for three upper classes ends at 6:00 p.m.
21 May	Saturday	Armed Forces Day. Classes suspended.
28 May	Saturday	Second Term ends at 12:00 noon for First Class.
30 May	Monday	Memorial Day. Duties suspended.
2 June	Thursday	Second Terms ends at 3:15 p.m. for underclasses.
5 June	Sunday	Baccalaureate Sunday.
8 June	Wednesday	Graduation.
1 July	Friday	New Fourth Class enters. (Class of 1970.)

THE ACADEMIC BOARD

The Academic Board establishes standards and procedures for admission, readmission, advanced placement, validation, academic proficiency, advancement from class to class, graduation, and the granting of diplomas and commissions. The Board recommends separation of cadets for deficiency in academic studies, in conduct, in physical education, and in aptitude for the service. The Board approves courses of instruction, methods of instruction, schedules of instruction, and changes in institutional facilities.

SUPERINTENDENT, AND PRESIDENT OF THE BOARD:
Maj. Gen. James B. Lampert, USA; B.S., M.S.

DEAN OF THE BOARD:
Brig. Gen. John R. Jannarone, USA; B.S., M.S., C.E.

COMMANDANT OF CADETS AND HEAD OF THE DEPARTMENT OF TACTICS:
Brig. Gen. Richard P. Scott, USA; B.S., M.A.

PROFESSOR AND HEAD OF THE DEPARTMENT OF
EARTH, SPACE, AND GRAPHIC SCIENCES:
Col. Charles R. Broshous, USA; B.S., M.S.

ELECTRICITY:
Col. Elliott C. Cutler, Jr., USA; B.S., M.S., Ph.D.

ENGLISH:
Col. Edwin V. Sutherland, USA; B.S., M.A., Ph.D.

FOREIGN LANGUAGES:
Col. Walter J. Renfroe, Jr., USA; B.S., M.A., Ph.D.

LAW:
Col. Frederick C. Lough, USA; B.S., LL.B.

MATHEMATICS:
Col. Charles P. Nicholas, USA; B.S.

MECHANICS:
Col. Elvin R. Heiberg, USA; B.S., C.E.

MILITARY ART AND ENGINEERING:
Col. Charles H. Schilling, USA; B.S., M.S., Ph.D.

MILITARY HYGIENE:
Col. John H. Voegtly, B.S., M.D.

ORDNANCE:
Col. John D. Billingsley, USA; B.S., B.S. in M.E., M.B.A.

PHYSICS AND CHEMISTRY:
Col. Donald G. MacWilliams, USA; B.S., M.S.

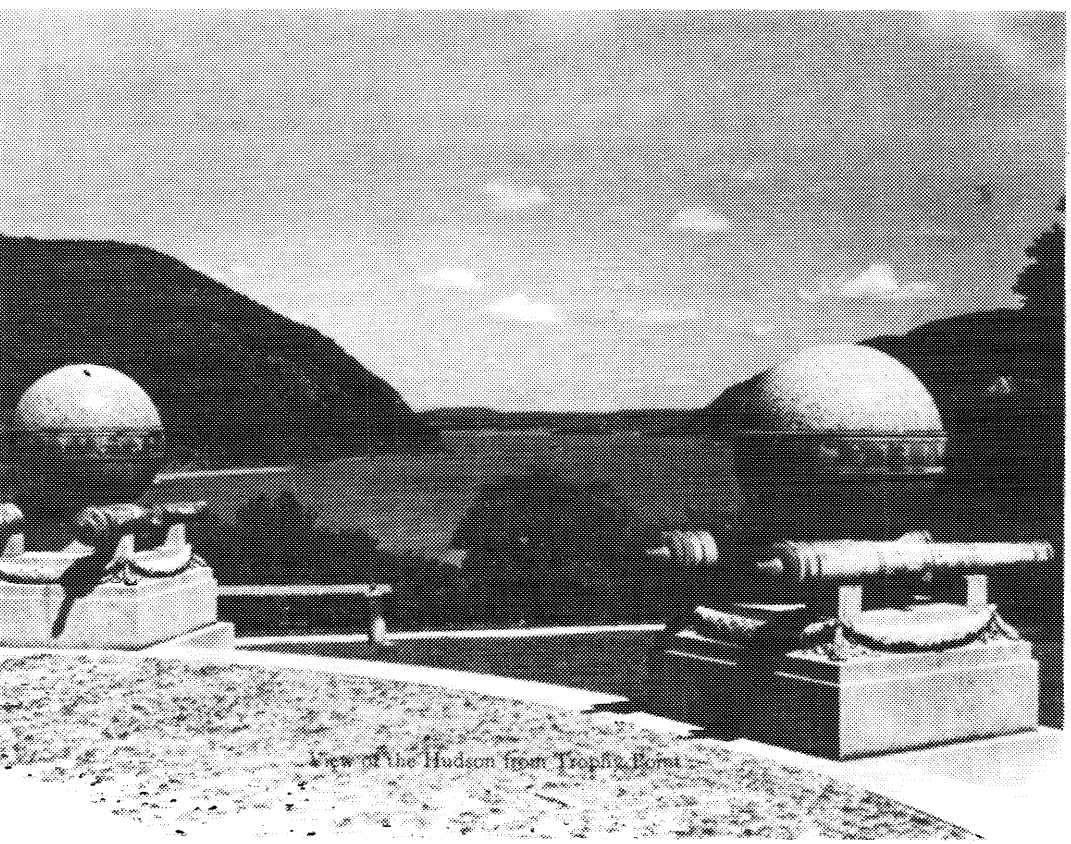
SOCIAL SCIENCES:
Col. George A. Lincoln, USA; B.S., B.A., M.A. (Oxon).

DIRECTOR OF ADMISSIONS AND REGISTRAR, SECRETARY TO THE BOARD:
Col. Robert S. Day, USA; B.S., M.S.

Consultants to the Academic Board:

James P. Baxter III, Ph.D., Litt.D., LL.D., President Emeritus, Williams College.

Carl Richard Soderberg, Tekn. D., D. Eng., Institute Professor Emeritus; Professor of Mechanical Engineering, Emeritus; Dean of Engineering, Emeritus, Massachusetts Institute of Technology.



View of the Hudson from Trophy Point

THE EDUCATIONAL PHILOSOPHY OF THE UNITED STATES MILITARY ACADEMY

The United States Military Academy prepares selected young men for service to their country as professional officers of the United States Army. Since it is the only institution of higher learning with this specific mission, its philosophy of education is unique. The Military Academy must produce enlightened military leaders of strong moral fiber whose minds are creative, critical, and resourceful. The academic curriculum and military training encourage logical analysis, clear and concise expression of considered views, and independent thought and action along with a readiness, developed within the framework of military discipline, to carry out orders without reservation once a decision has been reached.

The total curriculum is designed to develop those qualities of character, intellect, and physical competence needed by the officer who is prepared to lead the smallest combat unit or to advise the highest governmental council. The program includes the sciences, the humanities, and military and physical training. It forms a basis both for graduate education and for further professional development.

In the academic curriculum, standard courses provide the essential core of knowledge of mathematics, science, engineering, the social sciences, and the humanities and an understanding of the application of this knowledge to the solution of problems. Advanced and elective courses afford the opportunity to develop intellectual capacities and to concentrate in areas of particular interest.

Military training provides the requisite knowledge of professional fundamentals and doctrine and of the basic military skills. Service in positions of responsibility in the Corps of Cadets and participation in intensive summer training provide the opportunity to apply and test principles and to learn techniques by practice and observation.

Fitness for military leadership requires physical strength, agility, stamina, and a competitive spirit. These are acquired from a comprehensive course in physical education and from participation in intramural and intercollegiate sports.

The increasing complexity of the world scene requires constant adaptation by the military profession and by the institutions which prepare its leaders. But while adapting itself to the changing world, the Academy must continue to emphasize the devotion to Duty, Honor, and Country which has traditionally been the hallmark of its graduates.

GENERAL PROGRAMS

Bachelor of Science Program

The Military Academy is accredited by the Middle States Association of Colleges and Secondary Schools. Its academic program provides the student with a broad foundation in the humanities, the social sciences, the natural and engineering sciences, and the military sciences. Graduates of the Academy are accepted for advanced study by the leading graduate schools of the country.

Standard Academic Program

The Standard Academic Program consists of the prescribed courses which fulfill the minimum requirements for graduation. Each cadet must satisfactorily complete each of these courses, unless, on the basis of previously completed college level work or demonstrated ability, he is qualified for enrollment in the Advanced Studies Program.

Advanced Studies Program

The Advanced Studies Program is the academic program or, more precisely, programs, pursued by cadets who validate standard courses or who are capable of taking courses of a more advanced nature. It is designed to recognize and to give credit for previous academic achievement and to permit the cadet to penetrate more deeply into one subject area or to pursue a broader field of study than is required by the Standard Academic Program.

Validations

A cadet who has satisfactorily completed appropriate college-level work before entering the Academy, or who has acquired sufficient knowledge of the subject matter through self-study, may validate standard courses. Normally he must successfully complete validation examinations administered at the Academy by the departments concerned. In addition, candidates are encouraged to submit for validation consideration College Entrance Examination Board Advanced Placement test results. *For each course validated, a cadet will take the next sequential standard course or an appropriate elective course.* A cadet who has appreciable prior knowledge of the subject matter, although not sufficient for validation, or who demonstrates unusual ability, may be enrolled in an advanced course. Advanced courses normally cover the subject matter of the corresponding standard course but include subject matter which is significantly broader or deeper in scope. *From the foregoing it should be apparent that there is a great opportunity for advanced study for those candidates who have, for varying reasons, attended college before enter-*

ing the Academy. It is important for such a candidate not only to complete the term in which he is enrolled, but also to do as well as possible during the terms he attends college so that he may participate in the validation program to the maximum extent. Furthermore, if the candidate is attending college before entering the Academy he should select very carefully a program of studies which approximates that of the Academy and thus be better assured of validating courses at the Academy.

Elective Courses

Elective courses are those courses a cadet selects at designated stages in the curriculum. At present, each cadet taking the Standard Academic Program will select and pursue four elective courses during his final two years at the Academy. Cadets who validate standard courses will, at some time between validation and graduation, take additional elective courses equivalent in terms of credit hours to the validated courses. With approval, cadets of the upper classes may take elective courses in addition to their normal course loads. The elective courses offered are listed in the following pages.

Honors Courses

For a select few cadets Honors Courses are offered in the First Class year.

Listing of Courses

Standard, advanced, and elective courses are shown by departments. Courses for the Fourth Class are numbered in the 100's; courses for the Third Class in the 200's; courses for the Second Class in the 300's; and courses for the First Class in the 400's. Advanced and elective courses are indicated by the second digit, 5 and 8, respectively. For standard and advanced courses the third digit indicates the term in which the course is offered; odd digit for first term, even digit for second term. Elective courses may be offered in either or both terms as indicated in the course description. Credit hours are computed generally on the basis of actual number of hours of classroom instruction per week.

Methods of Instruction

Cadets attend classes in small sections of from 12 to 15 students so that emphasis may be placed on daily student participation. Cadets are normally assigned to sections on the basis of their demonstrated ability in each subject. The resulting homogeneous grouping enables the instructor to pace his teaching to the capability of the student. Thus the cadet is intellectually challenged and the maximum of learning can take place at

all levels. Cadets are resectioned periodically. Weekly posting of grades contributes much to the development of a competitive spirit in academics among cadets. Periodic reports of each cadet's academic progress are provided to parents.

STANDARD AND ADVANCED STUDY PROGRAMS

COURSES IN THE STANDARD ACADEMIC PROGRAM	*COURSES IN THE ADVANCED ACADEMIC PROGRAM*
4th Class (Freshman)	
Engineering Fundamentals	Advanced Engineering Fundamentals
Composition, Reading, and Speech Making	Evolution of American Ideals
Environment	Geography of the USSR
Foreign Languages	Advanced French, German, Russian or Spanish
Mathematics	Advanced Mathematics
3d Class (Sophomore)	
Chemistry	Advanced General Chemistry with Analysis
Comparative Literature	Accelerated French, German or Spanish
Foreign Languages	Advanced French, German, Russian or Spanish
History of Europe and America: 1500–1870	Middle Eastern Studies
History of Europe and America Since 1870	History of Russia
	Latin American Studies
	History of U.S. Foreign Relations
Mathematics	Advanced Mathematics
Physics	Advanced Physics
Psychology	Additional Electives
2d Class (Junior)	
Atomic and Nuclear Physics	Augmented Atomic and Nuclear Physics
Economic Principles and Problems	Comparative Economic Systems
Electives (2)	Additional Electives
Electrical Science	Augmented Circuits
Law	Augmented Electronics
Fluid Mechanics	Advanced Fluid Mechanics
Engineering Mechanics I	Advanced Engineering Mechanics I
Thermodynamics	Advanced Thermodynamics
U.S. Government	Political Philosophy

COURSES IN THE STANDARD ACADEMIC PROGRAM	*COURSES IN THE ADVANCED ACADEMIC PROGRAM*
1st Class (Senior)	
Structural Analysis	Honors Course in Civil Engineering
Structural Design, Soils and Concrete	or
	Introduction to Nuclear Engineering
Contemporary Foreign Governments	
Electives (2)	Additional Electives
History of Military Art	
History of Modern Asia	
International Relations	National Security Problems
	Problems of Developing Nations
Literature and Advanced Exposition	
Military Leadership	
Ordnance Engineering	Honors Course in Ordnance Engineering

ELECTIVE COURSES IN SOCIAL SCIENCES—HUMANITIES

Advanced French Literature
Advanced German Literature
Advanced Study of Literature of Spain
American Literature of the 19th Century
*American Military Institutions and Manpower
*Civilization and Literature of France
Comparative Economic Systems
*Contemporary Hispanic-American Literature
Contemporary Literature
English Literature from the Beginning to 1660
English Literature from 1660 to the Present
Evolution of Modern Warfare (1400–1900)
French Language Through Literature
*Geography of the USSR
German Language Through Literature
History of Russia
History of U.S. Foreign Relations
*Individual Readings and Research Projects in French
*Individual Readings and Research Projects in German
*Individual Readings and Research Projects in Portuguese
International Law
Latin American Studies
Managerial Psychology
Middle Eastern Studies
Military and Scientific Readings in German
*Military and Scientific Readings in Russian
National Security Problems
The Novel
Political Philosophy
Portuguese Language Through Literature
Problems of the Developing Nations
*Regional Geography of the U.S.
Revolutionary Warfare
*Russian Civilization
*Russian Language Through Literature
Shakespeare
Sociology: Society and Culture
Spanish Language Through Literature
Twentieth Century Warfare (1900–The Present)

* New for Academic Year 1965–1966.

ELECTIVE COURSES IN MATHEMATICS—SCIENCE—ENGINEERING

*Abstract Algebra
Advanced Calculus I
Advanced Calculus II (Complex Variable)
Advanced Engineering Mechanics II
Advanced Structural Analysis
*Automatic Control Systems
Automotive Engineering
*Chemistry Research Project
*Computer Science Fundamentals
*Continuum Mechanics
Design of Concrete Structures
Differential Equations (Intermediate)
Digital Computers
*Electromagnetic Fields and Advanced Circuits
Electromechanical Energy Conversion
Electronic Circuits
Engineering Materials
Engineering Mechanics II
*Experimental Physics
Gas Dynamics
Graphical Computations
*Heat, Mass, and Momentum Transfer
Individual Engineering Projects
Individual Ordnance Project
*Information Transmission
Introduction to Theoretical Physics I
Introduction to Theoretical Physics II
Linear Algebra and Linear Programing
Management Engineering
Nuclear Physics
Nuclear Reactor Theory
Numerical Analysis with Digital Computation
*Operations Research
*Organic Chemistry I
*Organic Chemistry II
Physical Chemistry I
Physical Chemistry II
Quantum Mechanics
Soil Mechanics
Solid State Electronics
Space Mechanics

* New for Academic Year 1965–1966.

STANDARD ACADEMIC SCHEDULE 1965–66

FOURTH CLASS (FRESHMAN) YEAR

Subject	*Frequency of Attendance*	*Number of Attendances*	*Length of Period in Minutes*	*Contact Hours*	*Semester Credit Hours*
Mathematics	Every day Mon–Sat	208	75	260	15
Engineering Fundamentals.	Every other day Mon–Fri	88	120	176	5
Environment	Every other day Mon–Fri	88	60	88	5
English	Every other day Mon–Fri	88	60	88	5
Foreign Languages	Every other day Mon–Fri	88	60	88	5
Physical Education	As scheduled	145	45–90	129	3
Tactics	Twice each week	68	60	68	2.5

THIRD CLASS (SOPHOMORE) YEAR

Mathematics	Every other day Mon–Sat	104	80	139	8
Chemistry	Every other day Mon–Sat	104	80	139	8
Physics	Every other day Mon–Sat	104	80	139	8
Foreign Languages	Every other day Mon–Sat	104	80	139	8
History, Europe and America.	Every other day Mon–Fri	88	60	88	5
English	Every other day Mon–Fri	[1] 44	60	44	2.5
Psychology	Every other day Mon–Fri	[2] 44	60	44	2.5
Physical Education	As scheduled	73	55–90	83	1.5
Tactics	Twice each week	49	60	49	1.5

SECOND CLASS (JUNIOR) YEAR

Fluid Mechanics and Thermodynamics.	Every other day Mon–Sat	104	80	139	8
Electrical Science	Every other day Mon–Sat	104	80	139	8
Atomic and Nuclear Physics.	Every other day Mon–Sat	52	80	69	4
Engineering Mechanics.	Every other day Mon–Sat	52	80	69	4
Economics; U.S. Government.	Every other day Mon–Fri	88	60	88	5
Law	Every other day Mon–Fri	88	60	88	5
Electives (2)	Every other day Mon–Fri	88	60	88	5
Tactics	Twice each week	61	60	61	2.5
Physical Education	As scheduled	48	55–90	58	1.5

[1] First Term.
[2] Second Term.

FIRST CLASS (SENIOR) YEAR

Subject	*Frequency of Attendance*	*Number of Attendances*	*Length of Period in Minutes*	*Contact Hours*	*Semester Credit Hours*
Civil Engineering	Every other day Mon–Sat	103	80	137	8
History of Military Art.	Every other day Mon–Sat	103	80	137	8
Contemporary Foreign Governments; Modern Asia; International Relations.	Every other day Mon–Sat	103	80	137	8
Ordnance Engineering.	Every other day Mon–Sat	103	80	137	8
Electives (2)	Every other day Mon–Fri	88	60	88	5
English	Every other day Mon–Fri	[2] 44	60	44	2.5
Leadership	Every other day Mon–Fri	[1] 44	60	44	2.5
Tactics	Twice each week	55	60	55	1.5
Physical Education	As scheduled	54	55–90	64	1

[1] First Term.
[2] Second Term.

THE ACADEMIC DEPARTMENTS

OFFICE OF THE DEAN

Dean: Brig. Gen. John R. Jannarone
Associate Dean: Lt. Col. D. L. Knoll, Jr.
Assistants to the Dean:
Operations: Lt. Col. J. W. Mastin
Maj. A. H. Blair
Capt. F. J. McConville
Research and Analysis: Maj. J. R. Kintz
Computer Science: Lt. Col. W. F. Luebbert
Administration: Mrs. J. M. Micksin

DEPARTMENT OF EARTH, SPACE, AND GRAPHIC SCIENCES

Professors: Col. C. R. Broshous (Head of Department), Col. W. W. Watkin, Jr.
Associate Professors: Lt. Cols. R. H. Hammond, W. B. Rogers, W. C. Smith.
Assistant Professors: Majs. R. W. Badger, K. R. Ebner, J. E. Fox, G. A. McClellan, E. M. Moses, E. J. O'Brien; Capts. D. A. Andrews, P. D. Booras, H. J. Hatch, R. H. Julian, J. G. McCormack, J. C. Shirey, E. G. Stauch, M. G. Swindler.
Instructors: Majs. M. E. Kallman, R. E. Littlefield; Capts. J. M. Davis, Jr., G. Z. Demers, E. S. Diez, T. B. Graham, L. R. Hayden, Jr., H. J. Hubbard, III, J. R. Jenkins, J. H. Jones, T. F. Plummer, Jr., D. W. Reeves, R. L. Reynard, L. B. Rodenberg, Jr., M. D. Schoonmaker, L. G. Smith, J. E. Sobraske, D. F. Svendsen, R. L. Stone, G. D. Tebben, N. S. Williamson, III, E. K. Wintz.

Standard Courses

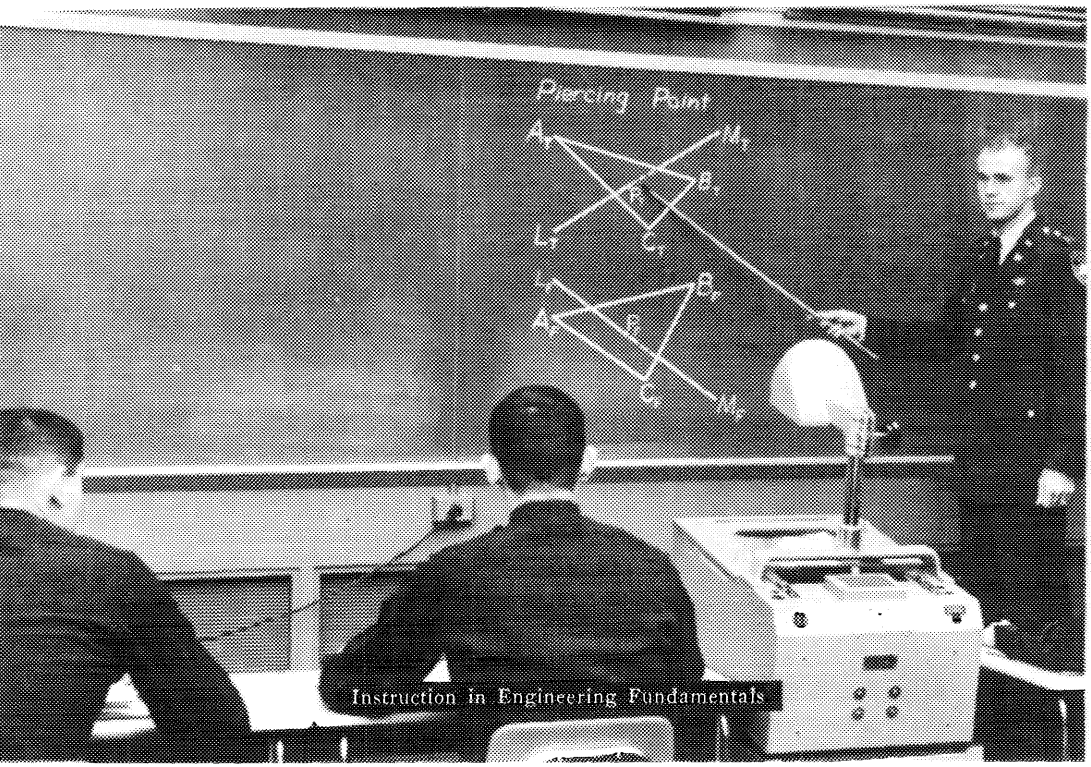
EF 101–102. Engineering Fundamentals

Introduction to the Digital Computer. Basic programing for and operation of the General Electric 225 Digital Computer.

Graphical Techniques. Single-stroke gothic lettering, technical sketching, use of the drawing instruments, and a brief introduction to graphs, diagrams, and graphic training aids.

Graphical Representation. The theory of projection, orthographic, isometric, oblique, and perspective projection; the spatial relationship of points, lines, and planes; and working drawings. Includes a brief introduction to basic mechanical elements, conventions, basic dimensioning, and limit dimensions followed by a simple design project.

Graphical Calculations. Basic principles of vector geometry, nomography, and graphical calculus with limited applications.



Instruction in Engineering Fundamentals

Earth Measurements. Measurement of horizontal and vertical distances and horizontal and vertical angles at or near the surface of the earth. The instruments used and the need for accurately determining these measurements. Brief introductions of mapping, the theory of errors and measurements.
5 Credit Hours.

EV 101–102. ENVIRONMENT

Physical Geography. Descriptive study of a number of earth sciences which gives a general insight into the nature of man's environment and provides a sound physical basis for later work in world geography. Included are introductions to geomorphology, geology, hydrology, meteorology, climatology, pedology, and physical oceanography. Map studies are emphasized throughout.

World Geography. An introductory study of distributional patterns building upon previous analysis of man's physical environment. Following an investigation and correlation of topics fundamental to geographic study, the evolutions of distinctive cultural outlooks are examined using

the framework of political and cultural regions, emphasizing and contrasting industrial societies and societies of emergence. Particular attention is devoted to man's varying response to his physical environment and how these responses show different adaptations of weapons, tools, plants, concepts, laws, and institutions to meet the requirements for survival, and how they record man's attempts to successfully exploit his physical surroundings as he engages in activities of economic importance.

Astronomy-Astronautics. Historical concepts of astronomy; basic celestial mechanics; electromagnetic radiation; general methods of astronomical investigations; physical characteristics of solar system bodies; stellar characteristics and motions; current astronautics programs.
5 Credit Hours.

Advanced Courses

EF 151–152. Advanced Engineering Fundamentals

Prerequisite: One year of engineering graphics in a recognized engineering college or equivalent, and demonstration of a satisfactory degree of proficiency in engineering graphics by passing a special validation examination. Offered in lieu of Engineering Fundamentals 101–102.

Advanced Engineering Fundamentals is a rigorous course going beyond the usual freshman level to consider in depth descriptive geometry, vector geometry, graphical calculus, and nomography. Brief introductions to graphical arithmetic and algebra, empirical equations, and harmonics and Fourier Series are included. A team project in which a practical engineering problem is investigated and graphical solutions presented, concludes the graphics portion of the course. Basic programing for the GE 225 Digital Computer and earth measurements receive a coverage comparable with EF 101–102 with the addition of a field problem in earth measurements.
5 Credit Hours.

EV 152. Geography of the USSR

A study of the geographic characteristics of the USSR through an analysis of the physiography, hydrography, climate, energy resources, agriculture, transportation, economic and natural regions of the USSR. The knowledge acquired will give to the student a basic understanding of geographic problems currently confronting the USSR.
2.5 Credit Hours. (Given to selected cadets in lieu of taking World Geography 102.)

Elective Courses

ES 382. COMPUTER SCIENCE FUNDAMENTALS (*Either Term*)

Prerequisites: Open to all 1st and 2d Classmen and to 3d Classmen who stand in the top ⅓ in Math.

This course provides the cadet who already possesses a minimum basic familiarity with the use of digital computers a comprehensive introduction to the computer science field. Special attention is directed to military and business-oriented computer applications, math-science-engineering computer applications, systems analysis techniques, computer aided mathematical decision making, automatic data processing methods, compiler languages, automatic programing as related to machine-language programing, and advanced programing techniques.

2.5 Credit Hours.

EV 381. GEOGRAPHY OF THE USSR (*Either Term*)

Prerequisites: Open to all cadets who have completed EV 101–102 except those who took Geography of the USSR as part thereof.

This course covers the demographic, physiographic, climatic, agricultural, industrial, transportation, and mineral resource patterns of the USSR. Geographic factors—cultural, economics, and physical—are related to the human activity in agriculture and industry. The knowledge gained by the cadet will contribute to the foundation required for assessing USSR capabilities.

2.5 Credit Hours.

EV 384. REGIONAL GEOGRAPHY OF THE UNITED STATES (*Second Term*)

Prerequisite: EV 101–102.

Regional analysis of the major economic subdivisions of the United States. Study of how demographic, physiographic, climatic, resource, and cultural factors have contributed to existing industrial, agricultural and transportation patterns. The understanding thus gained of the industrial, agricultural and resource bases of our nation will serve the cadet as a standard of comparison in the analysis of any other nation or region of the world.

2.5 Credit Hours.

DEPARTMENT OF ELECTRICITY

Professors: Colonel E. C. Cutler, Jr. (Head of Department).
Associate Professors: Lt. Cols. W. W. Chandler, S. E. Reinhart, Jr.; Maj. R. B. Andreen.
Assistant Professors: Lt. Col. E. E. Emerson, Jr.; Majs. G. L. Breeding, F. L. Day, D. F. Newnham, L. S. Zimmer; Capts. P. H. Enslow, J. F. Passafiume.
Instructors: Capts. R. T. Goodwyn, III, T. G. Adcock, J. J. P. Meehan, W. I. Brownfield, A. B. Salisbury, B. C. Giallourakis.

Standard Courses

EL 301. Electric Circuits

Charge, current and voltage; resistance, capacitance, and inductance; Ohm's and Kirchhoff's Laws; power and energy; sinusoidal steady-state and phasor representation; Fourier Series; natural and total response to step input; reactance and impedance in steady-state analysis; resonance, bandwidth and Q; network analysis, Thevenin's and Norton's Theorems, maximum power transfer and coupled circuits; graphical analysis; magnetic circuits and transformers.

Laboratory. Experimental verification of fundamental laws of electric circuits. Observation of voltage and current characteristics, series and parallel resonant circuits, natural response and application of equivalent circuits in solving practical electrical networks.
4 Credit Hours.

EL 304. Electronics

Concepts of electronic systems; signal representation; electronic circuit representation; resistive two-port networks, attenuators, and summers; analysis of tank-circuits, piezoelectric crystals, and Butterworth filters; simple telephone systems; diode electronics and rectifiers; triode electronics, parameters, and graphical analysis; equivalent circuits of triodes and pentodes; vacuum tube amplifiers, methods of coupling, gain, and frequency response; transistors; transistor amplifier circuits; inductive coupling of tuned circuits; radio amplifiers; feedback amplifiers; oscillators; radio waves and antennas; modulation and detection; receivers and transmitters; frequency bands; FM and SSB; simple wave-shaping circuits.

Laboratory. Measurement of vacuum tube and semiconductor device characteristics; construction and operation of amplifiers, filters, oscillators, tuned circuits, mixers, detectors, transistor circuits, wave-shaping circuits, AM superheterodyne receivers.
4 Credit Hours.

Advanced Courses

EL 351. AUGMENTED CIRCUITS

Augmented course replacing EL 301 for qualified cadets. Covers basic electric circuit theory; solution of circuit differential equations; network functions, steady state sinusoidal analysis; non-sinusoidal periodic waves; frequency dependence of network functions; pulse and impulse response of circuits, coupled circuits, transformers, and analogues. The LaPlace transform techniques for circuit analysis and associated techniques are introduced early and utilized throughout the course. The linear two-port network and its terminal characteristics; attenuators, tank circuits and filters are treated. Magnetic circuits and solution techniques for non-linear circuits are also covered.

Laboratory. Experimental verification of the fundamental laws of electric circuits. Familiarization with methods of measurement to include the use of bridges. Measurement of transformer parameters. Analog computer operation.

4 Credit Hours.

EL 354. AUGMENTED ELECTRONICS

More thorough treatment of EL 304 topics with emphasis on s-plane techniques. Topics include active networks; amplifiers; amplifier coupling; band pass and negative feedback amplifiers; oscillators; modulation and detection.

Laboratory. Measurement of vacuum tube and semiconductor characteristics; construction and operation of amplifiers, oscillators, tuned circuits, AM transmitters and AM superheterodyne receivers.

4 Credit Hours.

Elective Courses

EL 382. ELECTROMECHANICAL ENERGY CONVERSION (*Second Term*)

Prerequisites: EL 301 or EL 351.

Basic principle of electromechanical energy conversion; review of magnetic circuits; principle of virtual work and its application to rotating and translating devices; dc generators and motors; alternators; synchronous motors; induction motors; the general machine; constraints for ac and dc machines; the reluctance motor; the metadyne; introduction to feedback control systems; use of the LaPlace transform.

Laboratory. Saturation curve, dc generator; load test, dc motor; performance test, alternator and synchronous motor; load test, induction motor; performance test basic servomechanisms.

4 Credit Hours.

EL 383. ELECTROMAGNETIC FIELDS AND ADVANCED CIRCUITS (*First Term*)

Prerequisites: Concurrent with EL 301.

Vector analysis; gradient, divergence, and curl; static electric and magnetic fields; Maxwell's hypothesis and equations; plane waves, reflection and refraction; radiation and antennas; waveguides; ionospheric propagation and radar.

Signal representation in electrical and electronic systems; LaPlace transform; singularity functions; superposition and convolution; introduction to Fourier Series and transforms; linear two-port networks and terminal characteristics; attenuators; frequency analysis and Bode diagrams; tank circuits and filters; pole and zero plots; coupled circuits.

Laboratory. Microwave equipment familiarization, waveguides, antenna patterns; filters and attenuators.

4 Credit Hours.

EL 481. ELECTRONIC CIRCUITS (*First Term*)

Prerequisite: EL 304.

Graphical analysis of transistor and vacuum tube circuits; equivalent circuits of active networks to include transistors and vacuum tubes; introductory LaPlace transforms; transient and steady state analysis of bandpass amplifiers, tuned amplifiers, and large signal amplifiers; feedback amplifiers; oscillators; power supplies.

Laboratory. Mission type laboratories (7 one-hour laboratory exercises, 12 partial period exercises) emphasizing the design of transistor circuits.

2.5 Credit Hours.

EL 483. DIGITAL COMPUTERS (*First Term*)

Prerequisite: EL 304 or standing in upper half of class in 3d or 4th Class Mathematics and completion or validation of PH 202.

Capabilities and limitations of digital computers; organization and operation; electrical construction; system design, planning, and applications.

Laboratory. Investigation of the various electronic circuits utilized in a digital computer and assembly of a portion of a specimen computer. Practical exercise on an actual digital computer involving computer operating techniques and various programing methods.

2.5 Credit Hours.

EL 484. INFORMATION TRANSMISSION (*Second Term*)

Prerequisites: EL 304.

The basic concepts of random time functions and their application to the analysis of communication systems. Frequency and time domains, several types of modulation, random signal theory including application of basic statistics and probability theory, network analysis, basic information theory, noise sources and noise figure, signal-to-noise ratio, and radar.

2.5 Credit Hours.

EL 486. SOLID STATE ELECTRONICS (*Second Term*)

Prerequisites: EL 305.

Band structure of semiconductors; density of states; Fermi level; mobility, lifetime, recombination, and trapping; diffusion and drift; space charge; high-field effects; optical behavior; surface properties and thin films; single-junction devices, including rectifiers, avalanche diodes, field-effect transistors, tunnel diodes, and photodiodes; transistors and multiple-junction devices; fabrication techniques; thin-film networks; integrated solid-state circuits.

Laboratory. Measurement of mobility, lifetime, and carrier diffusion length, of junction characteristics; of optical and magnetic effects; and of device characteristics.

2.5 Credit Hours.

EL 487. AUTOMATIC CONTROL SYSTEMS (*First Term*)

Prerequisites: EL 386 or 382.

The composition and response of linear servo-mechanisms is studied in both the time and frequency domains. Topics include: transfer functions of common system components; block diagram manipulations; dynamic analysis of systems; performance criteria; steady-state errors; and stability. Common tools of analysis such as the Routh-Hurwitz criteria, Nyquist diagrams, Nichols charts, Bode diagrams, and root locus plots are discussed. Methods of stabilization and compensation are developed.

Laboratory. Experimental verification of the techniques of analysis and design of servo-system components and complete systems. Individual component transfer functions are measured, total system response verified, and the effectiveness of various compensation networks is examined.

2.5 Credit Hours.

DEPARTMENT OF ENGLISH

Professor: Col. E. V. Sutherland (Head of Department).
Associate Professors: Lt. Cols. W. C. Burton, J. L. Capps, C. R. Kemble.
Assistant Professors: Majs. A. A. Arduna, J. F. Bart, J. H. Cooper,

Classroom Discussion in English

W. C. Cousland, L. S. Sorley III, R. R. Sullivan, J. W. Wensyel (Executive Officer), Capt. J. T. Munsey.

Instructors: Majs. D. C. Ahearn, E. J. Cutler, D. H. Rumbough, N. A. Spiro, Capts. G. A. Bailey, K. A. Barlow, H. B. Bynell, P. W. Child, S. W. Focer, W. E. Haas, W. C. Haponski, P. G. Jones, M. D. Mahler, D. C. Martin, Jr., E. W. Martin, W. S. May, T. J. McAniff, J. T. Murchison, M. L. Plassmeyer, L. A. Spurlock, F. R. Stevens, Jr., N. Terzopoulos, F. W. Willett, A. T. Zukowski, 1st Lt. J. L. Tribble.

Standard Courses

EN 101–102. Composition, Reading, and Speech Making

Grammar, punctuation, and diction; the summary and paraphrase; the paragraph; analysis, logic, exposition, and research; diversified reading selections, including narrative poetry, the drama, the short story, and the essay; the presentation of various types of speeches.

5 Credit Hours (2.5 each term).

EN 201. Comparative Literature

Selections from the masterpieces of world literature. Among the writ-

ers studied are Homer, Plato, Dante, Shakespeare, Milton, Goethe, Yeats, Frost, and Eliot. The course emphasizes that literature treats generally of (1) man's relationship with God; (2) man's relationship with his fellow man; and (3) man's relationship with nature. The cadet develops his skill in speaking through classroom analysis of the assigned reading; he develops his skill in writing through the preparation of formal papers which include a criticism of a novel and a research paper.
2.5 Credit Hours.

EN 402. LITERATURE AND ADVANCED EXPOSITION

Readings in exposition, drama, and the novel. Advanced expository theme writing. The objectives are (1) to develop further the student's ability to write and speak effectively, and (2) to improve his skill in logical analysis and criticism.
2.5 Credit Hours.

Advanced Courses

EN 151. THE EVOLUTION OF AMERICAN IDEALS AS REFLECTED IN AMERICAN LITERATURE, 1607–1860

Open to students qualified by the Department of English.

A study of the part played by American literature in the development of our national character. Among the writers studied are Bradford, Edwards, Franklin, Jefferson, Emerson, Thoreau, Hawthorne, and Poe.
2.5 Credit Hours.

EN 152. THE EVOLUTION OF AMERICAN IDEALS AS REFLECTED IN AMERICAN LITERATURE, 1860–THE PRESENT

Open to students qualified by the Department of English.

A continuation of EN 151. Among the writers studied are Whitman, Lincoln, Howells, James, Clemens, Crane, Sandburg, Benét, Hemingway, Steinbeck, and Faulkner.
2.5 Credit Hours.

Elective Courses

EN 481. THE NOVEL (*First Term*)

Prerequisite: Credit for EN 201.

A study of the development of the novel as a mode of literary expression. Approximately ten representative novels will be read.
2.5 Credit Hours

EN 482. SHAKESPEARE (*Second Term*)

Prerequisite: Credit for EN 201.

A study of selected plays and poems.
2.5 Credit Hours.

EN 483. CONTEMPORARY LITERATURE (*First Term*)

Prerequisite: Credit for EN 201.

A study of the work of major American and British writers between 1900 and the present.

2.5 Credit Hours.

EN 484. AMERICAN LITERATURE OF THE NINETEENTH CENTURY (*Second Term*)

Prerequisite: Credit for EN 201.

A brief survey of American literature with emphasis on the works of Emerson, Thoreau, Hawthorne, Melville, Poe, Mark Twain, Whitman, Dickinson and James.

2.5 Credit Hours.

EN 485. ENGLISH LITERATURE FROM THE BEGINNING TO 1660 (*First Term*)

Prerequisite: Credit for EN 201.

A study of representative authors and trends.

2.5 Credit Hours.

EN. 486. ENGLISH LITERATURE FROM 1660 TO THE PRESENT (*Second Term*)

Prerequisite: Credit for EN 201.

A study of representative authors and trends.

2.5 Credit Hours.

DEPARTMENT OF FOREIGN LANGUAGES

Professors: Col. W. J. Renfroe, Jr. (Head of Department), Lt. Col. S. Willard.

Associate Professors: Lt. Cols. D. T. Dunne, W. C. Thoma.

Assistant Professors: Lt. Cols. T. A. Austin III, R. E. Lenzner, J. C. Martin, H. Reiner, T. J. Stacy; Majs. K. A. Frith, C. A. Olsen, J. R. Ross, E. L. Smith; Capts. T. M. Bowes, W. R. Frederick, H. Heinsoo, P. F. Parks, R. Rinker; Dr. F. Tiller; Messrs. F. C. H. Garcia, N. Maltzoff, C. Viollet.

Instructors: Majs. W. F. Dunkelberger, J. F. Hook, J. Knight, J. T. Rears, R. D. Vanderslice; Capts. R. E. Bell, Jr., W. C. Buell, W. F. Cody, J. W. Crancer, P. V. DiMauro, J. W. Fisher, O. A. Jambon, T. J. Livesay, B. Loeffke, D. A. McNerney, J. O. Neal, Jr., C. E. Poole, Jr., G. A. Richardson, J. F. Santilli, Jr., E. J. Shimek II, J. C. Toole, E. S. Tyler.

Foreign Instructors: Lt. Col. S. Moraes-Rego (Brazilian Army), Majs. W. Cremer (Germany Army), H. Perales (Mexican Army).

Executive Officer: Lt. Col. E. F. Crowley.

NOTE: Each cadet studies one foreign language—French, German, Portuguese, Russian or Spanish—during the first two years of his course at West Point. The Department of the Army specifies the approximate percentage of the entering class to be assigned to each language. Within these quotas cadets are

assigned in accordance with their preferences and previous language experience. In general, a cadet may continue at West Point the study of a language begun elsewhere, unless he has reached a stage of proficiency equal to the average to be attained at West Point. Special advanced courses in French, German, Russian, and Spanish are given for those cadets who wish to continue the study of those languages and who show themselves qualified therefor in oral and written examinations given prior to the start of academic work. The advanced courses are given in lieu of and during the same time as the other language courses. A cadet may also take one or two additional semesters of language study among the elective courses of the fourth year.

Standard Courses

LF 101–102 FRENCH
LG 101–102 GERMAN
LP 101–102 PORTUGUESE
LR 101–102 RUSSIAN
LS 101–102 SPANISH

Basic course in the fundamentals of the language. In keeping with the primary objectives of speaking and of understanding the spoken language, particular emphasis is placed on oral work. The audio-lingual skills are developed by reading aloud, repetition drills, question and answer exercises, prepared and extemporaneous dialogues, individual short talks, and by use of the language laboratory. After the first month of the course all classroom work is in the foreign language.

5 Credit Hours (2.5 each term).

LF 201–202 FRENCH
LG 201–202 GERMAN
LP 201–202 PORTUGUESE
LR 201–202 RUSSIAN
LS 201–202 SPANISH

Continuation of the 101–102 courses, with increased stress on the correct application of grammar principles. Continuing emphasis on discussions, dialogues, and individual talks. Periodic written compositions. Reading and discussion of one or two literary works and of historical, geographical, and military material of current interest. Six or seven lectures on the culture of the people whose language is being studied. Frequent aural comprehension exercises. All work conducted in the foreign language.

8 Credit Hours (4 each term)

Accelerated Courses

LF 141–142 FRENCH

LG 141–142 GERMAN
LS 141–142 SPANISH

Prerequisite: One or two years of previous study of the language.

An accelerated version of the 101–102 courses, using in some cases certain of the same texts, but with coverage of additional textual material as well. The audio-lingual aspects of the language are emphasized through a variety of oral exercises and use of the language laboratory. All classroom work is in the foreign language.

5 Credit Hours (2.5 each term).

LF 241–242 FRENCH
LG 241–242 GERMAN
LS 241–242 SPANISH

Prerequisite: The 141-142 courses in the corresponding language.

Continuation of the 141–142 courses, with increased emphasis on grammatical accuracy, both in speech and writing. Reading of modern works in the language, to include some writings on military subjects. Periodic written compositions. Six or seven lectures on various cultural aspects of the people whose language is being studied. All classroom work is in the foreign language.

8 Credit Hours (4 each term):

Advanced Courses

LF 151–152 FRENCH
LG 151–152 GERMAN
LR 151–152 RUSSIAN
LS 151–152 SPANISH

Prerequisite: The passing of oral and written validating examinations at the beginning of Fourth Class year.

Grammar review with audio-lingual emphasis. Extensive use of pattern drills, question and answer exercises, dialogues, and individual talks. Reading and discussion of modern fiction. Periodic written compositions. All classroom work is in the foreign language.

5 Credit Hours (2.5 each term).

LF 251–252 FRENCH
LG 251–252 GERMAN
LR 251–252 RUSSIAN
LS 251–252 SPANISH

Prerequisite: The 151-152 courses in the corresponding language.

Increased use of audio-lingual techniques, talks, debates, and interpreter exercises. Reading of a wider field of literature by French, Ger-

man, Russian, Spanish, or South American writers. Greater emphasis upon the culture and history of the countries concerned, to include a series of several lectures. Reading of some military writings. All classroom work is in the foreign language.
8 Credit Hours (4 each term).

Elective Courses

LF 381. FRENCH LANGUAGE THROUGH LITERATURE (*First Term*)

Prerequisite: LF 201-202.

Readings in literary works by French writers; class discussions, oral and written compositions.
2.5 Credit Hours.

LF 382. FRENCH LANGUAGE THROUGH LITERATURE (*Second Term*)

Prerequisite: LF 381, plus demonstrated ability to use and understand the language in more complex situations.

Additional literary readings, with greater concentration on modern works. Class discussions, comparative studies, oral and written presentation of conclusions.
2.5 Credit Hours.

LF 483. CIVILIZATION AND LITERATURE OF FRANCE I (*First Term*)

Prerequisite: LF 251-252 or LF 381-382 or LF 241-242, upper half.

This course is an integrated study of the geography, history and literature of France, introducing the cadet to the most significant political and social events and the most typical literary works of each period in order to form a comprehensive picture of the country's life and culture of the time. Emphasis will be placed on the French contributions to the civilization of the western world.
2.5 Credit Hours.

LF 484. CIVILIZATION AND LITERATURE OF FRANCE II (*Second Term*)

Prerequisites: LF 251-252 or LF 381-382 or LF 241-242, upper half, and LF 483.

Continuation of LF 483—Civilization and Literature of France I.
2.5 Credit Hours.

LF 485. ADVANCED FRENCH LITERATURE (*First Term*)

Prerequisite: LF 251-252 or LF 381-382.

Readings in the literature of France with class discussions, themes, etc.
2.5 Credit Hours.

LF 486. ADVANCED FRENCH LITERATURE (*Second Term*)

Prerequisite: LF 485.

Advanced studies in the contemporary literature of France, with class discussions, themes, etc.
2.5 Credit Hours.

LF 487. INDIVIDUAL READING AND RESEARCH PROJECTS IN FRENCH I (*First Term*)

Prerequisite: LF 485-486.

This course is intended for those cadets who have the demonstrated language ability and the personal desire to do individual research in French by a more profound study of a particular period of history or literature. All work will be done in French. Cadets taking this course will meet individually with an instructor when necessary and as a section, at least once every two weeks to render oral and written reports.
2.5 Credit Hours.

LF 488. INDIVIDUAL READING AND RESEARCH PROJECTS IN FRENCH II (*Second Term*)

Prerequisite: LF 485-486.

Continuation of LF 487—Individual Reading and Research Projects in French I.
2.5 Credit Hours.

LG 381. GERMAN LANGUAGE THROUGH LITERATURE (*Second Term*)

Prerequisite: LG 201-202.

Readings in literary works by German writers; class discussions, oral and written compositions.
2.5 Credit Hours.

LG 382. MILITARY AND SCIENTIFIC READINGS IN GERMAN (*Second Term*)

Prerequisite: LG 381, plus demonstrated ability to use and understand the language in more complex situations.

Military and scientific readings in German. Class discussions, translation into and from German.
2.5 Credit Hours.

LG 485. ADVANCED GERMAN LITERATURE (*First Term*)

Prerequisite: LG 251-252 or LG 381-382.

Readings in the literature of Germany with class discussions, themes, etc.
2.5 Credit Hours.

LG 486. ADVANCED GERMAN LITERATURE (*Second Term*)

Prerequisite: LG 485.

Foreign Language Class

Advanced studies in the contemporary literature of Germany, with class discussions, themes, etc.
2.5 Credit Hours.

LG 487. INDIVIDUAL READING AND RESEARCH PROJECTS IN GERMAN I (*First Term*)

Prerequisite: LG 485–486.

This course is intended for those cadets who have the demonstrated language ability and the personal desire to do individual research in German by a more profound study of a particular period of history or literature. All work will be done in German. Cadets taking this course will meet individually with an instructor when necessary and, as a section, at least once every two weeks to render oral and written reports.
2.5 Credit Hours.

LG 488. INDIVIDUAL READING AND RESEARCH PROJECTS IN GERMAN *II* (*Second Term*)

Prerequisite: LG 485–486.

Continuation of LG 487—Individual Reading and Research Projects in German I.
2.5 Credit Hours.

LP. 381. PORTUGUESE LANGUAGE THROUGH LITERATURE (*First Term*)

Prerequisite: LP 201-202.

Readings in literary works by South American writers; class discussions, oral and written compositions.
2.5 Credit Hours.

LP 382. PORTUGUESE LANGUAGE THROUGH LITERATURE (*Second Term*)

Prerequisite: LP 381, plus demonstrated ability to use and understand the language in more complex situations.

Additional literary readings, with greater concentration on modern works. Class discussions, comparative studies oral and written presentation of conclusions.
2.5 Credit Hours.

LP 487. INDIVIDUAL READING AND RESEARCH PROJECTS IN PORTUGUESE I (*First Term*)

Prerequisite: LP 381–382.

This course is intended for those cadets who have demonstrated language ability and the personal desire to do individual research in Portuguese by a more profound study of a particular period of history or literature. All work will be done in Portuguese. Cadets taking this course will meet individually with an instructor when necessary and as a section, at least once every two weeks to render oral and written reports.
2.5 Credit Hours.

LP 488. INDIVIDUAL READING AND RESEARCH PROJECTS IN PORTUGUESE II (*Second Term*)

Prerequisite: LP 381–382.

Continuation of LP 487—Individual Reading and Research Projects in Portuguese I.
2.5 Credit Hours.

LR 381. RUSSIAN LANGUAGE THROUGH LITERATURE (*First Term*)

Prerequisite: LR 201–202.

Readings in literary works by Russian writers; class discussions, oral and written compositions.
2.5 Credit Hours.

LR 382. RUSSIAN LANGUAGE THROUGH LITERATURE (*Second Term*)

Prerequisite: LR 381; plus demonstrated ability to use and understand the language in more complex situations.

Additional literary readings, with greater concentration on modern works. Class discussions, comparative studies, oral and written presentation of conclusions.

2.5 Credit Hours.

LR 483. MILITARY AND SCIENTIFIC READINGS IN RUSSIAN (*First Term*)

Prerequisites: LR 251–252 or LR 381–382.

Intensive readings in scientific and military literature to prepare the student to read and understand current Russian literature in these subjects.

2.5 Credit Hours.

LR 484. RUSSIAN CIVILIZATION (*Second Term*)

Prerequisites: LR 251–252 or LR 381–382.

Greater proficiency in the language to be acquired through a survey of the historical and cultural elements that have developed the USSR and the Russian people. The course will be given in Russian.

2.5 Credit Hours.

LS 381. SPANISH LANGUAGE THROUGH LITERATURE (*First Term*)

Prerequisite: LS 201–202.

Readings in literary works by Spanish writers; class discussions, oral and written compositions.

2.5 Credit Hours.

LS 382. SPANISH LANGUAGE THROUGH LITERATURE (*Second Term*)

Prerequisite: LS 381; plus demonstrated ability to use and understand the language in more complex situations.

2.5 Credit Hours.

LS 483. CONTEMPORARY HISPANIC-AMERICAN LITERATURE (*First Term*)

Prerequisites: LS 251–252 or LS 381–382 or LS 241–242, upper half.

A study of outstanding modern authors of Spanish-American Literature. The development and transformation of existing literary genres; new literary forms. Hispanic-American literature as a mirror of history and society of nations involved.

2.5 Credit Hours.

LS 484. CONTEMPORARY HISPANIC-AMERICAN LITERATURE (*Second Term*)

Prerequisites: LS 251–252 or LS 381–382 or LS 241–242, upper half.

Continuation of LS 483—Contemporary Hispanic-American Literature I.

2.5 Credit Hours.

LS 485. ADVANCED STUDY OF LITERATURE OF SPAIN (*First Term*)

Prerequisite: LS 251–252 or LS 381–382.

Readings in the literature of Spain, with class discussions, themes, etc.

2.5 Credit Hours.

LS 486. ADVANCED STUDY OF LITERATURE OF SPAIN (*Second Term*)

Prerequisite: LS 485.

Advanced studies in the contemporary literature of Spain, with class discussions, themes, etc.

2.5 Credit Hours.

DEPARTMENT OF LAW

Professor: Col. F. C. Lough (Head of Department)
Associate Professor: Lt. Col. A. D. Porcella
Assistant Professors: Lt. Cols. H. A. Fisher, T. C. Oldham, P. B. Polak; Capts. J. L. Geiser, A. K. De Paul.
Instructors: Majs. R. W. Jones, J. Norton, J. F. Thornton; Capt. P. J. Kenny, Lt. J. W. Hedges.

Standard Courses

LW 301. LEGAL PHILOSOPHY AND BASIC PRINCIPLES OF LAW
LEGAL METHODS OF PROOF

Legal Philosophy and Basic Principles of Law. An examination of the principal theories of law which have been set forth by prominent legal philosophers of Western Civilizations as well as an introduction to the nature and application of law and a coverage of the traditional legal subjects to include contracts, torts, property and the law of persons.

Legal Methods of Proof. An introduction to the Anglo-American rules of proof and the logical basis for such rules with particular emphasis on developing an ability to think logically and to reason rationally in both legal and non-legal areas.

2.5 Credit Hours.

LW 302. CONSTITUTIONAL LAW
MILITARY LAW

Constitutional Law. An examination of the Constitutional concept of United States government including legislative, judicial and execu-

tive powers and limitations; individual rights under the Constitution; the defense establishment and constitutional powers with respect to International Law.

Military Law. A study of punishments, the component parts of crimes and offenses, criminal responsibility, selected articles of the UCMJ, jurisdictions, pretrial matters, nonjudicial punishment and courts-martial procedures. Basic theories and practical procedures are joined to enhance the cadet's ability to discharge his future responsibilities in military law. *2.5 Credit Hours.*

Elective Course

LW 481. INTERNATIONAL LAW (*Either Term*)

An introduction to International Law to include a discussion of the nature and sources of International Law; problems of nationality; recognition of states; jurisdiction of states; international agreements and diplomatic intercourse; and the law of war.
2.5 Credit Hours.

DEPARTMENT OF MATHEMATICS

Professors: Col. C. P. Nicholas (Head of Department), Col. J. S. B. Dick.
Associate Professors: Col. G. W. Bixby, Col. W. H. Karstedt.
Assistant Professors: Lt. Cols. R. H. Allen, A. J. Armstrong, T. C. Bielicki, P. J. Donohoe, A. Gerardo, A. L. Whitley; Majs. J. V. Foley, G. E. Lear, W. H. Lowrey, J. R. Mackert, J. F. Martin, R. L. Schneider, H. W. Tousley; Capts. R. W. Giuliano, D. F. Nidever, J. H. Sewell, Jr., J. F. Vincent.
Instructors: Lt. Cols. M. C. Carrigan, T. H. M. Crampton, G. W. Medsger; Majs. J. S. Crosby, R. M. McPherson, D. M. Rhea, C. D. Richards; Capts. R. H. Allison, R. A. Beltz, R. N. Bierly, J. C. Burke, D. R. Carrier, R. E. Clark, A. A. Cockrell, Jr., M. J. Conrad, B. M. Cowan, E. E. DeMaris, C. R. Domeck, W. Echevarria, P. G. P. Eliot, J. G. Felber, Jr., J. E. Fiscus, R. H. Gates, V. J. Gongola, W. R. Johansen, J. B. Kaiser, J. R. Matteson, G. J. McRee, G. C. Mitchell, G. L. Richardson, B. W. Rose, Jr., H. J. Skidmore, Jr., B. F. Stout, E. M. Valence, F. A. Waskowicz, R. S. Yelverton.

Mathematics at West Point is organized into programs at ascending levels, known as standard, advanced, and elective. During the first two years every cadet is enrolled in either the standard program or in one of three advanced programs, depending on his mathematical preparation and aptitude. The elective program is available to all cadets during the third and fourth years, and overlaps with the advanced programs during the first two years.

Successful completion of the standard program by the end of the second year satisfies the requirement in mathematics for graduation from the Military Academy. The three advanced programs are designed

for cadets who, by virtue of exceptional aptitude or above-standard preparation before entering West Point, are able to complete the standard program at an accelerated pace, thus gaining time for extra courses chosen from the elective program. Such cadets may complete from one to four of these elective courses (2½ to 10 credit hours) during their first two years, depending on how much time they gain by validation and acceleration.

During the first year cadets attend mathematics 6 days a week, during the second 3 days a week. All cadets perform five independent exercises on the digital computer during these two years, regardless of whether their program be standard or advanced. The courses constituting the standard and advanced programs are shown below. Parentheses indicate courses for which credit is given by validation.

Standard Program: First year, MA 101–102; second year, MA 201–202–204. Validation credit, none; residence credit, 23 hours.

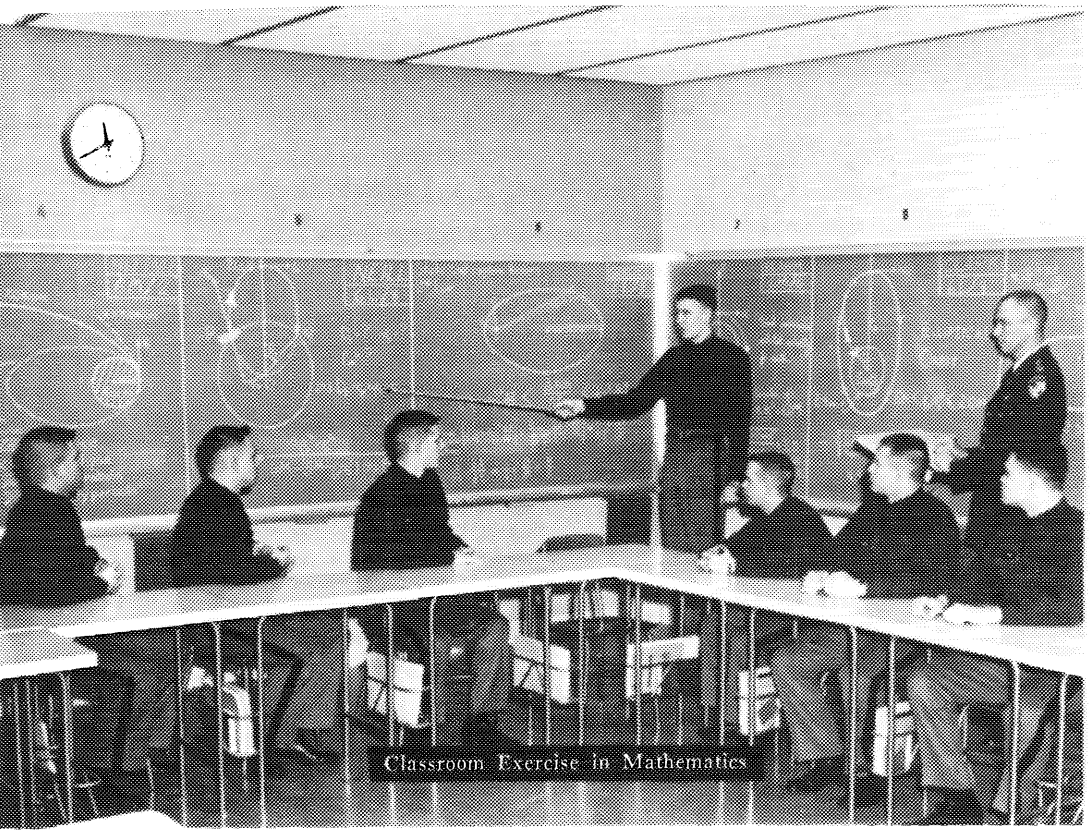
Advanced Program I: First year, MA 101–(108)–156; second year, MA 483–202–204. Validation credit, 2½ hours; residence credit, 23 hours.

Advanced Program II: First year, MA (107)–157–(108)–481–158; second year MA 483–202–204. Validation credit, 5 hours; residence credit, 23 hours.

Advanced Program III: First year, MA (109)–159–481–202–204; second year, MA 483–484–485. Validation credit, 10 hours; residence credit, 23 hours.

(*Note.* During his first year in Program III the cadet completes most of the mathematics required for graduation, and by special arrangement may complete all of it. His electives during the second year need not be in mathematics, but if he chooses mathematics the appropriate courses are the three shown above.)

The subject-matter content of the separate courses is described in the outlines to follow.



Classroom Exercise in Mathematics

Standard Courses

MA 101. Calculus and Analysis

This is the fall semester course in the standard program cadet's first year. Calculus is introduced early in the semester by work in foundations of the number system to include partitioning, nested intervals, the concept of ε, variables, limits and infinite position numerals, followed by work in controlled numerical approximations, functions of a single real variable, the δ-ε criterion, and continuity. Prerequisite topics of plane analytic geometry not sufficiently covered in the student's mathematical preparation prior to entering the Military Academy are introduced at the proper time. The study of derivatives and differentials of algebraic and transcendental functions, with fundamental applications, is completed. Numerical methods suitable to electronic digital computation are emphasized.
7.5 Credit Hours.

MA 102. Calculus, Analysis and Linear Algebra

This is the first-year spring semester course for the standard program,

following Mathematics 101. It continues with further applications of the derivative and differentials, including derivatives of functions defined parametrically; introduction to differential equations to include the central force problem and applications to long range trajectories and orbits; analytic geometry of three dimensions; linear algebra to include vector spaces, the algebra of matrices, linear transformations, and the theory of eigenvalues and eigenvectors. The course closes with a return to calculus, to include partial differentiation and applications, vector differentiation, the gradient, the divergence, the curl, and fundamental concepts of integral calculus. The latter includes formal integration and introduction to elementary numerical approximations of definite integrals. Problems in digital computation, applying principles of calculus, are assigned concurrently. In addition there are a few lessons in spherical trigonometry essential for military applications.
7.5 Credit Hours.

MA 201. Calculus

This course is given during the first term of the standard program cadet's second year of mathematics. It further develops the integral calculus started in MA 102, to include applications to geometrical and physical problems, infinite series, expansion of functions, and multiple integrals. Problems requiring digital computation are assigned concurrently.
3 Credit Hours.

MA 202. Differential Equations

This is a brief course in differential equations, following the completion of calculus. Continuing from the introduction to differential equations given in first year calculus, it treats solutions of standard types of first and second order equations using differential operators, method of undetermined coefficients, integrating factors, certain higher order equations, introduction to Laplace transforms, introduction to partial differential equations, and applications to physics and engineering. Methods requiring digital computation are included.
2 Credit Hours.

MA 204. Probability Theory and Statistical Inference

This is the final course in the mathematics sequence required for graduation from USMA, and it emphasizes calculus as a prerequisite. Included are fundamentals of probability theory and mathematical models to include random variables, probability distributions and measurements of these distributions, probability and density functions; binomial and

normal distributions; use of de Moivre's theorem, the Central Limit theorem, and the Student-t, Chi-Square and Poisson distributions; basic statistical inference including sampling distributions, theory of estimation, hypothesis testing; correlation; and applications of these techniques to practical problems.
3 Credit Hours.

Validation and Advanced Placement Courses

MA 107. Introduction To Analytic Geometry and Calculus

This course consists of basic plan analytic geometry and an introduction to operating techniques of differential calculus. Cadets who completed substantially equivalent work before admission to USMA may qualify for validation credit by demonstrating their proficiency to the satisfaction of the Department of Mathematics. Those who do so are enabled to take an advanced placement course during their first semester at West Point. (See MA 157.) Cadets who have not completed the equivalent of MA 107 before entering USMA take residence work in the same subject matter as an integral part of MA 101 and MA 102.
2.5 Validation Credit Hours.

MA 108. Introduction To Solid Analytic Geometry and Integral Calculus

This course consists of basic solid analytic geometry, plus an introduction to operating techniques of integral calculus and basic linear algebra. Cadets who completed substantially equivalent work before entering USMA, or those able to master the content by residence work at a considerably faster pace than is customary, may qualify for validation credit by demonstrating their proficiency to the satisfaction of the Department of Mathematics. Those who do so are enabled to take an advanced placement course during the second semester of their first year at West Point. (See MA 156 and MA 158.) Cadets not qualifying for validation of MA 108 take residence work in the same subject matter as an integral part of MA 102 and MA 201.
2.5 Validation Credit Hours.

MA 109. Basic Analysis and Linear Algebra

This course consists of plane and solid analytic geometry, basic linear algebra, and the principal operating techniques of differential and integral calculus at the college level. Cadets who completed substantially equivalent work before entering USMA may qualify for validation credit by demonstrating their proficiency to the satisfaction of the De-

partment of Mathematics. Those who do so are enabled to take an advanced placement course at the highest level during their first year at the Military Academy. (See MA 159.) Cadets receiving no validation credit take residence work in the subject matter of MA 109 as an integral part of MA 101, MA 102 and MA 201.
10 Validation Credit Hours.

MA 156. ADVANCED PLACEMENT CALCULUS, ANALYSIS AND LINEAR ALGEBRA

This course is given in the second semester of the first year to selected cadets who completed MA 101 with high standing and also qualify for validation credit for MA 108. The content of MA 156 is equivalent to MA 102 plus 201, less: (1) vector differentiation; (2) multiple integrals; and (3) the validated subject matter of MA 108. The linear algebra in this course is at a somewhat higher level than that in MA 102.
7.5 Credit Hours.

MA 157. ADVANCED PLACEMENT CALCULUS AND ANALYSIS

This course is given in the first semester of the first year to cadets who qualify for validation credit for MA 107. The course concentrates on foundations of the number system, introductory theory of functions, and a rigorous treatment of differential calculus for functions of a single real variable. The content is equivalent to MA 101 plus MA 102 through introductory differential equations and most of solid analytic geometry, less the validated subject matter of MA 107.
7.5 Credit Hours.

MA 158. ADVANCED PLACEMENT CALCULUS, ANALYSIS AND LINEAR ALGEBRA

This course is given in the second semester of the first year to cadets who satisfactorily completed MA 157 and also qualify for validation credit for MA 108. MA 158 provides an accelerated treatment of the linear algebra portion of MA 102, and continues with a rigorous treatment of integral calculus for functions of a single real variable, expansion of functions, and infinite series, plus an introduction to calculus of functions of two or more variables. The content is equivalent to the portions of MA 102 beginning with linear algebra, plus MA 201, less: (1) vector differentiation; (2) multiple integrals; and (3) the validated subject matter of MA 108.
5 Credit Hours.

MA 159. ADVANCED PLACEMENT CALCULUS, ANALYSIS, AND LINEAR ALGEBRA

This course is given in the first semester of the first year to cadets

who qualify for validation of MA 109. The course concentrates on foundations of the number system, introductory theory of functions, rigorous treatment of differential and integral calculus for functions of a single real variable, an introduction to partial derivatives, and an introduction to linear algebra. The content is equivalent to MA 101, MA 102 and MA 201, less: (1) vector differentiation; (2) multiple integrals; and (3) the validated subject matter of MA 109.
7.5 Credit Hours.

Elective (Advanced) Courses

These courses in advanced mathematics are offered to all cadets as electives during their third or fourth year at West Point. In addition, qualified cadets may complete one or more of these courses during their first and second years at West Point, as participants in one of the advanced programs.

MA 481. LINEAR ALGEBRA AND LINEAR PROGRAMING (*Either Term*)

Prerequisite: MA 102.

This course starts with a study of linear transformations on a vector space. It includes vector operations, vector spaces, matrices, determinants, properties of linear transformations, systems of linear equations, characteristic values and vectors, and quadratic forms. Later the course proceeds into linear programing, where it is concerned with the "best" solution to a system of linear equations. This portion includes an introduction to convex sets and n-dimensional geometry, a development of the properties of a solution to the linear programing problem, the generating of extreme point solutions, and the simplex computational procedure. The usefulness of the concepts developed is presented through practical problems emphasizing military applications. Solutions using the digital computer are included.
2.5 Credit Hours.

MA 482. ABSTRACT ALGEBRA (*Second Term*)

Prerequisite: MA 201.

This course is a survey of some of the abstract structures of algebra. Sets and their properties comprise the vehicle of presentation. The subject is introduced by a study of mappings and operations defined on sets, and relations existing on sets. The course continues with the development of the theory relating to groups, rings, integral domains, and fields. A study of the ring of polynomials and the fields of real and complex numbers is included.
2.5 Credit Hours.

MA 483. ADVANCED CALCULUS I (*First Term*)

Prerequisite: MA 201.

This course treats differential and integral calculus of scalar and vector functions of more than one variable to include: Jacobians, gradient, curl, divergence, multiple integrals, line and surface integrals, Green's Theorem, the Divergence Theorem and Stokes' Theorem. Applications to problems in physics and engineering are emphasized.

2.5 Credit Hours (Afternoon Elective)

3 Credit Hours (Morning Elective)

MA. 484. DIFFERENTIAL EQUATIONS (INTERMEDIATE) (*Either Term*)

Prerequisite: MA 202.

This course includes ordinary differential equations; power series solutions and the more important special functions of engineering; Fourier Series and orthogonal functions; partial differential equations and boundary value problems; numerical methods; and applications to science and engineering.

2.5 Credit Hours.

MA 485. ADVANCED CALCULUS II (COMPLEX VARIABLE) (*Either Term*)

Prerequisite: MA 483.

This course is primarily an introduction to functions of a complex variable, including algebra of a complex variable, elementary functions, limits, derivatives, Cauchy's Integral Theorem and Formula, series representation to include Taylor's and Laurent's series, theory of residues, conformal mapping and linear transformations, Poisson's Integral Formula, and special topics in complex potential.

2.5 Credit Hours.

MA 486. NUMERICAL ANALYSIS WITH DIGITAL COMPUTATION (*Second Term*)

Prerequisite: MA 202 (May be taken concurrently).

This course emphasizes the methods of numerical analysis with the digital computer in a strong supporting role. It includes methods grouping together the cadet's entire mathematical background in linear algebra, calculus and differential equations, in a context of modern numerical methods requiring programing and execution of solutions on the digital computer.

2.5 Credit Hours.

DEPARTMENT OF MECHANICS

Professor: Col. E. R. Heiberg (Head of Department)

Associate Professors: Majs. J. D. Daigh, W. W. Noll; Capt. R. A. Langworthy.

Assistant Professors: Capts. R. E. Baker, J. L. Dozier, W. R. Ellis, K. E. Ginter, R. N. Groves, Jr., S. R. Hanmer, Jr., R. E. Hudson, A. Johnston, III, M. S. Jones, G. H. G. Krafft, G. U. Loffert, Jr., C. M. Radler, G. R. Robertson.

Instructors: Capts. D. E. Beach, Jr., G. R. Kleb, R. L. Parsons, C. P. Rhicard, J. M. Sigler, A. M. Solberg, J. K. Strozier, R. D. Welch, Jr.

Standard Courses

ME 301. THERMODYNAMICS

A study of the transfer and conversion of thermal energy and mechanical energy. The course includes a study of fundamentals, types of energy, properties of thermodynamic media, the first and second laws of thermodynamics, the ideal gas, thermodynamic processes, gas engine cycles, vapor power cycles, refrigeration, nozzles and jet propulsion, and mixtures. The more capable students study the fundamentals of heat transfer in lieu of certain reviews and examinations.

Laboratory. A correlation of theory and practice. The equipment used includes gasoline, Diesel and fuel research engines, steam engines and turbines, air compressors, gas turbines, and refrigeration and air conditioning units.

4 Credit Hours.

ME 302. FLUID MECHANICS

A study of the laws of mechanics as they apply to liquids, vapors, and gases. The course includes a study of fluid properties; principles of fluid statics; fluid flow concepts; impulse-momentum; viscous effects; closed conduit flow; boundary layer and basic drag concepts; dimensional analysis and dynamic similitude; flow measurement; open channel flow; aerodynamics with emphasis on lift, drag, flight stability, and shock effects in transonic and supersonic flight; compressible flow. The more capable students solve a special problem in lieu of certain reviews and examinations.

Laboratory. Practical exercises illustrating theory previously studied in the classroom. Equipment used includes pumps, turbines, flow measurement devices, pipe friction measurement devices, supersonic and subsonic wind tunnels, smoke tunnels, and a supersonic nozzle thrust stand.

4 Credit Hours.

ME 303. ENGINEERING MECHANICS I (*Either Term*)

The relationships between external effects, force systems, and particles

or rigid bodies are developed by vector mathematics as an engineering science. The portion of the course covering static equilibrium includes components of forces, moments, couples, resultants, free-body diagrams, equilibrium equations, centroids, distributed forces, truss analysis and friction. The dynamics portion of the course includes kinematics and kinetics of particles and of rigid bodies. Three methods: Newton's Second Law, work-energy and impulse-momentum, are used in particle dynamics. Dynamic analysis by Newton's Second Law is taught for rigid bodies.

4 Credit Hours.

Advanced Courses

ME 351. Advanced Thermodynamics

Prerequisite: Demonstrated superior ability in physics and mathematics.

An accelerated coverage of the subject material of ME 301 with further study of the First and Second Laws of Thermodynamics and their consequences. Emphasis is on a vigorous mathematical analysis of thermodynamic systems and media.

4 Credit Hours.

ME 352. Advanced Fluid Mechanics

Prerequisite: Demonstrated superior ability in Thermodynamics and Engineering Mechanics.

A vector-oriented coverage of the topics listed in ME 302, with emphasis on the theoretical and mathematical development of the general laws of fluid mechanics. A knowledge of vector algebra is assumed; however, the field operators of vector calculus are developed carefully and thoroughly.

Laboratory. Practical exercises illustrating theory developed in the classroom. Equipment available includes pumps, turbines, flow measurement devices, pipe friction measurement devices, supersonic, subsonic and smoke tunnels, and a supersonic nozzle thrust stand.

4 Credit Hours.

ME 353. Advanced Engineering Mechanics I (*Either Term*)

Prerequisite: Demonstrated superior ability in physics and mathematics.

Coverage of the subject material of ME 303 is accelerated. Space trusses, virtual work and stability are also included in statics. Systems of particles, bodies of variable mass, general three-dimensional motion of a rigid body and damped and forced vibrations problems are added to the dynamics subject material of ME 303.

4 Credit Hours.

Elective Courses

ME 384. ENGINEERING MECHANICS II (*Second Term*)

Prerequisite: ME 303 or ME 343 or ME 353.

The beginning phase of this course extends the study of rigid body dynamics of ME 303 to include work-energy and impulse-momentum methods. Gyroscopic action and simple harmonic motion complete the dynamics portion. Approximately four-fifths of this course develops the relationships between internal effects, force systems and deformable bodies. This study in mechanics of materials includes centric, torsional, flexural and combined loading and column theory. Laboratory exercises illustrating mechanics of materials theory are interspersed through the term.

4 Credit Hours.

ME 386. ADVANCED ENGINEERING MECHANICS II (*Second Term*)

Prerequisite: ME 353.

Coverage of the subject material of ME 384 is accelerated. La Grange's equations and Hamilton's principle are added to the study of dynamics. Theory of failure, dynamic and repeated loading, shear centers and finite difference methods are added in the mechanics of materials portion which is four-fifths of the course.

4 Credit Hours.

ME 481. GAS DYNAMICS (*Either Term*)

Prerequisites: ME 301 (or 351–352 in AY 64–65 or 351 in AY 65–66).
ME 302 (or 356 in AY 64–65 or 352 in AY 65–66).

A course covering the general field of compressible fluid motion including topics of interest in aeronautics, astronautics, and the study of ballistic missiles. The course presents basic principles of fluid dynamics and thermodynamics and proceeds to concepts peculiar to both subsonic and supersonic compressible flow. Principal analysis of fluid motion is one-dimensional covering isentropic flow, normal shock waves, and flow in ducts. An introduction to two-dimensional supersonic flow is also presented including a study of oblique shock waves.

2.5 Credit Hours.

ME 482. HEAT, MASS AND MOMENTUM TRANSFER (*Second Term*)

Prerequisites: ME 301 (or 351–352 in AY 64–65 or 351 in AY 65–66).
ME 302 (or 356 in AY 64–65 or 352 in AY 65–66).

This course offers a parallel unified treatment of the transfer of momentum, heat and mass, emphasizing the similarities in these three transport processes. Application to present day energy transfer problems such as propulsion, boundary layer considerations, and thermal barriers

and ablation for high speed aircraft and re-entry vehicles are considered.
2.5 Credit Hours.

ME 483. SPACE MECHANICS (*Second Term*)

Prerequisite: ME 303 or ME 343 or ME 353.

An introduction to the trajectory problem of the space vehicle applying the principles of mechanics to the orbits of satellites and other bodies in space acted on by a central force system. The course includes a study of the bodies of the solar system, the development of Kepler's Laws of motion, the geometry of two-body conic orbits, principal coordinate systems, and astrodynamic constants. A brief consideration is made of the 3-body problem, the n-body problem, and several methods of orbit determination. The final portion of the course is a study of rendezvous, interception, and interplanetary orbits.
2.5 Credit Hours.

ME 485. CONTINUUM MECHANICS (*First Term*)

Prerequisites: ME 301 (or 351–352 in AY 64–65 or 351 in AY 65–66).
ME 302 (or 356 in AY 64–65 or 352 in AY 65–66).
ME 304 (or 354) or consent of instructor.

This course forms a foundation for deeper study in special branches such as hydrodynamics, gas dynamics, elasticity and plasticity. Necessary concepts and theorems of tensor geometry are developed at the start. Study of state of stress, kinematics of instantaneous motion, the fundamental mass, momentum and energy theorems, and constitutive equations form the foundation. This is followed by study of perfect fluids, viscous fluids, plastic materials and elastic materials.
2.5 Credit Hours.

DEPARTMENT OF MILITARY ART AND ENGINEERING

Professors: Col. C. H. Schilling (Head of Department), Lt. Col. T. E. Griess.
Associate Professors: Lt. Cols. R. B. Hughes, A. P. Wade.
Assistant Professors: Lt. Cols. R. W. Argo, C. P. Benedict, P. F. Braim, C. W. Guth; Majs. H. L. Arnold, D. C. Ludwig, J. M. Miller, T. R. Peterson, R. H. Smith, A. F. Trompeter, V. E. Whan.
Instructors: Lt. Col. R. D. Pinto; Majs. R. J. Eineigl, W. H. Elliott, J. P. Franklin, A. F. Grum, M. D. Johnson, L. H. Lumsden, J. R. McDonald, E. J. Rush, J. Rutledge, J. L. Pigg, J. D. Thomas; LCM D. F. Dally; Capts. W. R. Miller, D. J. Palladino, J. W. Woodmansee.

Standard Courses

HM 401–402. HISTORY OF THE MILITARY ART

Prerequisites: TA 301–302. (May be taken concurrently.)

The evolution of the art of war—on land, on sea, and in the air,

and its probable course in the future. Beginning with the campaigns of Alexander of Macedon, this course explains the changes in concepts of warfare which led to the replacement of royal armies by national armies, and to the emergence of global and total wars. The historic development and modern application of all types or warfare are considered, from guerrilla operations to nuclear warfare. Throughout the course, emphasis is given to: the impact of continuous technologic and industrial progress on the techniques of warfare through the development of new weapons and equipment; the gradual recognition, formulation, and application of the governing principles of war; the increasing influence of logistics on strategy and tactics; the growing interrelationship of land, sea, and air power, and the consequent problems and principles involved in the organization and functioning of high commands in joint operations; the resurgence of irregular and unconventional warfare; the attributes of outstanding great captains and their contributions to the art of war; and to the doctrines and philosophies of important military thinkers and writers. The course also points out the impact on warfare of nonmilitary factors—treated in detail by the Department of Social Sciences—concurrently with the study of military operations.
8 Credit Hours (4 each term).

CE 401. STRUCTURAL ANALYSIS

Prerequisites: ME 303. (ME 384 or ME 386 is recommended.)

Analysis of stresses in statically determinate and indeterminate structures and structural members due to uniform loadings, concentrated loadings, and combinations thereof. It includes determination of reactions, shear, moment, and axial stresses; placement through the use of influence lines of moving live loads to produce maximum stress; the analysis of maximum stress in simple and subdivided, parallel and nonparallel chord trusses, continuous beams, and basic structural frames; the analysis of members subject to reversal of stress; introduction to the analysis of long span structures, space frames, and cables; and approximate methods of analysis of indeterminate structures. Analytical methods utilized in indeterminate structures include moment-area and moment distribution. The augmented course given upper sections (upper 30–40 percent of class) consists of the above with the following additional material: influence lines for K and subdivided trusses; analyses of more complicated indeterminate structures using the methods of virtual work and moment distribution with sidesway correction; settlement and elastic supports; and introduction to slope deflection. Throughout the course

emphasis is given to development of an understanding of the engineering philosophy and decision making process.
4 Credit Hours.

CE 402. STRUCTURAL DESIGN, SOILS AND CONCRETE

Prerequisite: CE 401.

Study of the principles and theory of design of steel and timber structures, with an introduction to reinforced concrete design. It includes design of beams with consideration of flange buckling, tension and compression members (built-up members), members subject to combined direct stress and flexure, riveted and welded joints; engineering characteristics of timber as a material; design of a simple timber structure; solution of a complete engineering analysis-design problem starting with the development of the engineering concept and requiring creative thought and application of principles studied previously. The augmented course given upper sections consists of the above with the following additional material: a more comprehensive engineering analysis-design problem; the basic theory of reinforced concrete design to include design of beams, slabs, web reinforcement, and columns; introduction to prestressed concrete design.

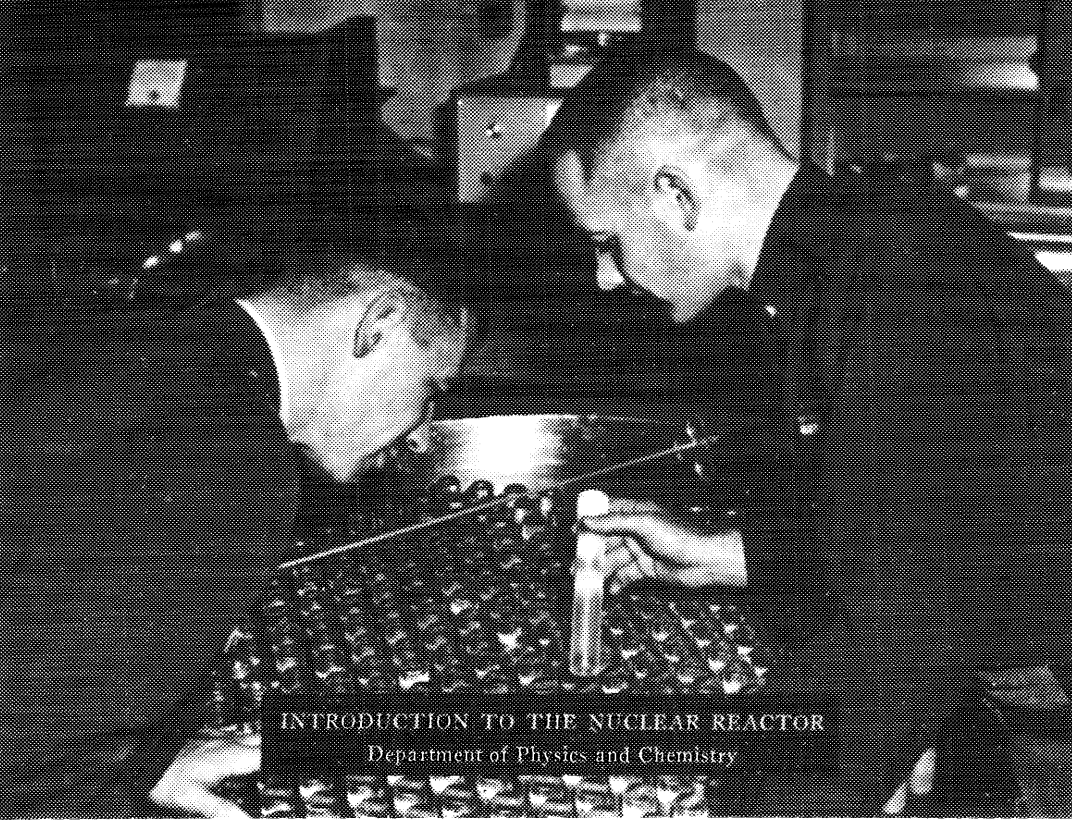
Study of soils classification and identification systems, engineering characteristics of soils, soils design based upon the California Bearing Ratio as applied to highways and airfields, and protective characteristics of soils against nuclear weapons effects. Instruction in concrete includes engineering characteristics of concrete as a material; fundamentals of concrete proportion and mix design, placement and curing; use in shielding against nuclear radiation effects. Concrete laboratory work includes standard quality and control tests and demonstration of the fundamental laws. The augmented course given upper sections includes a more extensive coverage of the above topics. Throughout the course emphasis is given to development of an understanding of the engineering philosophy and decision-making process.
4 Credit Hours.

Advanced and Honors Courses

CE 451–452. HONORS COURSE IN CIVIL ENGINEERING

Prerequisites: ME 303, Standing in top 15 percent of class in Mathematics, Mechanics of Solids, and Physics, ME 384 or ME 386. (Exceptions may be made by the Head of the Department.)

The Honors Course for exceptionally capable cadets includes the topics listed above in the two standard courses (CE 401 and CE 402). The cadet accelerates this study at a pace governed by his own individual



capability. He is excused from regular class formations, instead meeting weekly (as a minimum) with his advisor. Teaching techniques normally used for graduate studies are employed, emphasizing individual study and research. The time gained is used to cover each subject in more depth through the use of additional references and to study advanced topics of cadet choice or an individual analytical and/or laboratory project, where approved by the advisor.

These advanced topics represent approximately one-third of the course, and in combination with the deeper coverage of the standard course material result in an increase of approximately fifty percent in the scope of the course as compared with the standard course. Typical approved additional topics from which the cadet may choose include but are not restricted to the following:

Structural Analysis. Numerical integration for shear, moment, and deflection; conjugate beam theory; non-prismatic beam analysis by slope deflection and moment distribution; Castigliano's Theorem; Theory of Least Work; structural applications of Topology, Matrix Methods, and Network Analogy; introduction to analysis of structures subjected

to dynamic loadings; introduction to analysis of structures by the plastic theory; electronic digital computers and their application to the solution of civil engineering problems.

Structural Design. An extension of reinforced concrete design; basic theory of prestressed concrete; optimization techniques in design; and probabilistic approach to safety factors.

Soils and Concrete. Characteristics of air-entrained concrete, soil mechanics laboratory, and soil trafficability.

8 Credit Hours.

CE 453–454. INTRODUCTION TO NUCLEAR ENGINEERING

Prerequisites: ME 303, PH 305; PH 487 may be taken concurrently. Exceptions can be made with approval of the Head of the Department. Recommended: ME 384 or 386, El 382 or 386.

This course is offered to selected cadets in lieu of, or in addition to, the standard Civil Engineering course CE 401–402. It provides study of engineering principles applied in the broad nuclear power field, with emphasis on the engineering philosophy involved in the transition from scientific theory to the solution of practical problems. The course includes the basic principles of structural analysis, radiation effects and health physics, radiation attenuation and shield design, pressure vessel design, and reactor and energy conversion system analysis and design. Introductions to nuclear power plant economics and to engineering applications of nuclear explosives are also included. The course culminates in a complete analysis-design problem illustrating the theory and principles studied previously.

8 Credit Hours.

Elective Courses

HM 381. REVOLUTIONARY WARFARE (*Second Term*)

Prerequisite: None.

This course provides a study of the art of waging and countering revolutionary warfare to accomplish national objectives. It will supplement HM 401–402 by providing more thorough and detailed coverage than is possible in the regular course. It will include studies of the historic development of revolutionary warfare, stressing its various forms, its different causes, and the differing techniques required to meet varied conditions of climate, terrain, and enemy activity. It also will cover outstanding theorists in this form of warfare, the employment of revolutionary warfare in support of conventional military operations, and the Communist emphasis on offensive revolutionary warfare.

2.5 Credit Hours.

HM 481. EVOLUTION OF MODERN WARFARE (1400–1900) (*First Term*)

Prerequisite: HM 401. (May be taken concurrently.)

HM 484. TWENTIETH CENTURY WARFARE (1900–THE PRESENT) (*Second Term*)

Prerequisite: HM 402. (May be taken concurrently.)

The elective courses HM 481 and 484 are more penetrating studies of the specified military eras covered broadly in HM 401–402.

2.5 Credit Hours each.

CE 381. SOIL MECHANICS (*Either Term*)

Prerequisite: ME 303. (May be taken concurrently.)

A study of the basic principles and fundamentals of soil mechanics and of the application of these principles to engineering problems. The introductory lessons are focused on an understanding of the composition and structure of granular and clay soils and soil-water consistency. Other soil characteristics studied include stress distribution, consolidation, shearing resistance, slope stability and earth pressures. Engineering applications include earth dams, embankments and foundation design, settlement predictions, footings, pile foundations, retaining walls, drainage, soil stabilization and soil trafficability. Electronic computers are utilized for appropriate problems. Basic laboratory work comprises Atterberg limits, soil compaction, unconfined compression, direct shear and flow net analysis.

2.5 Credit Hours.

CE 481. DESIGN OF CONCRETE STRUCTURES (*Either Term*)

Prerequisites: ME 303; CE 401. (May be taken concurrently.) Recommended: ME 384 or ME 386.

The theory of reinforced concrete design and analysis. This course will include a basic study of concrete as a material, laboratory investigations and demonstrations, and the design and analysis of conventional structural shapes and basic structures. The scope includes beams, columns, simple two-way and flat slabs, eccentrically loaded columns and footings. Ultimate strength analysis and design, and an introduction to prestressed concrete are covered. The course finishes with an analysis and design problem which brings into play most of the material covered in the course. A small number of selected cadets may participate in the fiberglass reinforced concrete research program underway within the department. Application of computers is included wherever appropriate.

2.5 Credit Hours.

CE 482. ADVANCED STRUCTURAL ANALYSIS (*Second Term*)

Prerequisite: CE 401. Recommended: ME 303, ME 384 or ME 386.

Continuation of the study of structural analysis (CE 401), mainly in the area of indeterminate structures. Methods of analysis appropriate to both the elastic theory and the plastic theory are studied. Elastic theory methods include conjugate beam, virtual work, Castigliano's theorem, method of least work, and moment distribution applied to structures with variable moment of inertia. Nuclear blast dynamic loads and numerical approximate analysis such as numerical integration of the beam, differential equations and the finite differences method are considered. Matrix methods of structural analysis which are useful in computer solutions are introduced. Analysis and/or design problems are included to give a comprehensive review of the course.

2.5 Credit Hours.

CE 484. INDIVIDUAL ENGINEERING PROJECTS (*Second Term*)

Prerequisite: CE 401. Recommended: ME 303, ME 384 or ME 386.

The objective of this course is to permit the cadet to study specialized topics of military and civil engineering not covered in the standard course or to permit him to concentrate his study upon an area of particular individual interest. The course will be conducted on a small group or individual basis and will consist of field trips, laboratory and classroom work and group discussion. The exact scope of the course of study will be established through discussion between the cadet and the Course Director. The course will be presented so that the cadet is required to establish the definition of the problem and its parameters; to study the fundamentals involved; to organize his own plan of attack; to determine his laboratory procedure if laboratory work is involved; to analyze the problem; and to achieve a solution. Throughout, emphasis will be given to the engineering decision-making process.

2.5 Credit Hours.

DEPARTMENT OF MILITARY HYGIENE

Professor: Col. J. H. Voegtly (Head of Department).
Assistant Professor: Capt. W. H. Johnson, Jr.

The Department of Military Hygiene presents instruction to the cadets during their first two years at the Military Academy.

During the summer of the Fourth Class year, the cadet receives instruction in self and first aid, field sanitation and personal hygiene. In the academic portion of the Fourth Class year, the cadet receives instruction in the basic anatomy and physiology of the reproductive

Class in Ordnance Engineering

system and the effects of alcohol, tobacco and drugs.

During the Third Class summer training, the cadet receives instruction in the effects of the environment on units in the field and additional instruction in first aid with emphasis placed on the responsibility of the commander at small unit level.

DEPARTMENT OF ORDNANCE

Professor: Col. J. D. Billingsley (Head of Department).

Associate Professors: Lt. Cols. D. F. Burton, G. M. Montgomery.

Assistant Professors: Majs. E. J. Boyle, M. J. Herbert, R. H. Sugg; Capts. J. H. Huff, H. E. Day, C. F. Buck, J. L. Palmer, D. S. Oberg, C. B. Donovan.

Instructors: Majs. J. R. Aker, L. F. Skibbie; Capts. K. E. Lager, D. R. Reinhard, L. C. Ross.

Laboratory Officer: CWO J. B. Cullum.

Standard Course

OE 401–402. Ordnance Engineering

Prerequisites: EL 301, 304, 305 (PH 305); ME 301, 302, 303.

This course is designed to give the cadet experience in the application of previously studied scientific and engineering principles to weapon systems. Coverage is given to sources of energy such as chemical, electrical, and nuclear types; ballistics including electronic computers, weapon system components, trajectories, flight stabilization, servomechanisms, guidance, fuzes, and terminal effects; propulsion including the

rocket, gas turbine, spark and compression ignition engines, power transmission, engineering materials, land and air locomotion; weapon system design study including the development of parameters for and the analysis and design of a proposed new Army weapon system. Integrated laboratory exercises are included.
8 Credit Hours (4 each term).

Honors Course

OE 451–452. HONORS COURSE IN ORDNANCE ENGINEERING

Prerequisites: Standing in top 10 percent of class. Permission of the Department.

The Honors Course for exceptionally capable cadets includes all topics listed for the standard course (OE 401–402). The cadet accelerates this study at a pace governed by his own individual capability. A minimum of one class per week is scheduled in lieu of regular class attendances. Teaching techniques normally used for graduate studies are employed, emphasizing individual study and research. The time gained is used to cover one or more advanced topics of cadet choice or an individual analytical and/or laboratory project, where approved.
8 Credit Hours (4 each term).

Elective Courses

OE 385. MANAGEMENT ENGINEERING (*Either Term*)

Prerequisite: MA 204.

An analytical approach to the development and application of management engineering techniques for effective work planning and control. Emphasis on the scientific method of analysis and its application in achieving effective use of resources, increased operational readiness of equipment, increased productivity of personnel, increased quality of work, and improved bases for decision-making. Development of techniques to include schematic models, engineering programming, statistical methods and economic analysis. Concurrent application of techniques to analyses of selected management problems and cases involving organizational structure, process and facilities planning, methods study and motion economy, work measurement and scheduling, inventory control, process control, quality control and cost control. Consideration of an integrated management control system including the application of automatic data processing equipment. Term project involving analysis of cases selected from local post support activities.
2.5 Credit Hours.

OE 481. AUTOMOTIVE ENGINEERING (*Either Term*)

Prerequisites: ME 301, 302, 303 (ME 303 may be taken concurrently).

An integrated engineering course designed to stress the engineering approach in the analysis of vehicular engineering systems. After an introduction to the problem of land mobility, the course covers the detailed analysis of powerplants with their associated auxiliary systems, as well as power train and chassis components. The course is climaxed by the investigation of vehicle performance in terms of acceleration, power and load capacity both on hard surface roads and in cross country operation. An integrated laboratory is designed to prove the theoretical analysis. Consideration is given to practical problems encountered by the U.S. Army in the field.
2.5 Credit Hours.

OE 482. INDIVIDUAL ORDNANCE PROJECT (*Second Term*)

Prerequisites: OE 401 or OE 451 and permission of the Department.

The objective of the course is to permit advanced or specialized study of scientific principles applied in the field of Ordnance Engineering. Study may include either or both theoretical or laboratory effort based upon a sound preparatory investigation in mathematics and/or the basic sciences. Conduct of course will be on an individual or small group basis. Exact scope of study to be established by consultation between the cadet and the Professor of Ordnance.
2.5 Credit Hours.

OE 483. ENGINEERING MATERIALS (*First Term*)

Prerequisites: CH 201–202; EL 305 (PH 305); ME 303.

The course provides an introduction to the properties and behavior of solid materials commonly used in engineering applications. Emphasis is placed on the structural and electronic characteristics which determine these properties. Coverage includes crystallography, atomic bonding and radii, solid solutions, equilibrium conditions and phase diagrams, rate reactions, elastic and plastic behavior, dislocation theory, thermal conductivity and specific heat, and the electrical conductivity of metals. Integrated laboratory periods include instruction in: x-ray diffraction, thermal analysis, metallurgical microscopy and specimen preparation, electron microscopy, photomicrography, and photographic darkroom techniques.
2.5 Credit Hours.

OE 487. OPERATIONS RESEARCH (*Either Term*)

Prerequisites: OE 385—Management Engineering and permission of Department.

Mathematical and scientific formulation and solution of management problems with emphasis upon application to military man-machine

systems and activities. Includes queuing theory, replacement, maintenance and inventory problems, sequencing, competitive models and game theory.
2.5 Credit Hours.

DEPARTMENT OF PHYSICS AND CHEMISTRY

Professors: Col. D. G. MacWilliams (Head of Department) and Lt. Col. E. A. Saunders.

Associate Professors: Lt. Cols. L. O. Elsaesser, M. G. Sheffield, L. E. Radford; Maj. W. J. Hoff, Jr.

Assistant Professors: Majs. C. H. Drexler, H. C. Fitz, Jr., W. F. Reilly, D. A. Ramsay; Capts. G. W. B. Glen, J. B. Hall, W. M. Hooker, J. P. Huntingdon, R. L. LaFrenz, J. A. Lupi, P. Miller, Jr., R. M. Pastore, H. E. Soyster, E. A. Wilhelm.

Instructors: Majs. R. M. Elton, E. D. Frankhouser; Capts. J. F. Baur, J. F. Calvert, C. H. Carmean, Jr., W. A. Childs, T. J. Connell, C. H. Cooper, E. J. Downing, Jr., W. J. Garcia, Jr., J. A. Gibbs, L. H. Hunt, R. D. Kittelson, M. I. Kovel, W. R. Licht, L. R. Martin, R. N. Mathis, M. L. Miller, R. H. Miller, R. R. Mills, R. W. Riordan, Jr., P. W. Tomiczek, Jr., G. E. Wien; 1st Lt. R. L. Hobson.

Standard Courses

PH 201–202. General Physics

A course in college physics for students of science and engineering, covering contemporary as well as classical concepts. Vector notation, vector algebra, and calculus are used throughout the course.

Laboratory. A laboratory program designed to develop an appreciation of scientific techniques and to illustrate fundamental physical concepts is correlated and integrated with the course in physics.
8 Credit Hours (4 each term).

PH 305. Atomic and Nuclear Physics (*Either Term*)

Historical development of modern concepts; quantum nature of light and matter; photo-electric effect; Bohr Theory of the atom; special theory of relativity; quantum numbers; Pauli's exclusion principle; X-rays; nuclear structure; natural and artificial radioactivity; particle accelerators; nuclear fission and fusion reactions; chain reactions; radiation hazards and detection.

Laboratory. Familiarization with radiation detection and counting devices. Experimental determination of decay constants and absorption coefficients.
4 Credit Hours.

CH 201–202. General Chemistry

A two-semester course in general college chemistry with particular

emphasis on the fundamental concepts, principles, theories and laws of chemistry, to include an introduction to organic chemistry and radiochemistry.

Laboratory. The laboratory program is integrated with the general chemistry course. It includes practical exercises illustrating fundamental chemical theory discussed in the classroom and an introduction to qualitative analysis. Experiments stress investigative techniques, observation and interpretation of data and the drawing of conclusions from these data.

8 Credit Hours (4 each term).

Advanced Courses

PH 251–252. PHYSICS

A two-semester course for selected students covering the material of PH 201–202 at an accelerated rate, in order to provide time for deeper penetration into certain subject areas and more comprehensive treatment of others.

Laboratory. The laboratory program is an integral part of the course. The experiments conducted are greater in number and of a more sophisticated nature than those conducted in PH 201–202.

8 Credit Hours (4 each term).

PH 355. AUGMENTED ATOMIC AND NUCLEAR PHYSICS (*Either Term*)

Augmented course replacing PH 305 for selected cadets whose performance indicates ability to undertake more advanced material. Covers the material in PH 305, but with a more detailed and mathematical approach and with reduced emphasis on historical development, reactors, and weapons. Topics receiving increased emphasis include the special theory of relativity, basic concepts of wave mechanics, and interactions of radiations with matter.

Laboratory. Familiarization with radiation detection and counting devices. Experimental determination of decay constants and absorption coefficients.

4 Credit Hours.

CH 251–252. ADVANCED GENERAL CHEMISTRY WITH ANALYSIS

A rigorous treatment of the fundamental principles of modern chemistry. Topics covered include elementary quantum theory, atomic structure, the chemical bond, gases, crystal structure, solutions, elementary thermodynamics, kinetics, equilibrium, descriptive chemistry of the

elements, electrochemistry, ions, elements of organic chemistry and nuclear chemistry.

Laboratory. Includes experiments of a quantitative nature which illustrate the fundamental concepts of chemistry and a series of semi-micro qualitative analysis exercises stressed equilibrium principles and solution chemistry of various elements.

8 Credit Hours (4 each term).

Elective Courses

PH 481. INTRODUCTION TO THEORETICAL PHYSICS I (*First Term*)

Prerequisite: MA 251 or MA 483.

A mathematical treatment of the fundamental laws, principles and concepts of classical mechanics, including laws of motion, gravitational fields, particle dynamics, rigid body motion, and LaGrangian and Hamiltonian formulation, utilizing vector analysis and differential equations.

2.5 Credit Hours.

PH 482. INTRODUCTION TO THEORETICAL PHYSICS II (*Second Term*)

Prerequisite: MA 251 or MA 483.

A continuation of PH 481, covering electrostatics, magnetic fields, electromagnetic induction, Maxwell's Equations, electromagnetic properties of material media, physical optics, and special relativity.

2.5 Credit Hours.

PH 484. QUANTUM MECHANICS (*Second Term*)

Prerequisite: EL 305 (PH 305).

An introductory course stressing the physical meaning of quantum theory. Topics covered include: DeBroglie waves, interpretation of the wave function, Schroedinger's equation; the free particle, square-well potentials, simple harmonic oscillator, hydrogen atom, angular momentum operators, spin, perturbation theory.

2.5 Credit Hours.

PH 486. EXPERIMENTAL PHYSICS (*Second Term*)

Prerequisites: PH 201–202 or PH 251–252 plus one (1) elective in Physics.

Individual research projects selected by the student and performed under the supervision of a faculty advisor. Includes experiments such as magnetic moments, ultracentrifuge techniques, spectral analysis, Frank-Hertz, Millikan Oil Drop, speed of light, Zeeman effect, low-temperature physics, measurement of fundamental physical constants, etc.

2.5 Credit Hours.

PH 487. NUCLEAR REACTOR THEORY (*Either Term*)

Prerequisite: EL 305 (PH 305).

Review of nuclear physics pertaining to reactor theory; nuclear forces and binding energy; nuclear reaction; fission; chain reaction; neutron moderation, multiplication, and diffusion; critical equation; time dependency and temperature effects; health physics and radiation detection.

Laboratory. Practical exercises in the detection of nuclear radiation. Use of a subcritical reactor to measure criticality parameters and to provide a source of thermal neutrons.

2.5 Credit Hours.

PH 488. NUCLEAR PHYSICS (*Either Term*)

Prerequisite: EL 305 (PH 305); special permission of Department of Physics and Chemistry.

Review of atomic physics and wave mechanics. The interactions of neutrons, charged particles, and electromagnetic radiation with atoms and nuclei. Nuclear constituents, nuclear transformations, and radioactive decay. Properties of the nucleus; radius, angular momentum, magnetic moment, parity, and statistics.

2.5 Credit Hours.

CH 481. PHYSICAL CHEMISTRY I (*First Term*)

Prerequisite: CH 202 or CH 252.

A course covering standard topics in physical chemistry such as: description of physicochemical systems, laws of thermodynamics, thermodynamics of chemical equilibrium, changes of state, solutions and phase equilibrium, kinetic theory, electrochemistry, reaction kinetics, colloids and radioactivity.

Laboratory. Selected experiments are performed using precision physical measurements to illustrate colligative properties, thermochemistry, ionic equilibrium, transference and conductance, electrolysis and cell functions. Includes experiments using digital computer for automatic data reduction.

2.5 Credit Hours.

CH 482. PHYSICAL CHEMISTRY II (*Second Term*)

Prerequisite: CH 481.

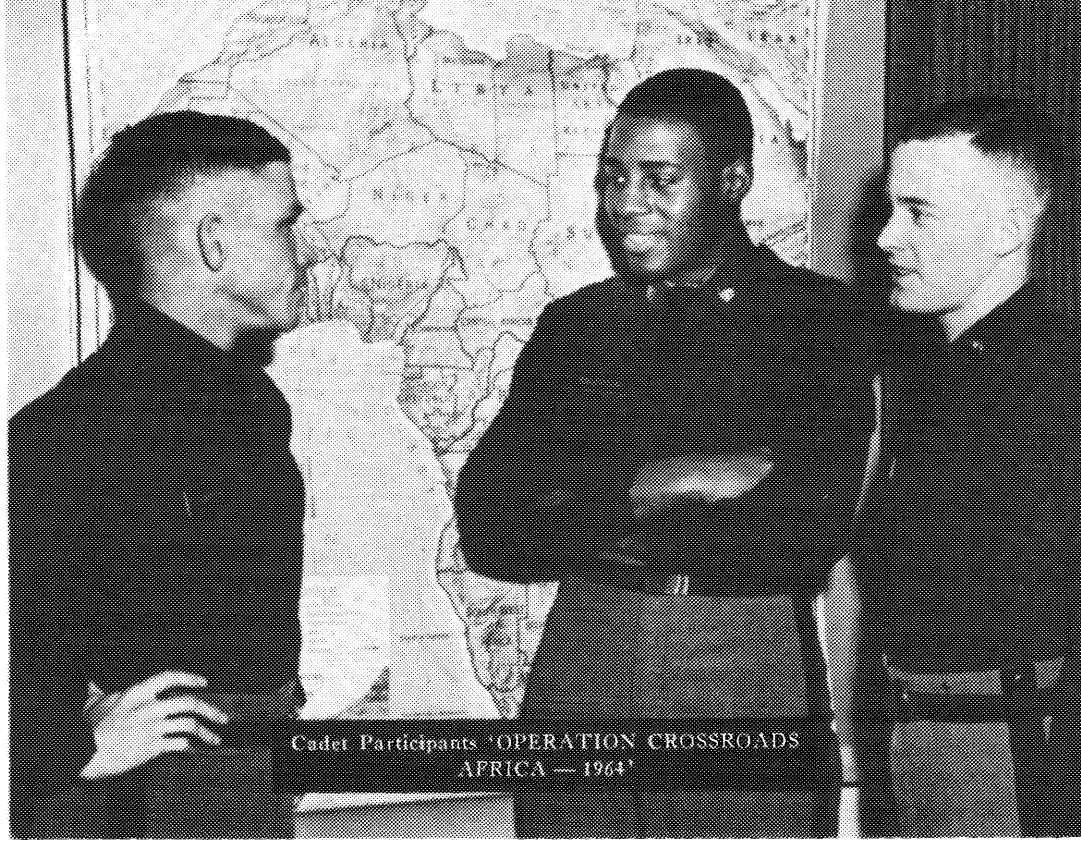
A continuation of CH 481—Physical Chemistry I.

2.5 Credit Hours.

CH 483. ORGANIC CHEMISTRY I (*First Term*)

Prerequisites: 4th and 3d Class standard curriculum or validation thereof.

A comprehensive study of the compounds of carbon and the reactions



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of these compounds. Latest theories of chemical bonding are presented and applied to the main classes of organic compounds. Emphasis is placed on the relationship between structures and chemical reactivity. The course includes standard topics in organic chemistry, such as: hydrocarbons, ethers, alcohols, aldehydes, ketones, stereochemistry, optical isomerism and reaction mechanisms. The laboratory program includes application of modern instrumentation and the more typical reactions of functional groups and syntheses.

4 Credit Hours.

CH 484. ORGANIC CHEMISTRY II (*Second Term*)

Prerequisite: CH 483.

A continuation of CH 483 covering additional standard topics in organic chemistry to include: aromatic, heterocyclic and polyfunctional compounds; proteins, carbohydrates, lipids and polymerization. The laboratory program includes an introduction to qualitative organic analysis.

4 Credit Hours.

CH 489. CHEMISTRY RESEARCH PROJECT (*Either Term*)

Prerequisites: CH 481, 482 and CH 483–484.

Individually supervised research in one or more of the specialized topics of chemistry. Research projects are approved by the Department and require the cadet to outline his approach, determine necessary laboratory equipment and evolve the techniques and procedures required. The project is completed by the writing of a research paper.

2.5 Credit Hours.

DEPARTMENT OF SOCIAL SCIENCES

Professors: Col. G. A. Lincoln (Head of Department) and Col. A. A. Jordan, Jr.

Associate Professors: Lt. Cols. J. H. Buck (Executive Officer), R. E. Carignan, R. E. Lynch, R. H. Nye (Permanent Associate Professor) and E. Denton, III.

Assistant Professors: Lt. Col. J. W. Mann; Majs. F. J. Brown, E. L. Fitzsimmons, A. Mansinne, A. D. Raymond, S. C. Sarkesian, W. P. Snyder and M. B. Wier; Capts. M. J. Collins (USAF), R. L. Grete, H. W. Johnson, F. J. Schober, D. R. Sherk, J. F. Sloan, K. W. Smith and S. R. Williamson; Lt. W. C. Perkins.

Instructors: Majs. Z. B. Bradford, O. B. Combs, W. S. de Camp, F. A. Hart, W. Hauser, E. R. Heiberg, R. W. Hobbs, J. R. Logan and G. R. Phillips; Capts. J. O. Bradshaw, T. E. Carpenter, R. T. Chenoweth, F. W. Hall, D. E. Hruby, J. R. Murphy (USAF), C. R. Parker, R. J. Roller, J. O. R. Sewall, A. A. Smith, W. J. Taylor, W. G. T. Tuttle, Jr., H. Twichell; Lts. L. Parkus; Mr. J. O. Rosenthal and Mr. J. R. Sisson.

SS 201. HISTORY OF EUROPE AND AMERICA: 1500 TO 1870

A survey of the major developments in the history of Europe since the Renaissance. Provides a foundation for further study of the institutions and issues of modern Western civilization. The central thread is political history, to which economic, intellectual and social developments are related, often through analysis of selected source readings.

2.5 Credit Hours.

SS 202. HISTORY OF EUROPE AND AMERICA SINCE 1870

Continues the survey begun in SS 201, with increasing emphasis upon the internal development of the United States, and the growing interdependence of Europe and North America in their political and economic affairs.

2.5 Credit Hours.

SS 301. ECONOMIC PRINCIPLES AND PROBLEMS

A survey course in basic economic principles providing for the application of these principles to specific problems of public policy in this and following courses.

2.5 Credit Hours.

SS 302. UNITED STATES GOVERNMENT

A study of the dynamics of U.S. politics, with emphasis on the processes, institutions, and problems of the national government, and including a survey of the basic aspects of state and local government. This course provides a conceptual framework of political science for later courses. It also includes an integrated subcourse in Economics of National Security which is an extension of the public policy problems portion of Social Sciences 301.
2.5 Credit Hours.

SS 401. CONTEMPORARY FOREIGN GOVERNMENTS

A comparative survey of the politics, political institutions, and problems of selected foreign countries, including Great Britain, France, West Germany, and the Soviet Union. Consideration is also given to current developments in the movement for the achievement of political unity in the European Community.
2 Credit Hours.

SS 403. HISTORY OF MODERN ASIA

A cultural-political study of China, Japan, and India, designed to characterize the traditional cultures and societies of each, to study the impact of the West on these traditional societies, and to analyze the resultant problems and issues of today.
2 Credit Hours.

SS 407. INTERNATIONAL RELATIONS

An interdisciplinary study of the world environment, building upon previous Social Sciences courses, with particular emphasis upon the nature of the forces changing the relationships among nations in the post-World War II era and on the role of the United States in world affairs. The theories and practices of interstate behavior are studied as well as the basic influences which condition the formulation and execution of U.S. foreign policy. The course terminates with an intensive study of a developing area with emphasis on U.S. Policy. The areas studied include Middle East, Africa, Latin America, Southeast Asia.
4 Credit Hours.

Elective Courses

SS 381. HISTORY OF RUSSIA (*Either Term*)

Prerequisites: None.

A study of the historical development of the Russian nation and its relations with the Western world, with particular emphasis on the

nature of the Russian Revolution, the regime which it produced, and the Communist Bloc as it presents a challenge to the West.
2.5 Credit Hours.

SS 382. HISTORY OF UNITED STATES FOREIGN RELATIONS (*Second Term*)

Prerequisites: None.

A study of the record of U.S. diplomacy from the early period of isolation to the current pattern of global alliances and commitment to the Atlantic Community. The events of this record are examined with emphasis on the evolving nature and broad currents of the foreign policy of the United States.
2.5 Credit Hours.

SS 383. MIDDLE EASTERN STUDIES (*Second Term*)

Prerequisites: None.

An introduction to the problems of the contemporary Middle East and North Africa. A brief consideration of the development of the Arab and Ottoman Empires and of penetration of the area by European states provides a foundation for an intensive study of the national political goals, social problems, and economic prospects of the present day.
2.5 Credit Hours.

SS 384. LATIN AMERICAN STUDIES (*Second Term*)

Prerequisites: None.

A study of the historical developments of Latin America to include the traditional cultures, the impact of Europe and the United States, and the emergence and development of the independent states. From this historical base the dynamic of present-day change in Latin America is examined in terms of its economic, political and social-psychological aspects.
2.5 Credit Hours.

SS 385. COMPARATIVE ECONOMIC SYSTEMS (*First Term*)

Prerequisite: SS 301.

A study of the philosophical and theoretical bases of Capitalism, Socialism, and Communism coupled with an analysis of problems in the actual operation of these economic systems. The main issues of the alternative systems are raised in terms of the challenges posed by changing environments.
2.5 Credit Hours.

SS 386. POLITICAL PHILOSOPHY (*Either Term*)

Prerequisites: SS 201 and SS 202.

An introduction to the classic writings of Western political thought,

emphasizing the emergence and refinements of the concept of constitutional government and the ethical values and other theory which underlie that concept. Particular attention is paid to the universal applicability of the writings of the great philosophers and their relationship to the political problems of today.
2.5 Credit Hours.

SS 483. NATIONAL SECURITY PROBLEMS (*Either Term*)
Prerequisite: First Class and selected Second Class.

A study designed to familiarize the student with two related aspects of national security: the process by which decisions bearing on national security are reached and the place of the professional officer in national security affairs. These objectives are approached through inquiry into the organizational-procedural setting of national security as well as the concepts and terminology of security strategy. Both strategic and decision-making factors are combined in case studies of actual decisions. Cadets have the opportunity to hear the views of several distinguished visiting authorities, both civilian and military, and to take an educational trip to an institution concerned with a broad array of security problems.
2.5 Credit Hours.

SS 485. PROBLEMS OF THE DEVELOPING NATIONS (*Either Term*)

Prerequisites: SS 201, SS 202.

A study of the political systems of the developing nations of Southeast Asia and Sub-Saharan Africa. The nature of the process of modernization and the political institutions that are emerging therefrom form the theme of the course. Such trends as the development of foreign policy in the context of the Cold War, the bases of insurgency, the emerging political role of military leaders and local Communist parties are analyzed. Cadets have the opportunity to discuss these developing areas with citizens of the nations concerned and with other experts.
2.5 Credit Hours.

Academic Computer Center

ACADEMIC COMPUTER CENTER

Director and Permanent Associate Professor of Computer Science: Lt. Col. W. F. Luebbert.
Deputy Director: Lt. Col. H. W. Lombard.
Assistant Director, Operations and Administration: Maj. H. C. Hannaway.
Assistant Director, Systems Analysis: Maj. H. C. Hollander.
Assistant Director, Academic Instruction: Capt. F. E. O'Brien.

Every cadet receives computer science instruction taught in an integrated sequence by several departments. In his Engineering Fundamentals plebe course given by the Department of Earth, Space and Graphic Sciences, he learns to program and solve problems using a computer. Basic computer knowledge is extended through continued computer use in several disciplines. The Department of Mathematics requires each cadet to solve five problems on the computer. The Department of Physics and Chemistry uses the computer as a data reduction tool. The Department of Ordnance includes comparison of analog and digital computer solutions in its Ordnance Engineering and Management courses. The Departments of Electricity, Mechanics, and Military Art and Engineering encourage cadet computer use. Several elective courses allow cadets with particular aptitude, skill and desire to explore computer science in depth.

The use of the computer extends into areas outside of the sciences, such as psychology, tactics, and social sciences. For example, computer-trained cadets have programed judge selection procedure and selection and matching of teams for the National Debate Tournament held annually at West Point.

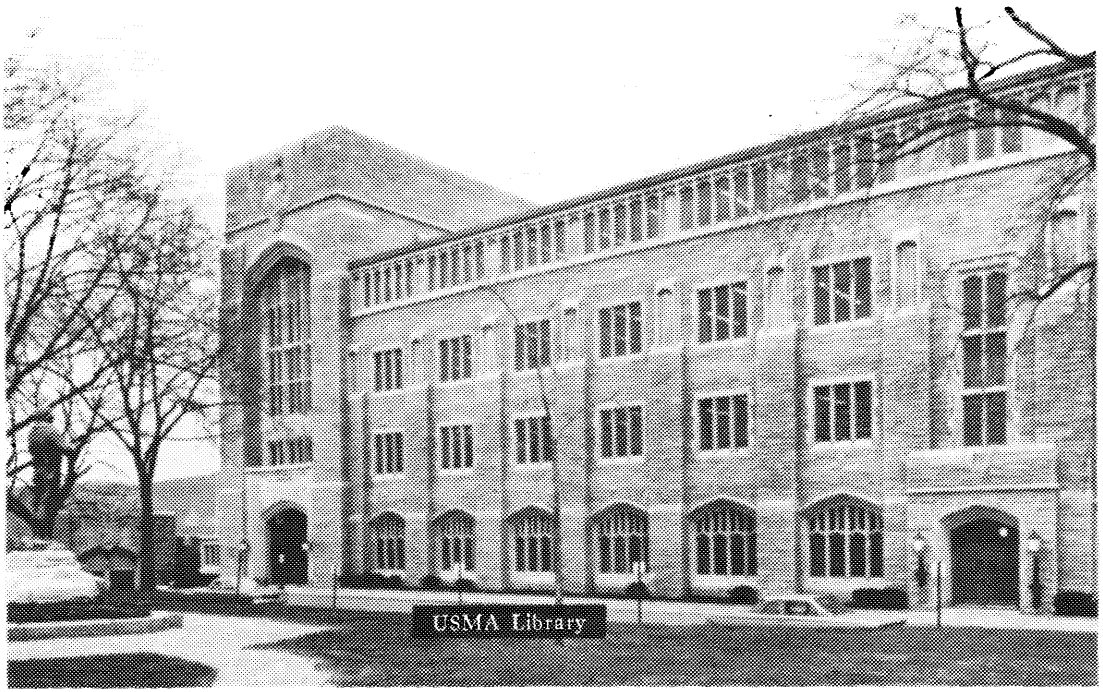
The Academic Computer Center stands at the heart of this program by integrating, coordinating and providing computer science support for the Military Academy. It trains instructors, assists academic departments in the conduct of instruction, provides instructor support and augmentation, conducts classes or subcourses within courses presented by academic departments, conducts special voluntary and honors courses, and supervises individual projects and monographs.

Currently over 3,500 cadet computer program solutions are processed each month, with the number rising rapidly. The computer is available to cadets for homework assignments, special projects, monographs, honors work, or free experimentation. Cadets who desire to operate the equipment personally may qualify for a "gray card" (qualified apprentice) or a "gold card" (fully qualified operator). Cadets earning a "gold card" may use the computer even when the Academic Computer Center is officially closed and members of the staff are not present.

To help cadets prepare computer programs during their barracks study time, a small program library is available in each cadet company and a larger program library in each battalion. Cadets normally use the comprehensive library and programing consultative services available at the Academic Computer Center.

The Academic Computer Center is housed in a newly constructed modern facility in Thayer Hall. This facility includes three modern computers, a communications processor, and three classrooms designed specifically to support cadet instruction. In addition, closed-circuit television, kinescope films and a wide variety of audio-visual aids increase instruction efficiency. Special peripheral devices such as a curve plotter and punched card equipment assist in the dynamic presentation of material to students.

THE LIBRARY



USMA LIBRARY

Librarian: Mr. Egon A. Weiss

Assistant Librarian: Mr. William G. Kerr

Chief, Readers' Services Division: Miss Ann K. Harlow

Reference Librarians: Millicent D. Abell (Periodicals)
Katherine deDory (Languages)
Irene Feith (Documents)
Michael Finkin (Social Sciences)
Frances M. Lum (Circulation)
John Parker (Audio-Visual)
James E. Pearson (Military History)
Theresa E. Taborsky (Bibliography)

Chief, Special Collections Division: Mr. J. Thomas Russell

Archivist: Mr. Joseph M. O'Donnell

Chief, Technical Services and Acquisitions: Mr. James H. Conway

Order Librarian: Catherine McGuinn

Catalog Librarians: Elizabeth Dunn
Pingkun Lee
Anna E. Pierce
Marion B. Wellar

General Reference Reading Room

Audio-Visual Area

The Treasure Room

The Library contains over 250,000 books in addition to the volumes throughout 11 academic department reference collections and the 24 dormitory libraries in the cadet Barracks Complex. This structure has a capacity of 500,000 volumes and seating space for over 1000 readers. The Library currently subscribes to over 1000 periodicals; it is equipped with microfilm and microcard readers and provides photographic duplicating services. Its audio-visual resources include approximately 3000 disc records and tapes which cover linguistic materials, drama, poetry as well as classical and popular music. Audio booths are equipped for stereophonic listening and recording. Visual materials include both mounted and unmounted pictures, prints, and slides.

The Library is a partial depository for United States Government publications, housed in a documents room, which also contains United Nations, NATO, SEATO and CENTO publications in addition to publications of State and other regional organizations.

The library book collection represents the first Federal library and antedates the founding of the Academy in 1802 by almost a quarter of a century. The first important additions to the library were in 1815 when Maj. Sylvanus Thayer, Superintendent, 1817–1833, on an official trip to Europe was authorized by Secretary of War James Monroe to use this opportunity to buy military, scientific, and engineering works

for the Military Academy. Major Thayer bought about 1,000 volumes.

The library is similar to that of a liberal arts college, save that it contains a large proportion of mathematical, scientific and technical works, and has a comprehensive military section. The collection of standard literary works is good; and that of 18th and 19th century periodicals is unusually representative. The library's broad coverage in the field of military art, history, and technology makes it a prototype of a national military library.

The manuscript and archival collection is extensive, and deals principally, though by no means exclusively, with the United States Army, the Military Academy, and persons of the military profession.

The collection of early American military art imprints is unique. The library is rich in both original and secondary sources dealing with the history of the Hudson Highlands.

The Special Collections Division, Archives and History Branch maintains extensive cadet and Miltary Academy administrative records and conducts a historical program relating to the Military Academy and West Point.

The facilities of the library are available to research scholars and writers. During the Academic Year the library is open from 7:00 a.m. to 10:00 p.m. on weekdays and Saturdays, and from 2:00 p.m. to 10:00 p.m. on Sundays. Special collections, rare books and Archives are available from 8:00 a.m. to 4:30 p.m. Monday through Friday.

MILITARY PROGRAMS

MISSION

To develop the qualities and attributes of leadership with emphasis on character as exemplified by integrity, morality, discipline and a strong sense of duty and responsibility.

To provide a broad basic military education.

To develop high standards of physical fitness.

To instill the motivation essential to the profession of arms and to provide orientation for a career in the United States Army.

Military instruction concentrates on the fundamental concepts of tactics, study of leadership techniques, training in physical education, and indoctrination in career planning and motivation. It provides study, practice and orientation in the history, materiel, methods, and techniques of the Army and the other services of the Armed Forces of the United States. With this background the graduate has the foundation necessary for his progressive and continued development throughout his career as an officer of the Regular Army.

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TYPICAL DAILY SCHEDULE

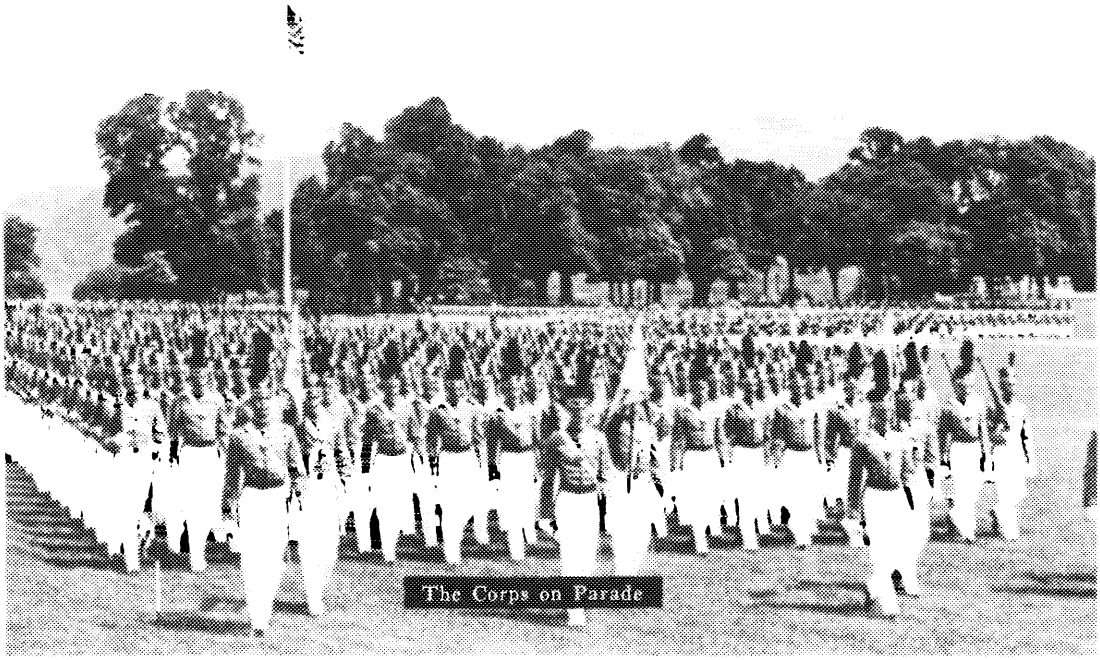
MORNING:

5:50	First call for reveille
6:30– 7:10	Breakfast hour
7:15– 7:45	Study time
7:45– 9:05	Class
9:05–10:30	Study time
10:30–11:50	Class
12:10– 1:00	Dinner hour

AFTERNOON:

1:05– 2:05	Class
2:05– 2:15	Unscheduled time
2:15– 3:15	Class
3:15– 3:35	Unscheduled time
3:35– 4:50	Intramural and intercollegiate athletics
4:50– 6:30	Study time, parades, intercollegiate athletics, and extracurricular activity meetings
6:30– 7:15	Supper time
7:20– 9:35	Study time
10:00	Taps. Late lights authorized for study purposes.

The schedule shown above is the normal daily schedule for a cadet during the academic year, September through May. During the summer months of June through August the cadet takes a leave of approximately one month and devotes the remainder of the time to instruction in Tactics.


The Corps on Parade

THE UNITED STATES CORPS OF CADETS

Organization

The student body at West Point is called the United States Corps of Cadets. A member of the Corps is expected to display at all times the attributes of leadership, character, and integrity that are requisite in the fulfillment of the requirements of the military service.

The approximately 3,100 cadets of the Corps, organized into 24 companies of about 125 men each, follow a Brigade organization with four regiments. Each regiment is organized into two battalions with three companies in each battalion.

In command of the Brigade is the Cadet Brigade Commander (Cadet First Captain) who has a staff consisting of a Brigade Executive Officer, a Brigade Adjutant, a Brigade Operations Officer, a Brigade Supply Officer, and a Brigade Activities Officer. The four Cadet Regimental Commanding Officers have similar staffs and the eight Battalion Commanding Officers have staffs, consisting of a Battalion Adjutant, a Battalion Operations Officer, and a Battalion Supply Officer.

A Cadet Company Commander is in charge of each company, with subordinate cadet officers and noncommissioned officers in command of the smaller units.

Pay and Allowances

Cadets are members of the Regular Army and receive one-half of the basic pay of a Second Lieutenant with under two cumulative years' service. This, under current pay rate, is $120.60 per month, from which they must pay for their uniforms, textbooks, and incidentals. Quarters, rations, and medical care are provided. The pay and allowances received are adequate to cover all expenses.

Appointment Upon Graduation

When a cadet has completed the course of instruction and meets required standards, he is, upon graduation, appointed a Second Lieutenant in the Regular Army of the United States.

APTITUDE FOR THE SERVICE

The Aptitude for the Service System functions in accord with the basic responsibility of the Academy to produce officer leaders for the Armed Forces. The system assists in the maximum development of the leadership capabilities of each cadet and insures that graduates meet the standards required by the Army. The procedures of the system provide for evaluation of the leadership potential of each cadet, counseling and guidance in those areas in which any weakness is detected, and separation of any cadet who proves incapable of achieving the required standard of leadership.

The evaluation of cadet leadership is accomplished primarily through a program of ratings by officers and cadets. Twice a year each cadet rates all cadets of his company who are in his class or lower classes. The ratings are made by arranging the cadets in each class within the company in order of merit based on observed leadership ability.

In addition to the ratings by other cadets, each cadet is similarly rated by his Company Tactical Officer. The rating by the Tactical Officer is an extremely important one since this officer has been selected for his job because of proven leadership ability. It is he who has studied carefully the cadets in the company and has counseled and advised each cadet.

A relative standing in Aptitude for the Service for each cadet is established by mathematically combining the ratings of the Tactical Officer and cadets. The cadet standings are not published, but the cadet and his parents are informed of his general ranking within the class. The objective ratings are supplemented in certain instances by descriptive comments regarding performance of specific duties and overall potential.

The Tactical Officer plays a key role in the counseling and guidance phase of the system. With each cadet he conducts a series of interviews in which he discusses any weakness shown, along with its probable cause, and counsels him in the means of improvement.

If over an extended period of time the cadet appears incapable of overcoming his deficiency and attaining the leadership standards required, his records are carefully studied by a board of senior officers of the Department of Tactics. The board interviews the cadet and such other cadets and officers as necessary for a thorough evaluation of the case.

The board may recommend that a cadet be declared proficient or deficient. The Commandant reviews the proceedings of the Aptitude Board and refers those cases involving deficiency to the Superintendent for action by the Academic Board wherein they are handled in the same manner as deficiency in an academic subject. A cadet found deficient in Aptitude for the Service by the Academic Board may be placed in a conditioned status until the next rating or he may be separated. All cases involving separation are referred to the Department of the Army for final approval.

Deficiency in Aptitude for the Service does not mean that a young man is unsuited for a successful career in life. It does mean that in the considered opinion of his officer supervisors and his fellow cadets he is not suited for a career as an officer of the Army.

DEPARTMENT OF TACTICS

Commandant of Cadets: Brig. Gen. R. P. Scott

Aide-de-Camp: 1st Lt. T. P. Carney

Deputy Commandant: Col. J. G. Wheelock III

Brigade Staff: S1: Lt. Col. R. C. Breakiron; *Assistants:* Maj. J. G. Donahue, Maj. W. H. Ritter; *Personnel Officer:* CWO R. A. Smith; *Operations Officer:* Lt. Col. F. J. Sheriff; *Assistants:* Capt. R. L. Hargrove, Maj. L. J. Flanagan, USA Retired; *S4:* Lt. Col. T. U. Harrold; *Assistant:* Capt. P. N. Walker; *CAO:* Maj. M. R. Thurman; *USAFA Exchange Officer:* Maj. D. S. Rickard; *The Royal Military Academy, Sandhurst Exchange Officer:* Capt. J. W. Foss; *USMA Exchange Officer from RMA, Sandhurst:* Maj. P. S. Field, MC, British Army (assigned to Office of Military Instruction).

First Regiment: Commanding Officer: Col. G. K. Maertens; *Executive Officer/S3:* Lt. Col. R. L. Smith; *S1/S4:* Maj. H. B. Rhyne; *Company Tactical Officers:* Maj. R. E. Glasgow, Capt. M. S. Sirkis, Maj. F. K. Ware, Capt. R. E. Adams, Capt. W. H. Wilcox, Capt. D. F. Maurer.

Second Regiment: Commanding Officer: Col. A. L. Hamblen; *Executive Officer/S3:* Lt. Col. W. J. Love; *S1/S4:* Maj. R. A. Cheney; *Company Tactical Officers:* Maj. E. E. Fuller, Capt. C. A. Glenn, Capt. J. J. Cook, Jr., Maj. C. F. Bliss III, Capt. W. L. Weihl, Capt. L. E. Bennett.

Third Regiment: Commanding Officer: Col. J. W. Morris; *Executive Officer/S3:* Lt. Col. W. A. Ross; *S1/S4:* Maj. W. H. Gilbert; *Company Tactical Officers:* Maj. J. E. Fleeger, Capt. N. S. Krawciw, Capt. I. A. Beauchamp, Capt. R. L. Hull, Maj. F. C. Adams, Lt. E. B. Smedberg, USN, Maj. J. W. Nicholson.

Fourth Regiment: Commanding Officer: Col. H. J. Schroeder; *Executive Officer/S3:* Lt. Col. R. G. Yerks; *S1/S4:* Capt. G. D. Waters; *Company Tactical Officers:* Maj. C. S. Meek, Maj. R. G. Vander Meer, Capt. P. W. Lash, Capt. R. C. Beyer, USAF, Capt. A. D. Johnson, Capt. W. M. LeHardy.

OFFICES OF INSTRUCTION

OFFICE OF MILITARY INSTRUCTION

Director: Col. W. J. Ray.

Assistant Director: Lt. Col. C. C. Jacobson.

Plans Br: Plans O: Lt. Col. C. K. Nulsen; *Asst. Plans O:* Capt. J. W. Ray, Capt. W. T. Parks.

Career Br: Chief: Lt. Col. M. J. Hanna; *Sr. Armor Instr:* Maj. C. Alderman; *Sr Arty Instr:* Maj. J. J. Coghlan, Jr.; *Sr Engr Instr:* Maj. C. J. Fiala; *Sr Inf Instr:* Maj. J. T. Griffin, Jr.; *Sr Sig Instr:* Maj. W. D. Renner; *Instructors:* Capt. R. E. Thomas, Capt. E. E. Cross.

Military Science Br: Chief: Lt. Col. R. C. Diehl.

Instructors: Maj. W. C. Stinson, Jr., Maj. J. D. Foldberg, Maj. F. Zimolzak, USMC, Maj. P. S. Field, British Army; Maj. R. A. Rachek; Capt. R. G. Moscatelli, Capt. R. T. Hatcher, Capt. J. A. Paes.

Standard Courses

FOURTH CLASS MILITARY INSTRUCTION

Summer

The summer period consists of basic military training in preparation for military life and orientation and indoctrination in duty and honor. This period in New Cadet Barracks is one of intensive fundamental military training to include qualification with the U.S. Army rifle and basic individual training designed to prepare the new cadet to take his place in the Corps when it reassembles late in August.

7.5 Weeks. Ungraded.

Academic Year

MILITARY SCIENCE

MI 101. BASIC OPERATIONAL CONCEPTS

Continuation of the basic military training begun during New Cadet Barracks. Instruction in tactical principles as applied to platoon procedures to include military organization, small unit tactics, and troop leading procedures.

0.75 Credit Hour.

MI 102. Map Reading

A continuation of military education through instruction in map reading to provide the necessary background for further military study.
1 Credit Hour.

CAREER TRAINING

MI 105. Military Heritage I

Instruction designed to develop in the cadet an appreciation of the history and traditions of the profession of arms and to instill a pride in that profession. Secondarily, to broaden his cultural background in military art.
0.75 Credit Hour.

Third Class Military Instruction

Summer

To teach the capabilities and limitations of, and the techniques peculiar to, the infantry rifle squad and platoon, the tank and armored infantry platoons, the artillery battery, and those combat engineer and signal units integral to the basic combined arms team; to provide familiarization firing of various individual and crew served weapons; to provide extensive tactical training at the individual, squad, and platoon level; to develop an understanding of and an appreciation for unit teamwork; to develop and maintain a high state of physical condition, personal appearance, self-confidence, and esprit; and to instill a positive attitude toward duty with emphasis on preparing the Third Class to assume responsibilities as upperclassmen and future officers.
7.5 Weeks. Ungraded.

Academic Year

MILITARY SCIENCE

MI 201. Company Combined Arms Team

Continued instruction in tactical principles as applied to company level operations, introducing the principles of offense and defense, emphasizing combined arms team aspects, and bringing out logistical considerations.
1 Credit Hour.

CAREER TRAINING

MI 205. MISSIONS AND STRUCTURE OF THE ARMED FORCES

An introduction to the organization of the Department of Defense emphasizing the Department of the Army; an introduction to the roles and missions of the Navy and Air Force.

SECOND CLASS MILITARY INSTRUCTION

Summer

(1) A period of 2½ weeks during which time the cadet receives further orientation on the roles, missions, and organization of other services; practical application of methods of instruction training to include physical training instructor techniques, small arms refresher training, and a review of map reading techniques.
Ungraded.

(2) One month duty as a platoon leader with a combat unit of the U.S. Army, or as a squad leader during New Cadet Barracks.
Ungraded.

Academic Year.

MILITARY SCIENCE

MI 301. BATTALION COMBINED ARMS TEAM

Tactical instruction in the organization and basic principles of offensive and defensive combat employed by the ROAD Battalion Combined Arms Team.
1.5 Credit Hours.

MI 302. BATTALION COMBINED ARMS TEAM, SPECIAL OPERATIONS

Instruction in the basic principles of employing the ROAD Battalion Combined Arms Team on the nuclear battlefield and in special operations to include airborne, air mobile, and river crossing operations.
1 Credit Hour.

CAREER TRAINING

MI 305. CAREER III

An introduction to career planning to include the challenge of the profession of arms, career benefits, and branch selection considerations.
Ungraded.

FIRST CLASS MILITARY INSTRUCTION

Summer

(1) To provide an orientation on the roles, tactics, techniques, equipment, and new developments in Infantry, Armor, Artillery, Signal

and Engineers through a two and one-half week orientation trip to selected military posts.
Ungraded.

(2) One month duty either as a platoon leader with a combat unit of the U.S. Army for cadets who did not receive this type training in Second Class Year, or at command and staff levels during New Cadet Barracks or Camp Buckner.
Ungraded.

Academic Year

MILITARY SCIENCE

MI 401–405. COLD WAR OPERATIONS OF U.S. ARMY, FOREIGN ARMIES

Advanced instruction in the tactics, techniques, and employment of the U.S. Army in the Cold War to include counterinsurgency, Army deployment, Special Forces, MAAG's and Missions. Includes a course on the organization and capabilities of major foreign armies.
0.75 Credit Hour.

MI 403. COMMON SUBJECT BRANCH TRAINING

General orientation on the duties of a junior officer in those subjects which are not related to a particular branch.

CAREER TRAINING

MI 403–406. CAREER IV

Guidance on personal affairs and career planning designed to assist in making the transition from cadet to junior officer. To prepare the cadet for his immediate decisions concerning branch selection, uniforms, automobile purchasing, travel, and the first duty station.
Ungraded.

MI 406. BRANCH MATERIAL TRAINING

Branch-oriented instruction designed to prepare the cadet for duty in his first unit.
Ungraded.

OFFICE OF MILITARY PSYCHOLOGY AND LEADERSHIP

Director: Col. S. H. Hays.
Associate Professor: Lt. Col. H. A. Buckley.
Assistant Directors: Lt. Col. R. W. Little, Lt. Col. P. J. Hickey; Majs. W. J. Livsey, Jr., W. N. Thomas.
Instructors: Majs. W. C. Maus, D. M. Malone, T. A. Rehm, R. L. Salvador, D. J. Tobin, H. C. Walters, Jr., J. G. Whitted, Q. C. Snyder, J. C. Burris; Capts. I. G. Katenbrink, Jr., E. B. Wilson, C. R. Russell, Lt. F. Luthans.

Standard Courses

PL 202. General Psychology

A course of study designed to teach the cadet the basic principles and concepts of General Psychology and their relation to him as a student and in his future role of military leader. The broad areas of the science of psychology, human development and individual differences, perceiving, learning, thinking, motivation and emotion, adjustment and social relationships and leadership theory, comprise the course content.
2.5 Credit Hours.

PL 401. Military Leadership

A study of leadership as a phenomenon of human behavior, including consideration of some of the factors which affect this phenomenon in the military and the process involved in the execution of leadership by military commanders.

The course is structured on a concept of leadership which encompasses moral, philosophical, and scientific foundations and which views leadership as a dynamic interaction process involving the leader himself (with his own personality), the group (with its particular characteristics and needs), and the situation (in which the leader and his group are operating).

As a vehicle for understanding and internalizing concepts developed in the course, the cadet is required to analyze typical military leadership problems which require an appreciation of human behavior and group dynamics as well as knowledge of specific functions of military management and personnel management.

In the classroom exercises the principal instructional techniques used are: Role Playing, Group Discussion, Training Films, Tape Recorded Skits, and Case Studies.
2.5 Credit Hours.

Methods of Instruction

Third Class

A training course in the personal and professional qualifications required of a military instructor. Emphasis is placed on practical application in supervised presentations by each cadet of a military lesson, critiques, impromptu presentations and a 30-minute outdoor class on a military skill. Included are theoretical instruction and practical application of the principles of learning and training methods. This involves preparation, presentation, communication of information and skills,

purposes and types of examinations, conduct of critiques, management and supervision of instruction and selection and design of training aids.

Elective Courses

PL 481. Managerial Psychology

Prerequisite: PL 202.

A course of study from selected areas of industrial and personnel psychology which covers human factors relevant to the functions of management. The course covers selection, placement and training of workers; job analysis and evaluation; motivation and morale; conditions of work and productivity; labor-management relations; and other problems of human behavior pertinent to large modern organizations. Emphasis is given to the use of quantitative methods as applied to research in the behavioral sciences and the implications of these research findings within industry and the military services.

2.5 Credit Hours.

PL 482. Sociology: Society and Culture

Prerequisite: PL 202

This is an introduction to sociology as the study of society and culture. The course begins with the evolution of man and culture, and the influence of geography and population. The basic components of a social system are then identified—status and role, small groups and large organizations, such institutes as religion, economic systems, and the political order. Finally, the dynamic elements of society are considered in a survey of public opinion, social movements, and revolutions. The course includes material from both sociology and anthropology. American society is emphasized in a humanistic perspective. One term paper is required in which the cadet applies sociological concepts to a selected aspect of Academy life.

2.5 Credit Hours.

PL 483. American Military Institutions and Manpower (*Second Term*)

Prerequisite: May be taken by any 1st or 2d Classman at any time.

American military organization is studied as an element of the larger society. By a comparative analysis of the military organization of other societies, distinctive cultural features are identified which tend to create or accentuate specific institutions, such as recruitment methods, status systems, skill structures, and leadership patterns. Each of these institutions is considered in detail with reference to American society. The

quantity and quality of human resources available for military service is studied in terms of population trends, social stratification, and the increasing comparability of military and civilian skill structures. Related topics include the changing function of the reserve components, the management of marginal personnel, relations between the military base and host community, civic action, the relations between public opinion and military organization. The course is sociological in orientation.

2.5 Credit Hours.

OFFICE OF PHYSICAL EDUCATION

Professor and Director: Col. F. J. Kobes, Jr.
Deputy Director: Lt. Col. W. R. Gossett.
S1: Maj. B. A. McDonald.
S4: Maj. R. J. Herte, Jr.
Bldg & Gds: Capt. E. L. Trobaugh.
Associate Directors: Drs. L. O. Appleton, A. C. Werner; Messrs. J. B. Kress, H. J. Kroeten, R. E. Sorge.
Assistant Directors: Messrs. L. A. Alitz, T. E. Maloney, W. F. Lewis, G. W. Linck, R. S. Baggett, J. M. Palone.
Instructors: Maj. G. E. VanValkenburg, Maj. A. F. Underwood, Capt. J. L. Hutchison, R. G. Cardillo, Maj. W. J. Weafer, Capt. J. J. Burcham, Capt. J. L. Anderson; Lts. R. Piefer, S. G. Truesdell.

Standard Courses

PE 101–102. PHYSICAL DEVELOPMENT AND ATHLETIC PARTICIPATION

Instruction designed to develop personal requisites for military effectiveness, the basic elements underlying physical ability (strength, muscular endurance, power, coordination, agility, balance, and flexibility), individual physical ability skills, and to enhance mental health and efficiency. These aims are accomplished through instruction in gymnastics (apparatus), boxing, wrestling, swimming and personal fitness (foundation) courses. Instruction and participation in the sports of handball and squash for those individual cadets who demonstrate a superior level of achievement at midcourse.

Player competition in intercollegiate sports of cross country, football, soccer, and 150-pound football; winter intercollegiate sports of hockey, pistol, rifle, squash, swimming, track, wrestling, basketball, and gymnastics.

Apart from intercollegiate athletics, the intramural athletic program provides player competition in the fall sports of football, soccer, golf, tennis, track, and triathlon; winter sports of basketball, boxing, hand-

ball, squash, volleyball, skiing, wrestling, and water polo. For non-intercollegiate contenders, the intramural program provides a broad sports background while conditioning and teaching basic athletic skills. Participation is restricted to two seasons for a particular sport.
3 Credit Hours.

PE 201–202. ORIENTATION IN ATHLETIC SKILLS AND INSTRUCTOR TRAINING

Instruction designed to foster carryover athletic skills which will insure fitness in later years through the development and application of advanced physical skills and expansion of the repertory of individual and team sports to include basketball, handball, volleyball, squash, SCUBA, skiing, golf, tennis, and personal conditioning.

Instructions and application in methods and techniques of conducting military conditioning exercises and allied physical training activities.

Athletic participation, as listed under PE 101–102.
1.5 Credit Hours.

PE 301–302. DEVELOPMENT OF ATHLETIC SKILLS

Emphasis is placed on further expansion of the individual repertory of individual and team sports to include squash, handball, volleyball, SCUBA, tennis, golf, or personal conditioning; increased emphasis on carryover athletic skills which promote fitness.

Advance instructions and application in methods and techniques of conducting military conditioning exercises.

Athletic participation as listed under PE 101–102. Responsibilities as assistant coach or official in the intramural program.
1.5 Credit Hours.

SCUBA Instruction

PE 401–402. Leadership and Advanced Athletic Skills

Emphasis is placed on instructor and leadership training through administration of third and fourth class summer physical training programs.

Instruction for further expansion of the individual repertory of individual and team sports to include golf, tennis, squash, handball, SCUBA, volleyball, and personal conditioning; increased emphasis on carryover athletic skills which promote fitness.

Athletic participation, as listed under PE 101–102. Responsibilities of administering, coaching, and officiating in the intramural program.
1 Credit Hour.

Additional Courses

A special program of weight control and reconditioning, basic swimming, voluntary conditioning, and a posture clinic to assist those who experience difficulty in achieving minimum standards of proficiency. Open to all classes.
Ungraded.

Spring Athletic Participation

With the same objectives as stated in PE 101–102, the spring program offers player competition in intercollegiate sports of baseball, lacrosse, golf, tennis, track, pistol, and rifle, or voluntary competition in the spring intramural program consisting of military boating, cross

country, lacrosse, softball, and tennis. Approximately 89 percent of the Cadet Corps participates in this program.

Ungraded.

Annual Physical Fitness Tests

Physical Fitness Tests and Physical Ability Tests, including Obstacle Course Runs, conducted in fall and spring of each year for all cadets. Graded under PE 101–102, 201–202, 301–302, and 401–402.

Intramural Competition

LECTURE PROGRAM
1964–1965

Lectures sponsored by the various activities at the Military Academy are coordinated by the Dean of the Academic Board. In almost every case the lecture is an integral part of the course of instruction of the attending class or classes (shown in parentheses).

A list of the visiting lecturers for the academic year 1964–1965 is shown below. At the time of preparation of this list, some of the entries were tentative.

DEPARTMENT OF EARTH, SPACE, AND GRAPHIC SCIENCES

Dr. John H. Heller, Director of New England Institute for Medical Research, "Man's Exploration of Space" (Fourth)

DEPARTMENT OF ELECTRICITY

Col. Robert B. Burlin, Director of Army Nuclear Power Program, "The Army Nuclear Power Program and Nuclear Power Technology in Practice" (Second)

DEPARTMENT OF ENGLISH

Dr. Theodore Hornberger, Professor of English, University of Pennsylvania, "Benjamin Franklin" (Fourth)

Miss Harper Lee, Author, "The American Novel" (Fourth)

Maj. Gen. Charles E. Saltzman, Retired, Goldman Sachs & Co., New York City, "The Need to Understand the National Character" (Selected Fourth Classmen)

DEPARTMENT OF FOREIGN LANGUAGES

Lt. Col. Proske, Military Attache, Embassy of the Federal Republic of Germany, "Experience on the Eastern Front in WW II (Selected Third Classmen—German)

Prof. Francis Millett Rogers, Professor of Romance Languages, Harvard University, "Os Acores" (Third—Portuguese)

Mr. Nicholas Fersen, Russian Instructor, Williams College, "The Vlasov Movement" (Third—Russian)

Dr. Guido Brunner, 2d Secy, German Observer to United Nations, "German Youth Today" (Selected Third Classmen—German)

M. Pierre Brodin, Director Lycee Francais de New York, "Le systeme d' education francais" (Third—French)

DEPARTMENT OF LAW

Professor Harold J. Berman, Harvard University, "Soviet Legal System" (Second)

Mr. Michael H. Cardozo, Executive Director, Association of American Law Schools, "The Importance of the Executive in Cases Involving International Law." (Selected First and Second Classmen)

DEPARTMENT OF MECHANICS

Dr. J. P. Den Hartog, Professor of Mechanical Engineering, MIT, "Mechanical Vibrations" (Second)

James E. Webb, Administrator, NASA, "Challenge of the Space Age" (Second and Selected First and Third Classmen)

Dr. J. J. Cornish III, Aerophysics Department, Mississippi State University, "Low Speed Aerodynamics" (Second)

Dr. Edward F. Byars, Professor and Chairman, Department of Theoretical and Applied Mechanics, University of West Virginia, "Mechanics of Materials" (Second)

Maj. Frank Borman, Astronaut NASA, Manned Spacecraft Center, Houston, Texas, "American Manned Lunar Landing Program" (Second)

DEPARTMENT OF MA&E

Mr. Charles B. MacDonald, Office of Military History, Department of the Army, "The Battle of the Huertgen Forest" (First and Selected Second)

DEPARTMENT OF ORDNANCE

Dr. William F. Loranger, Technical Director, Picker X-Ray Corp., "X-Ray Diffractometry" (Selected First Classmen)

DEPARTMENT OF SOCIAL SCIENCES

Prof. Morton Halperin, Harvard University, "Limited War" (Selected First and Second Classmen)

Mr. Arthur W. Barber, Department of Defense, Deputy Assistant

Secretary of Defense, "Problems of Arms Control" (Selected First and Second Classmen)

Prof. Philip E. Mosely, Columbia University, "European Integration" (First)

Mr. Robert Stone, Vice President, New York Federal Reserve, "Federal Reserve Monetary Policy" (Second)

Mr. Jira Tokuyama, Director of Public Affairs, Japan Trade Center, New York City, "Modernization in Japan" (First)

Hon. Solis Horwitz, Department of Defense, "Problems of Department of Defense Organization" and "New Challenges to Military Professionalism" (Selected First and Second Classmen)

Mr. A. A. Cohen, U.S. Government, CIA, "Chinese Communistic Ideology" (First)

Prof. Leo Gershoy, New York University, "The French Revolution" (Third)

Hon. Robert Roosa, Department of the Treasury, "Our Balance of Payments in Perspective" (Second)

Mr. Burke Marshall (Formerly U.S. Dept. of Justice) "Civil Rights" (Selected Second and Third Classmen)

Mr. Richard Fenton, Charles Pfizer Corporation, "Some Economic Aspects of International Relations" (First and Selected Second and Third Classmen)

Prof. Henry Kissinger, Harvard University, "U.S. Foreign Policy: Military Challenges and Responses" (First and Selected Second and Third Classmen)

Prof. E. R. May, Harvard University, "The U.S. as a Colonial Power" (Third and Selected First and Second Classmen)

Prof. Arthur Whitaker, University of Pennsylvania, "Revolutionary Nationalism in Latin America" (Selected First, Second and Third Classmen)

Prof. Richard Neustadt, Columbia University, "The American Presidency" (Second and Selected Third Classmen)

Prof. S. P. Huntington, Harvard University, "U.S. Defense Policy Since 1961" (Selected First and Second Classmen)

Prof. Allan Holmberg, Cornell University, "Vices and Community Development in Latin America" (Selected First, Second and Third Classmen)

Hon. Harlan Cleveland, Assistant Secretary of State, "The United Nations and U.S. Foreign Policy" (First and Selected Second and Third Classmen)

Hon. Joseph Califano, Special Assistant to Deputy Secretary and Secretary of Defense, "Problems of Department of Defense Organization" (First and Selected Second Classmen)

Prof. A. J. Meyer, Harvard University, "Economic Development in the Middle East" (Selected First, Second and Third Classmen)

Prof. Jacob C. Hurewitz, Columbia University, "Role of the Military in Middle Eastern Politics" (Selected First, Second and Third Classmen)

Prof. David Zagoria, Columbia University, "Sino-Soviet Split" (First and Selected Second and Third Classmen)

Prof. Hans Kohn, New York University, "Nationalism" (Third)

Prof. Roger Hilsman, Columbia University, "The Ambassador and the Country Team" (Selected First and Second Classmen)

Col. James H. Hayes, Office of Assistant Secretary of Defense (Systems Analysis) "Systems Analysis in the Department of Defense" (Second and Selected Third Classmen)

Prof. Charles Frankel, Columbia University, "Liberalism" (Selected First, Second and Third Classmen)

Dr. John Plank, Brookings Institution, "Problems of Political Development" (Selected First, Second and Third Classmen)

Dr. William Niskanen, Director of Political and Economics Section, Instructor for Defense Analysis, Washington, D.C., "Corps Force Case Study" (Second)

Lady Barbara Ward Jackson, Author and Commentator, "The Changing International Milieu" (First and Selected Second and Third Classmen)

Ambassador W. Walton Butterworth, U.S. Department of State, Lecture to be announced (First and Selected Second and Third Classmen)

Prof. Louis Hartz, Harvard University, "The Enlightenment" (Selected First, Second and Third Classmen)

Mr. William C. Sullivan, Federal Bureau of Investigation, Washington, D.C. "Communism in the United States" (Second)

DEPARTMENT OF TACTICS

Lt. Col. John H. Cushman, National War College, "Pacification Operations in 21st Infantry Division (ARVN)" (First)

Maj. Gen. W. P. Yarborough, CG Special Warfare Center, Fort Bragg, N.C., "Special Forces Employment and Capabilities in Counterinsurgency Operations" (First)

Col. Donald Blackburn, DCSOPS, "U.S. Army World-Wide Counterinsurgency Operations" (First)

Dr. Sidney J. Parnes, Director of Creative Education, New York State University, Buffalo, "Creativity in Management" (First)

Maj. D. R. Hughes, DCSOPS, "A Chapter of Military Heritage—Chorwon, 1951" (Fourth)

Col. S. C. Meyer, OCR&D, Department of the Army, "United States Research and Development Program" (First)

Lt. Gen. Alfred Starbird, Director, Defense Communications Agency, "Management in the Military" (First)

Lt. Col. E. L. Hardin, Jr., Operations Directorate, DCSOPS, "Current Deployment of United States Army Combat Units: Their Missions and Contingency Tasks" (First)

Col. N. Valeriano, Retired, Philippine Army, "The Anti-Huk Campaign in the Philippines" (Selected First Classmen)

Rear Admiral David V. Bell, NATO, "SACLANT" (First)

Dr. B. B. Fall, Political Science Department, Howard University, "French Counterinsurgency Tactics during the Indo-China War" (Selected First Classmen)

Lt. Col. Robert H. Frequelin, French Liaison Officer, Army Infantry School, Fort Benning, Ga., "French Army" and "French Counterinsurgency Tactics in Algeria" (First)

Maj. Gen. George E. Pickett, Chief, Officer Personnel Directorate, "Officer Assignments and Career Planning" (First)

Col. Allen E. Younger, British Liaison Officer to USAC&GSC, "British Army" (First)

Col. George P. Seneff, 11th Avn. Gp., Fort Bragg, N.C., "11th Air Assault Division" (First)

Maj. James Drewry, ACSI, Department of the Army, "Soviet and Red Chinese Army" (First)

Capt. D. Panzer, Fort Sill, Okla., "Nuclear Weapons Effects" (Second)

Dr. George K. Bennett, President, Psychological Corporation, New York, N.Y., "Psychology in Business and Industry" (Selected First, Second, and Third Classmen)

Lt. Col. Vann, U.S. Army (Ret.), "The American Advisory Effort in Vietnam" (Selected First and Second Classmen)

Brig. Gen. S. L. A. Marshall, USAR (Ret.), A Seminar on Leadership (Selected First Classmen)

Gen. Creighton W. Abrams, Vice Chief of Staff, U.S. Army, "The Leadership Challenge" (First)

OFFICE OF MILITARY PSYCHOLOGY AND LEADERSHIP

Dr. Paul V. Johnson, Chairman, Industrial Relations Committee, Purdue University, "Trends in Labor-Management Relations" (Selected First, Second and Third Classmen)

Prof. Charles R. Darby, Florida Atlantic University, "Psychology" (Selected Third Classmen)

FACULTY LECTURES

Kermit Roosevelt Lecture, Lecturer and subject to be announced.

Mr. Joseph Beirne, President, Communication Workers of America, "New Horizons for American Labor"

Lt. Gen. Arthur G. Trudeau, U.S. Army (Ret), President, Gulf Research and Development Corp., "Research and Development"

AWARDS AND DISTINCTIONS

Distinguished Cadets

In June of every year those cadets on the general merit roll of each class and on the graduating merit roll whose records show they have met the requirements set by the Academic Board are classed as "Distinguished". Distinguished cadets wear a five-pointed star, three-quarters of an inch in diameter, on each side of the collar of the dress coat and the full dress coat. The star is worn for one year by cadets who were distinguished in the work of the Second, Third, or Fourth Class year.

Unit Achievement Awards

SUPERINTENDENT'S AWARD (1958). Two plaques awarded to the cadet company in each regiment which is judged to be the most outstanding in all areas of cadet endeavor.

DEAN'S AWARD (1956). Two plaques awarded to the academically outstanding company in each regiment.

ARMY ATHLETIC ASSOCIATION AWARD (1958). Two plaques awarded to the cadet company in each regiment which has made the greatest contribution to intercollegiate athletics.

BANKERS ASSOCIATION OF NEW YORK AWARD (1924). Two plaques awarded to the cadet company in each regiment ranking first in intramural athletics. A silver cup, formerly awarded to the cadet company ranking first in intramural athletics, is also inscribed with the designation of the winning companies.

REGIMENTAL COMMANDER'S DRILL AWARD. Two plaques awarded three times each year to coincide with the three drill seasons to the cadet company in each regiment that is the most outstanding in drill and ceremonies.

GEORGE ALEXANDER CAMPBELL II MEMORIAL TROPHY (1949). Established by members of the Class of 1951 in memory of their classmate, Cadet Campbell, who died during yearling summer camp, this silver cup is awarded to the company winning the brigade championship in intramural basketball.

JARED WILLIAM MORROW MEMORIAL TROPHY (1951). Established by Capt. Gerald D. Hall, USMA 1944, in memory of Lt. Jared William Morrow, USMA 1945, who died in battle in Korea in 1950,

this silver cup is awarded to the company winning the brigade championship in intramural track.

PALMER E. PIERCE FOOTBALL TROPHY (1943). This silver cup, originally awarded to Gen. Palmer E. Pierce, USMA 1891, by the National Collegiate Athletic Association in recognition of his services to the Association, and bequeathed by him to the Army Athletic Association, is awarded to the company winning the brigade championship in intramural football.

ARTHUR H. TRUXES MEMORIAL TROPHY (1951). Established by Capt. Gerald D. Hall, USMA 1944, in memory of Capt. Arthur H. Truxes, Jr., USMA 1945, who died in battle in Korea in 1950, this silver cup is awarded to the company winning the brigade championship in intramural cross country.

INTRAMURAL ATHLETIC AWARDS. Plaques are awarded to the companies winning the brigade championships in each intramural sport; smaller plaques are awarded to brigade runners-up.

Individual General Awards

THE HOWITZER MEMORIAL AWARD (1952). A set of books in memory of the late Lt. Arthur M. Apmann, Jr., USMA 1950, to the Editor of the "Howitzer".

ARMY TIMES AWARD (1956). A wrist watch presented in the name of the Army Times to the Editor of "The Pointer."

ASSOCIATION OF THE UNITED STATES ARMY AWARD (1961). A wrist watch presented in the name of the Association of the United States Army to the cadet who best exemplified the traditions of the Military Academy and the United States Army.

FRANCIS VINTON GREENE MEMORIAL AWARD (1920). A set of books given in memory of Maj. Gen. Francis Vinton Greene, USMA 1870, to the cadet standing number one in the general order of merit at graduation.

MILITARY ORDER OF WORLD WARS AWARD (1942). A wrist watch presented to the graduating cadet who has made the greatest improvement since the completion of his fourth-class year.

Individual Military Awards

CHARLES G. DAWES AWARD (1929). The Pershing Sword, given in the name of the late Brig. Gen. Charles G. Dawes to the First Captain, to commemorate General Pershing's being First Captain of the Corps of Cadets in 1886.

Association of Graduates Awards (1942). A $100 series E bond presented by the Association of Graduates to the cadet in the Second Class and $50 series E bonds to the cadets in the Third and Fourth Classes outstanding in military efficiency and leadership.

The Knox Trophy (1910). A silver cup presented by the Sons of the Revolution in the State of New York to the cadet with the highest rating in military efficiency.

The General John J. Pershing Award (1948). A wrist watch given by the Army and Navy Union, USA, to the cadet with the highest rating in tactics.

The General Douglas MacArthur Award (1952). A pistol given by the Army and Navy Union (Department of New York) to the cadet officer commanding the First Regiment, USCC.

Army and Navy Union Ladies Auxiliary Award (1952). A pistol given by the Ladies Auxiliary of the Army and Navy Union (Department of New York) to the cadet officer commanding the Second Regiment, USCC.

Class of 1927 Award (1957). A wrist watch given by the Class of 1927, USMA, to the outstanding cadet company commander, First Regiment, USCC.

The Leadership Foundation Award (1962). A wrist watch given by the Leadership Foundation to the outstanding cadet company commander, Second Regiment, USCC.

The General John H. Forney Historical Society Award (1963). A set of luggage presented to a graduating cadet for Military Excellence in First Class Tactics.

Individual Academic Awards

American Legion Award (1935). A stereo-phonograph given by the National Organization of the American Legion to the graduating cadet with the highest rating in chemistry.

Daughters of the United States Army Award (1962). A silver cigarette box given by the Daughters of the United States Army to the graduating cadet with the highest rating in advanced chemistry.

Armed Forces Communications and Electronics Award (1948). A transistor radio given by the Armed Forces Communications and Electronics Association to the graduating cadet with the highest rating in electricity.

Colonial Daughters of the Seventeenth Century Award (1934). A set of books given by the National Society, Colonial Daugh-

ters of the Seventeenth Century, to the graduating cadet with the highest rating in English.

LADIES AUXILIARY OF THE VETERANS OF FOREIGN WARS AWARD (1939). A pair of binoculars given by the Ladies Auxiliary of the Veterans of Foreign Wars of the United States to the graduating cadet with the highest rating in Fourth Class English.

STEUBEN SOCIETY OF AMERICA AWARD (1936). A wrist watch given by the Steuben Society of America to the graduating cadet with the highest rating in German.

NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN COLONISTS (1964). A portable typewriter given by the National Society Daughters of the American Colonists to the cadet with the highest rating in Spanish.

ORDER OF LAFAYETTE, INC. (1964). A plaque given by the order of Lafayette Inc., to the cadet with the highest rating in French.

DAUGHTERS OF FOUNDERS AND PATRIOTS OF AMERICA AWARD (1942). A wrist watch given by the National Society, Daughters of Founders and Patriots of America, to the graduating cadet with the highest rating in Portuguese.

THE U. S. GRANT AWARD (1932). A wrist watch given by the Women's Relief Corps, Auxiliary to the Grand Army of the Republic, to the graduating cadet with the highest rating in engineering fundamentals.

SONS OF THE AMERICAN REVOLUTION AWARD (1962). A pistol given by the National Society of the Sons of the American Revolution to the graduating cadet with the highest rating in advanced engineering fundamentals.

DAUGHTERS OF THE UNION VETERANS OF THE CIVIL WAR AWARD (1958). A wrist watch given by the Daughters of the Union Veterans of the Civil War to the graduating cadet with the highest rating in environment.

AMERICAN BAR ASSOCIATION AWARD (1941). A set of books given by the American Bar Association to the graduating cadet with the highest rating in law.

UNITED DAUGHTERS OF THE CONFEDERACY AWARD (1931). A saber, known as the Robert E. Lee Saber, given by the United Daughters of the Confederacy to the graduating cadet with the highest rating in mathematics.

DAUGHTERS OF THE AMERICAN REVOLUTION AWARD (1930). A portable typewriter given by the National Society, Daughters of the

American Revolution, to the graduating cadet with the highest rating in mechanics of fluids.

THE CLIFTON CARROLL CARTER AWARD (1962). A pistol presented in the name of Mrs. Mai C. Carter as a memorial to the late Brig. Gen. Clifton Carroll Carter, USMA 1899, to the graduating cadet with the highest rating in Second Class mechanics of solids.

GENERAL WILLIAM A. MITCHELL AWARD (1942). A set of books given by Mrs. William A. Mitchell in memory of General William A. Mitchell, USMA 1902, to the graduating cadet with the highest rating in military engineering and military history.

THE EISENHOWER AWARD (1951). A silver tray presented in the name of Mr. Charles P. McCormick to the graduating cadet for excellence in military psychology and leadership.

THE LESLIE R. GROVE AWARD (1957). A silver tray presented in behalf of the Association of Graduates to the graduating cadet with the highest rating in nuclear physics.

THE COLONEL JAMES L. WALSH MEMORIAL AWARD (1956). A rifle presented in the name of the American Ordnance Association to the graduating cadet with the highest rating in ordnance engineering.

THE 306TH INFANTRY AWARD (1954). A wrist watch given by the Walter B. Tunick Estate to the graduating cadet achieving excellence in physical education over the four-year course.

VETERANS OF FOREIGN WARS AWARD (1937). A camera given by the Veterans of Foreign Wars of the United States to the graduating cadet with the highest rating in physics.

MILITARY ORDER OF FOREIGN WARS AWARD (1929). A wrist watch given by the National Commandery, Military Order of Foreign Wars, to the graduating cadet with the highest rating in the First Class course in social sciences.

THE CLASS OF 1930 AWARD (1954). A silver bowl, presented in the name of the late Honorable Edgar Bromberger, former City Magistrate of the City of New York, to the graduating cadet with the highest rating in the Second Class course in social sciences.

THE BENJAMIN KAUFMAN AWARD (1963). A set of books presented in the name of the National Ladies Auxiliary, Jewish War Veterans of the United States, in honor of Mr. Benjamin Kaufman, winner of World War I Congressional Medal of Honor, to the graduating cadet with the highest rating in humanities.

INTERCOLLEGIATE DEBATING AWARD (1947). Two wrist watches

given by the Consul General of Switzerland in the United States for excellence in intercollegiate debating.

THE BRIGADIER GENERAL CHARLES J. BARRETT MEMORIAL AWARD (1964). A wrist watch presented in the name of General Jacob L. Devers to the graduating cadet with the highest rating in Russian.

THE PERUVIAN ARMY AWARD (1964). A plaque presented by the Peruvian Army to the graduating cadet ranking number one in General Order of Merit for four years.

THE HERMAN BEUKEMA MEMORIAL AWARD (1965). A silver pitcher presented in the name of the Beukema family and the Military Education Foundation to the graduating cadet for excellence in Modern History.

Individual Athletic Awards

ARMY ATHLETIC ASSOCIATION TROPHY (1904). A silver tray is given by the Army Athletic Association to the cadet who has rendered the most valuable service to athletics during his career as a cadet.

THE COLONEL THRUSTON HUGHES AWARD (1939). A silver tray, purchased with the interest from a fund of $2,000 presented by Col. Thruston Hughes, USMA 1909, is given to the most valuable player of the football team.

THE GENERAL JOHN W. COFFEY MEMORIAL AWARD (1952). A silver tray given by Mrs. John W. Coffey in memory of Brig. Gen. John W. Coffey, USMA August 1917, to the captain of the baseball team.

THE EBER SIMPSON MEMORIAL TROPHY (1947). A silver tray purchased with the interest from a fund of $2,000 presented by Col. George Simpson in memory of his son, Capt. Eber Simpson, USMA June 1943, is given to the captain of the basketball team.

THE COLONEL DAVID MARCUS MEMORIAL AWARD (1949). A silver tray purchased with the interest from a fund of $2,000 established in memory of Col. David Marcus, USMA 1924, is given to the outstanding boxer in the graduating class.

THE EASTERN COLLEGIATE ATHLETIC CONFERENCE AWARD (1959). The Eastern Collegiate Athletic Conference Merit Award is given to the graduating cadet excelling in athletics and scholarship.

THE EDGERTON AWARD (1908). A silver tray purchased under the terms of a legacy presented by Mrs. Wright Prescott Edgerton in memory of her husband, Col. Wright Prescott Edgerton, USMA 1874, is given to the captain of the football team.

THE THOMAS WEST HAMMOND MEMORIAL AWARD (1958). A silver tray, presented in the name of Mr. Chester Hammond in memory of his father, Col. Thomas West Hammond, USMA 1905, is given to the outstanding lineman on the football team.

THE RINGSDORF AWARD (1961). A silver tray, donated by Cols. Samuel D. Ringsdorf, USMA August 1917, and Paschal H. Ringsdorf, USMA 1923, is given to the Army player who contributed most to the team effort in the Army-Navy football game.

THE COLONEL JOHN A. ROBENSON MEMORIAL AWARD (1961). A silver tray, presented in the name of Mrs. Abigail R. Boylan in memory of her father, Col. John A. Robenson, USMA 1910, is given to the outstanding player on the 150-pound football team.

THE PIERCE CURRIER FOSTER MEMORIAL TROPHY (1900). Two silver trays purchased under the terms of the will of Mrs. Anna A. Foster in memory of her son, Pierce Currier Foster, USMA 1899, are given to the cadets ranking first and second in gymnastics.

THE HAL BEUKEMA MEMORIAL AWARD (1955). A silver tray, donated by members of the family, former and present officers in the Department of Social Sciences, USMA, and a group of former friends, in memory of Maj. Henry Shaw Beukema, USMA 1944, is given to the outstanding player on the hockey team.

INTRAMURAL. Winners of brigade individual sports contests such as track and cross country are awarded silver medallions; runners-up receive bronze medallions.

THE WILLIAM P. FICKES MEMORIAL TROPHY (1938). A silver tray, purchased with the interest from a fund presented by Mr. and Mrs. Walter M. Fickes in memory of their son, William P. Fickes, USMA 1936, is given to the captain of the lacrosse team.

THE GENERAL GEORGE S. PATTON, JR., MEMORIAL TROPHY (1956). A pistol presented by John M. McNally in memory of Gen. George S. Patton, Jr., USMA 1909, is given to the captain of the pistol team.

CLASS OF 1923 AWARD (1949). A silver tray, purchased with the interest from a fund of $2,000 contributed by the Class of 1923, is given to the outstanding member of the swimming team in the graduating class.

THE FRED E. MCANIFF MEMORIAL AWARD (1961). A silver tray, presented by the West Point Chapter of the Society of the Daughters of the United States Army, is given to the outstanding member of the track team.

THE GENERAL WILLIAM L. BELL, JR., MEMORIAL AWARD (1957). A silver tray presented by Mrs. William Lewis Bell, Jr., in memory of her husband, Maj. Gen. William Lewis Bell, Jr., USMA 1929, is given to the best man in floor exercise.

THE FRANCIS HENRY SCHOEFFEL MEMORIAL AWARD (1963). A rifle presented in the name of Francis Henry Schoeffel, USMA 1891, by Mrs. Francis Henry Schoeffel to the graduating captain of the rifle team.

THE COLONEL RUSSELL P. "RED" REEDER, JR., AWARD (1965). A silver tray presented by friends to the outstanding player on the Baseball Team.

THE ATHLETIC BOARD AWARD (1965). A silver tray presented in the name of the Athletic Board to the outstanding member of the Golf Team.

THE ATHLETIC BOARD AWARD (1965). A silver tray presented by the Director of Athletics to the outstanding player on the Tennis Team.

THE SAMUEL A. DANIEL MEMORIAL AWARD (1965). A silver tray presented in the name of Mrs. Samuel A. Daniel to the Cadet-in-Charge of the Cadet Chapel Choir.

Rhodes Scholarships

From 1923, when cadets of USMA first began to compete, to 1965, 47 Rhodes Scholarships have been awarded to Academy graduates who attended Oxford as Army or Air Force officers on active duty.

Elections for Rhodes Scholarships are held every year in December for entrance into Oxford in October of the following year. The scholarships are for a minimum period of 2 years study; a third year may be awarded if the Rhodes scholar presents a plan of study acceptable to his service and to the Rhodes trustees.

Cadets desiring to compete for a scholarship must be accredited by the Academic Board which screens them carefully. A Committee of Selection in each State recommends two candidates every year to a District Committee for six States. The District Committees each select four individuals from the candidates selected by the State committees. Candidates may apply either in the State in which they live or in the State in which they have received at least 2 years of their college education.

The basis of selection is that section of Cecil Rhodes' will in which are mentioned the four groups of desired qualities: (1) literary and scholastic ability and attainments; (2) qualities of manhood, truth, courage, devotion to duty, sympathy for and protection of the weak, kindliness, unselfishness, and fellowship; (3) exhibition during school days of moral force of character and of instincts to lead and to take an interest in his schoolmates; (4) fondness for and success in manly outdoor sports such as cricket, football, and the like.

The selection is not made, however, on any system of averaging up a man's qualifications. The first two groups of qualities are most important and committees are particularly interested in distinction of intellect and character giving promise of outstanding achievement in later life.

Olmsted Scholarships

The George Olmsted Foundation currently awards annually two scholarships to graduates of the Military Academy for two years' study at a foreign university in other than an English speaking country. Officers are considered for scholarships upon completion of

a minimum of three years of service. The Foundation makes the selection from names submitted for consideration to the Department of the Army by the Academic Board. Selection criteria are scholastic, including linguistic ability, and traits of character and leadership demonstrated at West Point and in the military service after graduation. Universities attended by Military Academy graduates under this program have included those of Geneva, Grenoble, Heidelberg, Brussels, Tokyo, Freiburg, Paris, and Lyons.

National Science Foundation Fellowships

Since 1961 cadets have been permitted to compete for National Science Foundation Graduate Fellowships. These fellowships, which are awarded for periods of either nine months or one year, are open to graduates of all accredited institutions. Selection is based on academic records, recommendations regarding each applicant's ability, scores achieved in examinations designed to test scientific aptitude and achievement, and other evidence of potential ability for scientific study or work. In 1962 one cadet was awarded a fellowship and ten cadets received honorable mention; in 1963 five cadets were awarded fellowships and nine cadets received honorable mention; in 1964 of 32 cadets who competed for National Science Foundation Fellowships, 5 won fellowships and 23 received Honorable Mention.

Oak Ridge Institute of Nuclear Studies Fellowships

The U.S. Atomic Energy Commission has established special fellowships in nuclear science and engineering to encourage promising students to undertake graduate studies in these fields at a university of their choice. Selection of fellows is based on academic grades, breadth of science and engineering courses completed, recommendations, Scientific Aptitude Examination results, and career objectives. Of the eight cadet applicants who participated in the national competition during 1964, all eight were awarded a Special Fellowship for graduate study in the nuclear field. Three out of four Cadets were successful in 1965.

Distinguished Graduates

Distinguished Graduates of the Military Academy, the top five per cent of a class in general order of merit, are guaranteed graduate schooling leading to the Master's degree within their first five years of service. The Distinguished Graduate may elect to go to graduate school directly from West Point or to defer his entry to a later year.

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EDUCATIONAL ACTIVITIES

The Military Academy offers varied opportunities for cadets who are interested in exploring fields of academic study on a broader or more intensive basis than is provided in the formal academic curriculum. Seminars, special guest lectures, discussion groups, student conferences, and intercollegiate debates are undertaken on cadet initiative and carried out primarily with cadet effort. The largest and most active organization in this field is the Debate Council and Forum whose members engage in intercollegiate debates and discussions in all parts of the United States during the academic year. This organization also sponsors voluntary seminars on public affairs topics in which cadets express interest.

Student Conference on United States Affairs

Annually since 1949, West Point, with the assistance of private financial aid, has sponsored a Student Conference on United States Affairs, known as SCUSA. Outstanding students from about 90 United States and Canadian colleges and universities gather for a 4-day conference in early December with approximately 35 senior individuals from college faculties, business, and government. Meeting in small seminars, the participants discuss major aspects of U.S. National Security Policy and formulate policy recommendations. The Cadet Debate Council and Forum administers these conferences and acts as host. In addition to the cadets on the administrative staff and those actually participating in conference discussions, the first and second classes of the Military Academy attend the opening conference speech.

The purposes of these conferences are (1) to produce an informative examination and discussion of U.S. National Security Policy, (2) to provide an outstanding representation of college students with an appreciation of the complexities of government policy formulation, and (3) to broaden students' contacts with their contemporaries in an academic endeavor.

The principal speakers at the XIIIth through the XVIth conferences are given below:

His Royal Highness Prince Bernhard of Netherlands visits SCUSA XV discussion (Center Rear)

Student Conference on United States Affairs

SCUSA XIII: 6–9 December 1961

THE HONORABLE JOHN J. MCCLOY
Former High Commissioner in Germany, Assistant Secretary of War, President of the World Bank, and Disarmament Advisor to the President

THE HONORABLE GEORGE C. MCGHEE
Under Secretary of State for Political Affairs

SCUSA XIV: 5–8 December 1962

THE HONORABLE DEAN ACHESON
Former Secretary of State
HONORABLE ALLEN W. DULLES
Former Director of the Central Intelligence Agency

SCUSA XV: 4–7 December 1963

THE HONORABLE W. AVERELL HARRIMAN
Under Secretary of State for Political Affairs
HIS ROYAL HIGHNESS BERNHARD, Prince of the Netherlands

SCUSA XVI: 2–5 December 1964

MR. KENNETH T. YOUNG, JR.
President, The Asia Society, Former Ambassador to Thailand
THE HONORABLE ORVILLE L. FREEMAN
Secretary of Agriculture, Former Governor of Minnesota

The National Debate Tournament

Annually, since 1947, the Debate Council and Forum has sponsored the National Debate Tournament which marks the culmination of national intercollegiate forensic activities for the academic year. For administrative purposes the United States is divided into eight debating districts, each headed by a chairman and a district committee. During the debating season approximately 600 colleges and universities compete within their respective districts in order to win 1 of 36 invitations to the national tournament held at West Point each spring.

After 2 days of seeding and semifinal rounds, two teams are selected to compete for the championship. The winner is awarded the Larmon Trophy, donated by Mr. Sigurd S. Larmon of Young and Rubicam, Inc., New York City. More than 150 teams, representing colleges and universities from all sections of the United States, have competed

in the national tournament since its inception in 1947. U.S. Military Academy teams won the tournament in 1956 and placed second in 1957.

West Point Debate Council

The Debate Council, an activity within the Debate Council and Forum, sponsors an extensive program of forensic activities affording its members the opportunity of acquiring skills in public speaking and in the use of logic, and of using and perfecting these skills in tournament debating in competition with colleges and universities throughout the country. The Debate Council program for a typical year includes: seminars on debating techniques and the national debate topic, intrasquad practice debating, varsity and novice intercollegiate competition, high school audience debating, an intramural tournament, and an extemporaneous speech contest.

Of particular interest are the varsity intercollegiate and high school audience debate programs. USMA varsity teams participate in the leading college debate tournaments (34 in 1963–64, involving 319 debates with 167 colleges and universities). Through the caliber of its performance in major tournaments each year, West Point has achieved recognition as one of the leading schools in intercollegiate debating. In order to gain experience in speaking before large audiences and to encourage interest in debating, cadets compete each year against teams from leading universities before high school, college, and civic group audiences.

West Point Forum

This cadet organization, a part of the Debate Council and Forum, provides the cadet an opportunity to widen his intellectual interests.

It conducts seminars on a variety of topics to prepare cadets to participate in a large number of student conferences and model United Nations assemblies throughout the country. In 1963–64, cadets participated in conferences at such institutions as Texas A. & M., Principia College, the United States Naval Academy, Princeton, and Columbia Universities. The Forum sponsors educational trips each year to the United Nations and to Washington, D.C., to allow cadets to observe at firsthand the operations of the United Nations and the major branches of our own Government. In addition, it presents a series of lectures by distinguished speakers.

Cadet Participation in Scientific Events

Cadets participate in a number of annual scientific events such as the Eastern Colleges Science Conference. The close proximity of West

Point to a large number of governmental, cultural, scientific, industrial, and research activities has enabled the Military Academy to extend classroom discussions and laboratory exercises into "the field" in a highly effective manner through a program of educational trips. Cadets have visited such installations as the Brookhaven National Laboratories, the Nevis Cyclotron Laboratory at Columbia University, Bell Telephone Laboratories, the Research and Development Laboratories at Fort Monmouth, the International Electric Corporation, the Republic Aviation Corporation, the Texaco Laboratories, Charles Pfizer and Company, and Aberdeen Proving Ground.

EXTRACURRICULAR ACTIVITIES

Contrary to popular opinion, cadets do not spend all their time parading, attending classes, and studying. There are many opportunities for social and recreational activities.

During the summer there is swimming and picnicking at Delafield Pond and Camp Buckner, and picnicking at Constitution Island. Picturesque Flirtation Walk winds for three-quarters of a mile along the majestic Hudson, offering a peaceful and shady retreat from the walls of barracks. Cadets stationed at Camp Buckner during the summer months of Yearling Year enjoy swimming, canoeing, fishing, skeet, water skiing, and sailing. In the fall the Corps takes one or more football trips to metropolitan areas where the bright lights are a welcome diversion. During the winter months, ice skating at Smith Rink and skiing on the post at the Constant Ski Slope are extremely popular. The ski tows, snow-making machine, and ski trails are probably among the finest ski facilities on any campus in America. Throughout the academic year, frequent hops are held in either the Gymnasium or Cullum Hall and movies are shown in the Army Theater. Prominent entertainers and programs are frequently brought to the Academy for performances.

In addition to general recreational activities, there are 59 organized extracurricular activities. Student government type activities are the Honor Committee, Class Committees, and the Ring and Crest Committees in each Class.

Those cadets who like music and acting are encouraged to utilize their talents in the Dialectic Society, Dance Band, and the nationally famous Cadet Glee Club. For those interested in radio broadcasting there is the KDET Station with a fully equipped radio broadcasting station. The Cadet Protestant, Catholic, and Jewish Choirs sing at religious services on the post and usually make several appearances outside the Academy each year. The One Hundredth Night Show, the time-honored dramatic highlight presented annually by the Dialectic Society celebrating the one hundredth night before graduation, is written and produced solely by cadets.

Hobbyists find relaxation as well as opportunities to test and improve their skills as members of the Camera, Chess, Outdoor Sportsmen's, Model Builders', Bowling, and Mountaineering Clubs.

Those who are interested in literary activities may seek outlets for their talents in *The Howitzer,* yearbook for the Corps of Cadets;

The Pointer, the monthly magazine of the Corps of Cadets; and *Bugle Notes,* the cadet handbook more commonly known as the "Plebe Bible." Cadet press representatives conduct interviews and prepare hundreds of releases for hometown newspapers.

For those who want to explore fields of academic study on a broader or more intensive basis than is provided in the academic curriculum, there are the Mathematics Forum, five language clubs, Astronomy, Audio, and Rocket Clubs, and one of the largest and most active organizations at the Military Academy, the West Point Debate Council and Forum.

To round out the great variety of opportunities for recreation, there are those clubs which compete with other colleges. These include the Handball, Pistol, Rifle, Fencing, Sailing, Skeet, Ski, Water Polo, Scuba, Judo, Triathlon, Rugby, and Sky Diving Clubs.

Organized extracurricular activities are directed and administered almost entirely by the cadets themselves, subject to the approval of the Superintendent. There is an officer in charge of each activity, who acts in an advisory capacity. From these activities, cadets acquire a wealth of knowledge or develop latent talent which subsequently will serve them well and be a source of pleasure in their careers as Army officers.

There are a number of large, well-equipped cadet reception rooms and lounges for cadets and their guests. Some have fully equipped snack bars, TV rooms, game rooms, and are normally open on weekends and holidays throughout the year. In addition, there are three Cadet Hostesses available to help plan the social and recreational programs for the Corps of Cadets. The Hostesses also provide assistance to cadets in obtaining accommodations for their guests during the year.

RELIGIOUS ACTIVITIES

All cadets are provided a sound basic religious atmosphere. Each cadet must attend one of the weekly chapel services—Protestant, Catholic, or Jewish.

Protestant

Protestant services are held in the Cadet Chapel every Sunday during the academic year and out-of-doors during the summer months. The Reverend James D. Ford, B.D., is the Chaplain, USMA. Mr. John A. Davis, Jr., is Organist and Choirmaster, USMA. The regiments alternate in their attendance at the early and late services. Denominational Services of Holy Communion are conducted each Sunday in St. Martin's Chapel according to the rites of the Episcopal, Lutheran, Presbyterian and Orthodox Church. At the morning Worship Service the form of worship is nondenominational in character. Among the religious activities in which cadets take part are the Cadet Chapel Choir of 175 voices; the West Point Sunday School of 700 children of the Post taught entirely by 150 cadet teachers; the Cadet Chapel Acolytes; and a program of Morning Devotions, conducted every weekday at 6:30 a.m. in Mahan Hall.

Catholic

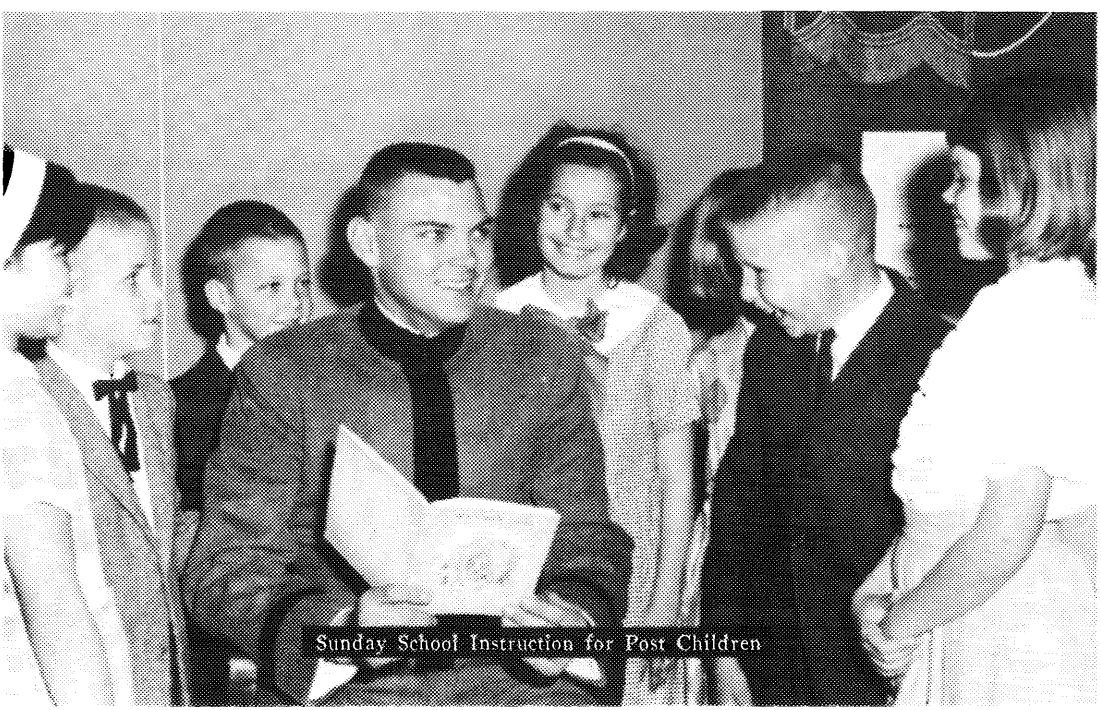
Catholic cadets attend Holy Trinity Chapel, the Catholic Chapel on the Post. The Right Reverend Monsignor Joseph P. Moore is the Rector, and is assisted by The Reverend Robert F. McCormick. Each Sunday Catholic members of the cadet regiments alternate in attending the early and late Masses to facilitate frequent reception of Holy Communion and to give opportunity for assisting at High Masses. The late Mass is a Missa Cantata. A cadet Catholic choir sings at the High Masses and other liturgical ceremonies. Cadet commentators and readers assist at all Cadet Masses. Daily Mass is celebrated at 6:20 and 7 a.m. throughout the academic year. Confessions are heard on Saturday, daily at Mass times, and as desired. A cadet Cardinal Newman Forum meets each week. By means of lectures, instructions and seminars, it treats of religion, morals, and philosophy.

Cadet Chapel

Interior—Catholic Chapel

Jewish

Jewish worship services are held in the Old Cadet Chapel every Sunday at 8:30 a.m. during both the academic year and the summer season. Rabbi Avraham Soltes is the Jewish Chaplain. High Holy Day Services are held for the cadets at Temple Emanuel of Great Neck, L.I., N.Y. where the Jewish Chaplain serves as Spiritual Leader. Festival Services are conducted in the Old Cadet Chapel and a special passover service is held yearly at the U.S. Hotel Thayer. The Jewish Chapel Choir sings the Liturgical music at every service. The Jewish cadets also participate in the reading of the Liturgy and in the Torah service. Religious instruction for Post children of the Jewish faith is conducted by cadets on Sunday morning.



Sunday School Instruction for Post Children

INTERCOLLEGIATE ATHLETICS

Athletic Board: Col. Elvin R. Heiberg (Chairman), Brig. Gen. Richard P. Scott, Brig. Gen. John R. Jannarone, Col. Frank J. Kobes, Jr., Col. Raymond P. Murphy (Secretary).

Director of Athletics: Col. Raymond P. Murphy

Executive Officer: Lt. Col. William C. Bishop

Special Assistant to the Director of Athletics: Col. Russell P. Reeder, Jr., USA (Ret)

Assistant Director of Athletics: Mr. John P. Riley

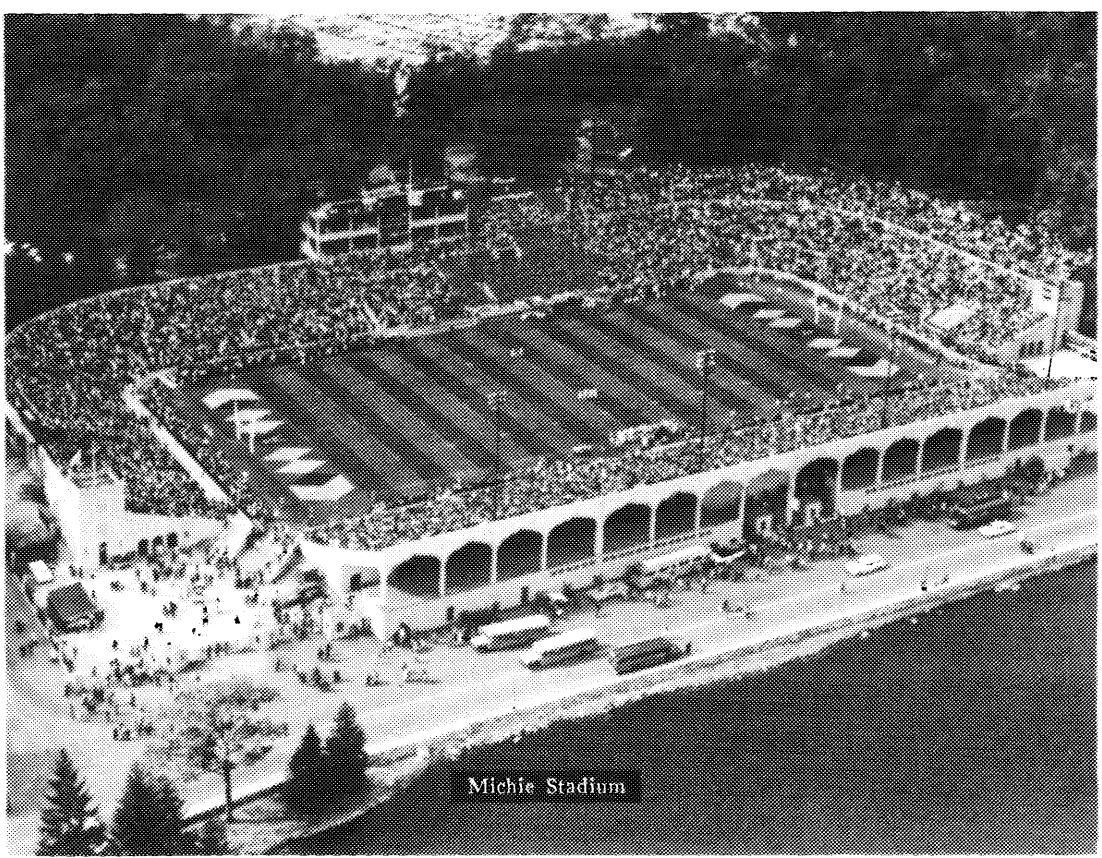
Coaches: Baseball and 150-pound Football, Eric Tipton. Basketball, Robert Knight. Cross Country and Track, Carleton Crowell. Football, Paul F. Dietzel. Assistants, George J. Terry, William A. Shalosky, Larry B. Jones, Tad Schroeder,. Thomas B. Cahill, James J. Valek, William G. Rowe. Golf (Vacant). Gymnastics, Thomas E. Maloney. Hockey, John P. Riley. Lacrosse, James F. Adams. Pistol, S/Maj. Herbert Roberts. Rifle, S/Maj. Alfred O'Neill. Soccer, Joseph Palone. Squash and Tennis, William C. B. Cullen. Swimming, John E. Ryan, Jr. Wrestling, Leroy Alitz.

The Director of Athletics is responsible to the Superintendent for the conduct of the intercollegiate athletic program and the operation of the Army Athletic Association. The Athletic Board is charged with advising the Superintendent on matters of athletic policy. The intercollegiate athletic program is financed by the Army Athletic Association, a self-supporting and nonprofit organization consisting of approximately 12,000 graduates of the Military Academy. No Government funds are appropriated for equipment, maintenance, and operation of the vast intercollegiate athletic plant.

A total of 18 sports are included in a complex schedule that keeps nearly half of the Corps of Cadets actively engaged in competitive sports throughout the academic year. These sports are football, 150-pound football, soccer, and cross country in the fall; basketball, indoor track, wrestling, swimming, gymnastics, hockey, rifle, pistol, and squash in the winter; and baseball, lacrosse, track, tennis, and golf in the spring.

1965 ARMY FOOTBALL SCHEDULE

18 September — University of Tennessee at Knoxville
25 September — Virginia Military Institute at West Point
2 October — Boston College at West Point
9 October — University of Notre Dame at New York
16 October — Rutgers University at West Point
23 October — Stanford University at Stanford
30 October — Colgate University at West Point
6 November — Air Force at Chicago
13 November — University of Wyoming at West Point
27 November — Navy at Philadelphia


Michie Stadium

Realizing the value of athletics to the Army, General Douglas MacArthur, who was Superintendent shortly after World War I, reorganized and strengthened the athletic system. "The training of the athletic field which," General MacArthur said, "produces in a superlative degree the attributes of fortitude, self-control, resolution, courage, mental agility and, of course, physical development, is one completely fundamental to an efficient soldiery."

Former President Dwight D. Eisenhower and Generals Omar N. Bradley and James A. Van Fleet are among the many distinguished wearers of the Army "A."

BOARD OF VISITORS

The custom of a Board of Visitors for West Point goes back almost to the year of its founding. On 1 July 1815, "A Regulation for the Government of the Military Academy," approved by Secretary of War William H. Crawford, provided for the appointment of a Board to consist of five "competent gentlemen," with the Superintendent as President, who should attend at each of the annual and semi-annual examinations at West Point and report thereon to the Secretary.

The Boards are appointed at present under the provisions of an act of Congress approved 29 June 1948. This act specifies that a Board of Visitors shall visit the Military Academy each year and inquire into the state of morale and discipline, curriculum, instruction, physical equipment, fiscal affairs, academic methods, and other matters relating to West Point which the Board may decide to consider, and submit a written report to the President of the United States giving its views and recommendations pertaining to the United States Military Academy. The personnel of the Board shall be as follows:

a. The Chairman of the Committee on Armed Services of the Senate, or his designee;

b. Three other Members of the Senate to be appointed by the Vice President, two of whom shall be members of the Committee on Appropriations of the Senate;

c. The Chairman of the Committee on Armed Services of the House of Representatives, or his designee;

d. Four other Members of the House of Representatives to be appointed by the Speaker of the House of Representatives, two of whom shall be members of the Committee on Appropriations of the House of Representatives;

e. Six persons to be appointed by the President.

BOARD OF VISITORS 1964

Appointed by the President of the United States: Mr. Joseph A. Beirne, President, Communication Workers of America; Gen. J. Lawton Collins (Ret.), Vice-Chairman, Pfizer International, Washington, D.C.; Mr. Robert St. Clair Conahay, 3d, Hackettstown, N. J.; Mr. Edward B. Hanify, Member, Ropes and Gray, Boston, Mass.; Dr. Eric A. Walker, President, Pennsylvania State University.

Appointed by the Vice President of the United States: Senator Alan Bible, Nevada; Senator Spessard L. Holland, Florida; Senator Kenneth B. Keating, New York.

Appointed by the Speaker of the House of Representatives: Representative William H. Natcher, Kentucky; Representative Harold C. Ostertag, New York; Representative R. Walter Riehlman, New York; Representative Olin E. Teague, Texas.

Ex-Officio Members of the Board: Senator Richard B. Russell, Georgia (represented by Senator Daniel K. Inouye, Hawaii); Representative Carl Vinson, Georgia (represented by Representative Richard H. Ichord, Missouri).

ASSOCIATION OF GRADUATES

The Association of Graduates, USMA, is a voluntary membership organization open to all graduates of the Military Academy and to former cadets who were honorably discharged after at least one academic term at the Academy. Over 94 percent of the 18,105 living graduates, and many former cadets who did not graduate, are members.

The Association was founded at New York City in 1869 under the personal leadership of Brig. Gen. Sylvanus Thayer, USMA 1808, and Maj. Gen. Robert Anderson, USMA 1825, hero of Fort Sumter. Annual meetings have been held at West Point during June Week since 1870. Its purpose is "To acquire and disseminate information on the history, activities, objectives, and methods of the Military Academy; to acquire and preserve historical materials relating to that institution; and to encourage and foster the study of military science there by worthy young men."

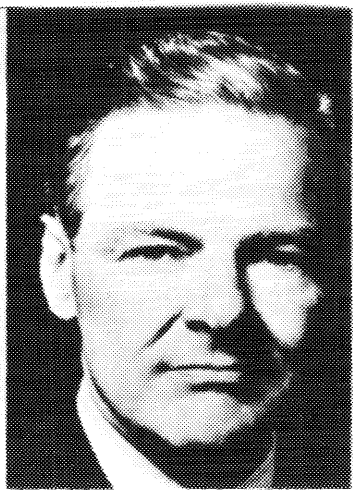
The Bureau of Internal Revenue has ruled that the Association is tax-exempt and all gifts, contributions, donations, and bequests thereto are likewise exempt from taxation. The Association of Graduates is the only organization through which alumni as a body can contribute their time, effort, and money toward the enhancement of their Alma Mater.

Under the aegis of the Association four annual events have grown to become important traditions. At the Alumni Parade in June Week the Long Gray Line, led by the Superintendent, the President of the Association of Graduates, and the Oldest Graduate Present, marches from Cullum Memorial Hall to Thayer Monument. There, in the presence of the Corps and a multitude of visitors, homage is paid to the "Father of the Military Academy" and to the memory of those graduates who died during the preceding year. It has been said that this gathering of alumni represents, by those attending, more United States history than any other group of similar size.

Homecoming Day is celebrated annually in the Fall at one of the home football games. This occasion, which was first established in 1958, has proved quite successful and affords the alumni a second annual opportunity to visit their alma mater and renew old acquaintances. In addition to the football game, a review in honor of the alumni is held by the Corps of Cadets.

Ernest Orlando Lawrence, 1958

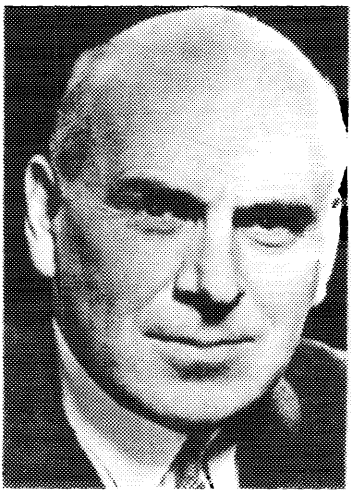
John Foster Dulles, 1959



Henry Cabot Lodge, 1960

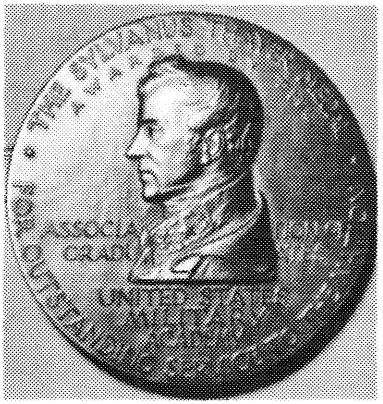
Dwight David Eisenhower, 1961

Douglas MacArthur, 1962

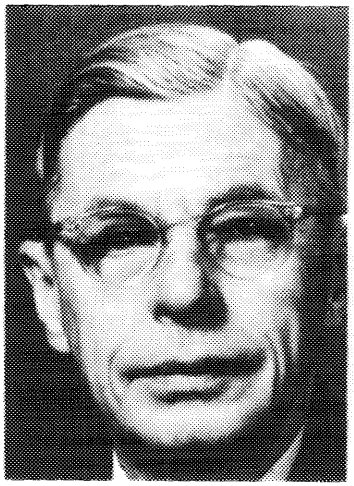


John J. McCloy, 1963

Robert A. Lovett, 1964



RECIPIENTS OF THAYER AWARD



James B. Conant, 1965

Founders Day, 16 March, is celebrated at West Point and at nearly 150 other places throughout the world. These celebrations traditionally include a dinner, attended by all alumni within commuting distance, and speeches by the oldest and youngest graduates present. The Association of Graduates supports these annual celebrations in many ways.

Each year since 1958 the Association of Graduates has presented the Sylvanus Thayer Award, a gold medal, to the United States citizen whose record of service to his country exemplifies devotion to the principles expressed in the motto of West Point—"Duty, Honor, Country." Recipients of the award have been Dr. E. O. Lawrence in 1958, John Foster Dulles in 1959, Henry Cabot Lodge in 1960, Dwight D. Eisenhower in 1961, Douglas MacArthur in 1962, John J. McCloy in 1963, Robert A. Lovett in 1964, and Dr. James B. Conant in 1965.

The major programs of the Association include maintenance of biographical files on all graduates; publication of necrologies and class reports in *Assembly;* receipt and disposition of historical items; support and establishment of West Point Societies; maintenance of an up-to-date list of addresses; correspondence concerning graduates; presentation of awards to cadets; selection of the person to receive the Sylvanus Thayer award; and organization of alumni activities at West Point.

Information is disseminated through two publications published by the West Point Alumni Foundation, Inc., a nonprofit corporation. The annual *Register of Graduates and Former Cadets* includes a summary of the record of each graduate and where he is and what he is doing. The quarterly magazine *Assembly* under the editorial sponsorship of the Association of Graduates gives current information about the Academy and its graduates.

The Association's administrative organization consists of a President and five Vice Presidents, elected annually; a Secretary-Treasurer; and 36 Trustees, 12 of whom are elected annually for terms of 3 years. The Association's office is located in Cullum Memorial Hall.

Cooperating with the Association are the following autonomous West Point Societies:

State	*West Point Society of—*
Alabama	ALABAMA (Birmingham)
	MOBILE
Arizona	PHOENIX
	SOUTHERN ARIZONA (Tucson)

State	*West Point Society of—*
California	Los Angeles
	Monterey Peninsula (Monterey)
	San Diego
	San Francisco Bay Area
Colorado	Denver
	Pikes Peak Region (Colorado Springs)
Connecticut	Connecticut (Hartford)
District of Columbia	District of Columbia
Florida	Cape Canaveral
	Central Florida (Orlando)
	Florida West Coast (Tampa)
	North Florida (Jacksonville)
	South Florida (Miami)
Georgia	Atlanta
	Savannah
	Columbus (Fort Benning)
Hawaii	Hawaii (Honolulu)
Illinois	Central Illinois (Champaign-Urbana)
	Chicago
Indiana	Indianapolis
Kentucky	Louisville
Louisiana	Mid-Gulf (New Orleans)
Maryland	Maryland (Baltimore)
Massachusetts	New England (Boston)
Michigan	Michigan (Detroit)
Minnesota	Minnesota (Minneapolis)
Missouri	Kansas City
	St. Louis
New Mexico	Albuquerque
New York	New York (New York City)
	Rochester
	Western New York (Buffalo)
	Capitol District (Albany)
North Carolina	Western North Carolina (Asheville)
North Dakota	North Dakota (Bismarck)
Ohio	Central Ohio (Columbus)
	Cincinnati
	Cleveland
	Northwestern Ohio (Van Wert)
	Dayton
Oklahoma	Central Oklahoma (Oklahoma City)
	Eastern Oklahoma (Tulsa)
Oregon	Portland
Pennsylvania	Central Pennsylvania (Harrisburg)
	Philadelphia
	Western Pennsylvania (Pittsburgh)
Philippine Islands	Philippines (Manila)

State	*West Point Society of—*
South Carolina	CHARLESTON
Tennessee	TENNESSEE (Nashville)
Texas	EL PASO AREA
	HOUSTON
	NORTH TEXAS (Dallas)
	SOUTH TEXAS (San Antonio)
Virginia	TIDEWATER (Ft. Monroe)
Washington	SEATTLE
Wisconsin	MILWAUKEE

SUPERINTENDENTS OF THE MILITARY ACADEMY

1. JONATHAN WILLIAMS
   Maj. Corps of Engineers_____15 Apr 1802—20 June 1803
2. JONATHAN WILLIAMS
   Lt. Col. Corps of Engineers [1]__19 Apr 1805—31 July 1812
3. JOSEPH G. SWIFT
   Col. Corps of Engineers _____31 July 1812—24 Mar 1814
4. ALDEN PARTRIDGE
   Capt. Corps of Engineers_____3 Jan 1815—28 July 1817
5. SYLVANUS THAYER
   Capt. Corps of Engineers_____28 July 1817—1 July 1833
6. RENE E. DE RUSSY
   Maj. Corps of Engineers_____1 July 1833—1 Sept 1838
7. RICHARD DELAFIELD
   Maj. Corps of Engineers_____1 Sept 1838—15 Aug 1845
8. HENRY BREWERTON
   Capt. Corps of Engineers_____15 Aug 1845—1 Sept 1852
9. ROBERT E. LEE
   Capt. Corps of Engineers_____1 Sept 1852—31 Mar 1855
10. JOHN G. BARNARD
    Capt. Corps of Engineers_____31 Mar 1855—8 Sept 1856
11. RICHARD DELAFIELD
    Maj. Corps of Engineers_____8 Sept 1856—23 Jan 1861
12. PETER G. T. BEAUREGARD
    Capt. Corps of Engineers [2]_____23 Jan 1861—28 Jan 1861
13. RICHARD DELAFIELD
    Maj. Corps of Engineers [2]____28 Jan 1861—1 Mar 1861
14. ALEXANDER H. BOWMAN
    Maj. Corps of Engineers_____1 Mar 1861—8 July 1864
15. ZEALOUS B. TOWER
    Maj. Corps of Engineers_____8 July 1864—8 Sept 1864
16. GEORGE W. CULLUM
    Lt. Col. Corps of Engineers___8 Sept 1864—28 Aug 1866

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[1] Major Williams resigned 20 June 1803, on a point of command, and pending its settlement on 19 April 1805, when he again returned to service as Chief Engineer, no permanent Superintendent was appointed, the command devolving upon the senior officer of the Corps of Engineers present for duty.

[2] Captain Beauregard, by order of John B. Floyd, Secretary of War, relieved Major Delafield from the Superintendency, but was himself displaced five days later by direction of the succeeding Secretary of War Joseph Holt, the command again devolving upon Major Delafield.

17. THOMAS G. PITCHER
Col. Infantry[3] _____28 Aug 1866—1 Sept 1871
18. THOMAS H. RUGER
Col. Infantry _____1 Sept 1871—1 Sept 1876
19. JOHN M. SCHOFIELD
Maj. Gen. US Army_____1 Sept 1876—21 Jan 1881
20. OLIVER O. HOWARD
Brig. Gen. US Army_____21 Jan 1881—1 Sept 1882
21. WESLEY MERRITT
Col. Cavalry _____1 Sept 1882—1 July 1887
22. JOHN G. PARKE
Col. Corps of Engineers_____28 Aug 1887—24 June 1889
23. JOHN M. WILSON
Lt. Col. Corps of Engineers____26 Aug 1889—31 Mar 1893
24. OSWALD H. ERNST
Maj. Corps of Engineers_____31 Mar 1893—21 Aug 1898
25. ALBERT L. MILLS
1st Lt. Cavalry_____22 Aug 1898—31 Aug 1906
26. HUGH L. SCOTT
Maj. Cavalry _____31 Aug 1906—31 Aug 1910
27. THOMAS H. BARRY
Maj. Gen. US Army_____31 Aug 1910—31 Aug 1912
28. CLARENCE P. TOWNSLEY
Col. Coast Artillery Corps____31 Aug 1912—30 June 1916
29. JOHN BIDDLE
Col. Corps of Engineers_____1 July 1916—31 May 1917
30. SAMUEL E. TILLMAN
Col. US Army_____13 June 1917—11 June 1919
31. DOUGLAS MACARTHUR
Brig. Gen. US Army_____11 June 1919—30 June 1922
32. FRED W. SLADEN
Brig. Gen. US Army_____1 July 1922—23 Mar 1926
33. MERCH B. STEWART
Brig. Gen. US Army_____24 Mar 1926—5 Oct 1927
34. EDWIN B. WINANS
Maj. Gen. US Army_____23 Oct 1927—25 Feb 1928
35. WILLIAM R. SMITH
Maj. Gen. US Army_____26 Feb 1928—30 Apr 1932

[3] The Superintendents were selected from the Corps of Engineers until passage of the law of 13 July 1866, which opened the Superintendency to the entire Army. By the Act of 12 June 1856, the local rank of Colonel was conferred upon the Superintendent.

36. WILLIAM D. CONNOR
Maj. Gen. US Army_____1 May 1932—17 Jan 1938
37. JAY L. BENEDICT
Brig. Gen. US Army_____5 Feb 1938—17 Nov 1940
38. ROBERT L. EICHELBERGER
Brig. Gen. US Army_____18 Nov 1940—12 Jan 1942
39. FRANCIS B. WILBY
Maj. Gen. US Army_____13 Jan 1942—4 Sept 1945
40. MAXWELL D. TAYLOR
Maj. Gen. US Army_____5 Sept 1945—28 Jan 1949
41. BRYANT E. MOORE
Maj. Gen. US Army_____28 Jan 1949—17 Jan 1951
42. FREDERICK A. IRVING
Maj. Gen. US Army_____1 Feb 1951—31 Aug 1954
43. BLACKSHEAR M. BRYAN
Lt. Gen. US Army_____3 Sept 1954—14 July 1956
44. GARRISON H. DAVIDSON
Lt. Gen. US Army_____15 July 1956—30 June 1960
45. WILLIAM C. WESTMORELAND
Maj. Gen. US Army_____1 July 1960—28 June 1963
46. JAMES B. LAMPERT
Maj. Gen. US Army_____29 June 1963—

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EXAMPLES OF PHYSICAL APTITUDE EXAMINATION TESTS

A combination of the following tests, which result in the candidate using all of his physical facilities, constitutes the Physical Aptitude Examination of the Military Academy.

(1) Basketball throw for distance using a regulation basketball.

(2) Basketball throw (modified). Regulation basketball is thrown overhand for distance from the kneeling position.

(3) Broad jump for distance, standing.

(4) Broad jump for distance, three in succession. Standing start with three successive broad jumps.

(5) Burpee test for 20 seconds. Continuous movements from the standing position to the squat, to the leaning rest, to the squat, and back to the standing position.

(6) Dipping on parallel bars. Raising and lowering oneself on parallel bars by means of the arms. The body is lowered until upper arm passes the horizontal.

(7) Dodge run. A run through a maze placed on a gymnasium floor.

(8) Hop, step, and jump. With a 10-foot run to a take-off line take a hop, a step, and a jump to gain as great a distance as possible.

(9) Hurdle run. A run through a maze placed on a gymnasium floor.

(10) Medicine ball put. A 6-pound medicine ball is put using the same movement as required for a shotput.

(11) Pull-ups. Chinning oneself on a horizontal bar, grasping bar with back of hand toward face.

(12) Push-ups. Standard push-ups starting from the leaning rest position.

(13) Rope climb (7 seconds). Climb a regulation gymnasium rope as high as possible in 7 seconds, using hands and feet or hands alone, starting from a standing position.

(14) Sit-ups (2 minutes). These are to be performed with a partner holding the feet.

(15) Sit-ups (for speed). These are to be performed in 30 seconds while lying on a gymnasium mat with toe hooked under a bar.

(16) Softball throw. For distance using a regulation softball. (12-inch circumference.)

(17) Running, shuttle. This test is a shuttle run on a gymnasium floor between two turning blocks 25 yards apart.

100 yards.
150 yards.
250 yards.
300 yards.

(18) Running 300 yards on indoor track. 11 laps to the mile.

(19) Vault for height, standing. From a standing position vault over a horizontal bar by touching it with only the hands using either flank or front vault.

(20) Vertical jump. The difference between the height an individual can reach and the height he can jump and reach.

SPECIAL MEDICAL CONSIDERATIONS

The following special medical examination considerations are listed in order that candidates, prospective candidates, their private physicians and dentists may have readily available medical requirements for entrance to the Academy. Candidates authorized to have this medical examination accomplished at one of the facilities listed in appendix II will contact the hospital, in writing, requesting an appointment.

MEDICAL HISTORY: The medical history will be compiled with particular care. Inquiries will be made in detail concerning all illnesses, injuries, and operations which the candidates may have incurred, and elaborated upon when indicated. Failure to fully document these items invariably results in disappointment to all concerned when medical disqualification is determined later. A history of familial diseases will be investigated with thoroughness. If the candidate has received medical care which significantly affects his physical status, then he will be required, whenever practicable, to submit evidence from attending physicians or from hospital records concerning this medical care.

BODY BUILD AND MEASUREMENTS: Build will be recorded as slender, medium or heavy. In addition, where obesity exists it will also be recorded. Poor physical development, regardless of actual height and weight ratio, is a cause for rejection.

The following standard weight table according to height and age applies.

Standards of Weight According to Height

Height (inches)	Weight		Height (inches)	Weight	
	Min.	Max.		Min.	Max.
66	107	191	73	135	231
67	111	196	74	139	237
68	115	202	75	143	243
69	119	208	76	147	248
70	123	214	77	151	254
71	127	219	78	153	260
72	131	225			

A range in height from 66 inches to 78 inches inclusive is required. A waiver for overheight or up to 2 inches below the minimum height may be considered in the Department of the Army provided the candi-

date possesses exceptional educational qualifications or has an outstanding military record or has demonstrated outstanding abilities. Height will be carefully measured without shoes or stockings and will be recorded to the nearest quarter of an inch. The weight will be taken without shoes or clothing and recorded to the nearest pound.

TEETH: The teeth, mouth, and gums will be thoroughly examined by a practicing dental surgeon. The examination will include bitewing roentgenograms and, when indicated, periapical roentgenograms. Notation will be made as to the serviceability or unserviceability of all dentures and bridges. Defects and infections, including periodontal disease, will be recorded and classified as to severity. Dental examinations of applicants wearing appliances for active orthodontic treatment will be deferred until such appliances are removed.

Dental standards for acceptance are as follows:

(1) A satisfactory relationship between the mandible and the maxilla of such nature that adequate prosthodontic replacements may be fabricated should it become necessary to remove any or all of the remaining natural teeth.

(2) That existing prosthodontic appliances meet generally acceptable standards of design, construction, and tissue adaptation. In the case of an existing lower prosthodontic appliance, that it be retained and adequately stabilized by sufficient serviceable natural teeth.

(3) No carious teeth or improperly restored, or filled, natural teeth.

(4) Must not have a disfiguring appearance of the existing natural anterior teeth as a result of spaces, malalignment or malocclusion.

(5) A sufficient number of serviceable anterior and posterior natural or artificial teeth so opposed as to permit the proper mastication of a normal diet.

Causes for rejection are:

(1) Failure to meet the requirements and standards set forth above.

(2) Diseases of the jaws or associated tissues which are not easily remediable would incapacitate the individual and might prevent his satisfactory performance of duty.

(3) Orthodontic appliances required for the active movement of teeth.

The dental examiner will not determine dental acceptability for the candidate. Department of the Army will notify the candidate with regard to acceptance or rejection.

Candidates having correctible dental defects will be informed of same

and instructed that they will be responsible for having the defects corrected prior to reporting to West Point in July. Candidates will also be informed that they will have in their possession at the time of reporting at West Point a statement from a practicing dental surgeon stating that all dental defects have been remedied, and listing all dental corrections made for the purpose of complying with USMA entrance requirements.

Eyes and Vision

Any degree of uncorrected vision is acceptable provided it is correctible to 20/20 in each eye. In all cases the actual vision of each eye and the correcting lenses, if required, will be reported. Careful inquiry will be made by the board of symptoms of asthenopia, and any symptoms elicited will be recorded. The refractive error will be determined by a cycloplegic examination, unless medically contraindicated, in all cases regardless of uncorrected visual acuity. Errors of refraction will be a cause for rejection, even though the visual acuity falls within acceptable limits. Total hyperopia of more than five and one-half (5.50) diopters in any meridian of either eye, total myopia of more than five and one-half (5.50) diopters in any meridian in either eye, astigmatic error of more than three (3.00) diopters in either eye, or anisometropia of more than three and one-half (3.50) diopters is cause for rejection.

Muscle balance of the eyes will be determined by either the Armed Forces Vision Tester or white Maddox rod test at 20 feet in all cases and will be reported in prism diopters. Esophoria of more than 15 prism diopters exophoria of more than 10 prism diopters, and hyperphoria of more than 2 prism diopters are causes for rejection. Strabismus of any degree is disqualifying.

Both eyes must be free from any disfiguring or incapacitating abnormality and from acute or chronic disease. A comment will be included on the examination form to indicate whether candidate wears contact lenses.

Inability to distinguish and identify without confusion the color of an object, substance, material, or light that is uniformly colored a vivid red or vivid green is cause for rejection.

EARS AND HEARING: Auditory acuity of all candidates will be determined by the audiometer. Loss of hearing, as determined by the audiometer, must not be greater than 15 decibels in any of the frequencies 500, 1,000, and 2,000, nor greater than 40 decibels in the frequency 4,000. Each candidate will be tested at the following frequencies: 500,

1,000, 2,000, 3,000, and 4,000. Existing perforation of the membrana tympani, regardless of etiology, is a cause for rejection. Both ears must be free from any disfiguring or incapacitating abnormality and from acute or chronic disease.

NARES: Septal deviation,, hypertrophic rhinitis, or other conditions which result in 50 percent or more obstruction of either airway, or which interfere with drainage of a sinus on either side, are causes for rejection.

SKIN: Psoriasis or acne, moderately severe, and the deeply pitted scars resulting therefrom, vitiligo or other skin defect which is disfiguring or unsightly; and bromidrosis which is more than mild, are causes for rejection.

HEART AND BLOOD VESSELS: An electrocardiogram will be accomplished in all cases where there is a history of rheumatic fever or questionable cardiac findings, a thorough investigation will be made, including detailed history, fluoroscopic examination of the heart and a 6-foot chest X-ray film permitting accurate determination of the cardiothoracic ratio, in addition to a careful general medical examination. Any evidence of organic heart disease will be considered cause for rejection. When a candidate is found to have a systolic blood pressure of 140 millimeters or more, or diastolic of 85 or more, readings will be taken each morning and afternoon over a period of three or more successive days, in order to determine whether the hypertension is persistent and, if possible, the cause thereof. Persistent blood pressure, systolic 140 millimeters or more, diastolic of more than 90 millimeters on repeated examination is a cause for rejection. All readings will be taken with the individual relaxed and in the sitting position after a period of normal physical activity. A period of recumbency will not be resorted to prior to taking readings. Pulses of the upper and lower extremities should be palpated and the hands and feet should be observed for abnormalities of color and temperature and for pallor on elevation. The absence of a pulse or the presence of pallor or temperature change will be cause for a more detailed vascular evaluation.

Varicosities of any extremity unless correctible by treatment or mild in degree are cause for rejection. Resultant pigmentation, dermatitis, ulceration, demonstrable edema, or pain substantiated by medical evidence, are causes for rejection.

SEROLOGIC TESTS: A serologic test for syphilis is performed on all candidates. An authentic history of syphilis of any type is cause for rejection without further laboratory procedure.

GENITOURINARY SYSTEM: Persistent albuminuria of any type or the persistence of casts in the urine will be cause for rejection, even though the etiology cannot be determined. Other causes for rejection: phimosis; epispadias or pronounced hypospadias; amputation or deformity of the penis; atrophy, deformity, or maldevelopment of both testicles; or undescended testicles of any degree.

ORTHOPEDIC: Suitable exercises will be employed to determine the strength of the arches. When pes planus is more than mild, a note will be made as to the presence or absence of bulging of the inner border due to rotation or eversion of the astragalus and any callosities. Pes planus, symptomatic, or with marked bulging of the inner border of the astragalus will be a cause for rejection when it would interfere with military service.

Pes cavus with clawing of the toes and calluses beneath the metatarsal heads is cause for rejection.

Where a history of injury to any joint is elicited, note will be made as to the presence or absence of lateral or other abnormal mobility, stiffness, traumatic arthritis, muscle atrophy, or weakness. X-ray and clinical evaluation will be made, when indicated.

Lateral deviation of the spine from the normal midline of more than 1 inch is cause for X-ray and clinical evaluation.

ASTHMA: Asthma or a history of asthma, except a history of childhood asthma with a trustworthy history of freedom from symptoms since the twelfth birthday, is a cause for rejection.

ABDOMINAL WALL: Hernia of any variety is a cause for rejection. The surgical repair of hernia requires a minimum of 60 days for qualification and must be without sequelae.

MEDICAL QUALIFICATIONS: The Army bases its decision to medically qualify a young man on medical facts revealed in a thorough medical examination. Candidates unable to satisfy the minimum requirements are not suited for commissions in the Regular Army and consequently are not eligible for training at the Military Academy. Some of the causes for rejection listed above are correctible. The decision to have remedial defects corrected rests with the candidate. When these defects are corrected subsequent to an examination, the candidate will submit complete information relative to the corrective procedure to the medical facility conducting the medical qualification examination or to The Adjutant General, ATTN: AGPB–M, Department of the Army, Washington, D.C. 20315.

FACILITIES AUTHORIZED TO CONDUCT QUALIFYING MEDICAL EXAMINATION

ALABAMA
- Daleville—Fort Rucker
- Mobile—Brookley AFB
- Montgomery—Maxwell AFB

ALASKA
- Adak—U.S. Naval Station
- Anchorage—Elmendorf AFB, Fort Richardson
- Kodiak—U.S. Naval Station

ARIZONA
- Chandler—Williams AFB
- Cochise County—Fort Huachuca
- Tucson—David-Monthan AFB

ARKANSAS
- Blythesville—Blythesville AFB
- Jacksonville—Little Rock AFB

CALIFORNIA
- Alameda—U.S. Naval Air Station
- Camp Pendleton
- Edwards—Edwards AFB
- El Centro—U.S. Naval Air Facility
- Fairfield—Travis AFB
- Ignacio—Hamilton AFB
- Imperial Beach—U.S. Naval Auxiliary Air Sta., Ream Fld
- Lemoore—U.S. Naval Air Station
- Lompoc—Vandenberg AFB
- Long Beach—U.S. Naval Hospital, USS Haven
- Los Alamitos (Long Beach)—U.S. Naval Air Station
- Marysville—Beale AFB
- Merced—Castle AFB
- Moffett Field—U.S. Naval Air Station
- Monterey—Fort Ord, U.S. Naval Air Facility
- Oakland—U.S. Naval Hospital
- Point Mugu—U.S. Naval Missile Ctr
- Riverside—March AFB
- Sacramento—Mather AFB, McClellan AFB
- San Bernardino—Norton AFB
- San Diego (Miramar)—U.S. Naval Air Station; (North Island)—Naval Air Station, U.S. Naval Hospital
- San Francisco—Letterman GH
- Santa Ana—U.S. Marine Corps Air Sta El Toro
- Victorville—George AFB

COLORADO
- Colorado Springs—USAF Academy
- Denver—Fitzsimons GH, Lowry AFB

DELAWARE
- Dover—Dover AFB

FLORIDA
- Cecil Field—U.S. Naval Air Station
- Homestead—Homestead AFB
- Jacksonville—U.S. Naval Air Station, U.S. Naval Hospital
- Key West—U.S. Naval Air Station, U.S. Naval Hospital
- Panama City—Tyndall AFB
- Pensacola—U.S. Naval Air Station, U.S. Naval Hospital
- Sanford—U.S. Naval Air Station
- Tampa—MacDill AFB
- Valparaiso—Eglin AFB
- Whiting Field—U.S. Naval Air Station

GEORGIA
- Albany—Turner AFB
- Atlanta—Fort McPherson, U.S. Naval Air Station
- Columbus—Fort Benning
- Glynco—U.S. Naval Air Station
- Groveton—Fort Gordon
- Hinesville—Fort Stewart
- Savannah—Hunter AFB
- Valdosta—Moody AFB
- Warner Robins—Robins AFB

HAWAII
- Honolulu—Hickam AFB, Tripler GH

IDAHO
- Mountain Home—Mountain Home AFB

ILLINOIS
- Belleville—Scott AFB
- Glenview—U.S. Naval Air Station
- Great Lakes—U.S. Naval Hospital
- Highland Park—Fort Sheridan
- Rantoul—Chanute AFB

INDIANA
- Indianapolis—Fort Benjamin Harrison
- Peru—Bunker Hill AFB

KANSAS
- Junction City—Fort Riley
- Leavenworth—Fort Leavenworth
- Olathe—U.S. Naval Air Station
- Salina—Schilling AFB
- Topeka—Forbes AFB
- Wichita—McConnell AFB

KENTUCKY
- Hardin County—Fort Knox

LOUISIANA
- Alexandria—England AFB
- New Orleans—U.S. Naval Air Station
- Shreveport—Barksdale AFB

MAINE
- Bangor—Dow AFB
- Brunswick—U.S. Naval Air Station
- Limestone—Loving AFB

MARYLAND
- Andrews AFB—U.S. Naval Air Facility
- Annapolis—U.S. Naval Academy
- Bainbridge—U.S. Naval Training Center
- Bethesda—U.S. Naval Hospital
- Camp Springs—Andrews AFB
- Odenton—Fort George G. Meade
- Patuxent—U.S. Naval Air Station

MASSACHUSETTS
- Ayer—Fort Devens
- Boston—Boston Army Base
- Chelsea—U.S. Naval Hospital
- Chicopee Falls—Westover AFB
- Falmouth—Otis AFB
- South Weymouth—U.S. Naval Air Station

MICHIGAN
- Grosse Ile—U.S. Naval Air Station
- Gwinn—KI Sawyer AFB
- Kincross—Kincheloe AFB
- Mount Clemens—Selfridge AFB
- Oscoda—Wurtsmith AFB

MINNESOTA
- Minneapolis—U.S. Naval Air Station

MISSISSIPPI
- Biloxi—Keesler AFB
- Columbus—Columbus AFB
- Meridian—U.S. Naval Auxiliary Station

MISSOURI
- Grandview—Richards-Gebaur AFB
- Knob Noster—Whiteman AFB
- Waynesville—Fort Leonard Wood

MONTANA
- Glasgow—Glasgow AFB
- Great Falls—Malmstrom AFB

NEBRASKA
- Lincoln—Lincoln AFB
- Omaha—Offutt AFB

NEVADA
- Las Vegas—Nellis AFB
- Reno—Stead AFB

NEW HAMPSHIRE
- Portsmouth—Pease AFB, U.S. Naval Hospital

NEW JERSEY
- Lakehurst—U.S. Naval Station
- Oceanport—Fort Monmouth
- Wrightstown—Fort Dix, McGuire AFB

NEW MEXICO
- Alamagordo—Holloman AFB
- Albuquerque—Kirtland AFB
- Clovis—Cannon AFB
- Roswell—Walker AFB

NEW YORK
- Newburgh—Stewart AFB
- New York—U.S. Naval Air Station
- Plattsburgh—Plattsburgh AFB
- Rome—Griffiss AFB
- St. Albans, L.I.—U.S. Naval Hospital
- West Hampton Beach, L.I.—Suffolk County AFB
- West Point—U.S. Military Academy

NORTH CAROLINA
- Camp Lejeune—U.S. Naval Hospital
- Cherry Point—U.S. Marine Corps Air Station
- Fayetteville—Fort Bragg
- Goldsboro—Seymour Johnson AFB
- New River—U.S. Marine Corps Air Facility

NORTH DAKOTA
- Minot—Minot AFB

OHIO
- Columbus—Lockbourne AFB
- Dayton—Wright-Patterson AFB

OKLAHOMA
- Altus—Altus AFB
- Burns Flat—Clinton-Sherman AFB
- Lawton—Fort Sill
- Oklahoma City—Tinker AFB

OREGON
- Portland—Portland International Airport

PENNSYLVANIA
- Carlisle—Carlisle Barracks
- Johnsville—U.S. Naval Air Facility
- Middletown—Olmstead AFB
- Philadelphia—U.S. Naval Hospital
- Phoenixville—Valley Forge GH
- Willow Grove—U.S. Naval Air Station

RHODE ISLAND
- Newport—U.S. Naval Hospital, U.S. Naval Station
- Quonset Point—U.S. Naval Air Station

SOUTH CAROLINA
- Beaufort—U.S. Marine Corps Air Station, U.S. Naval Hospital
- Charleston—Charleston AFB, U.S. Naval Hospital
- Columbia—Fort Jackson
- Sumter—Shaw AFB

SOUTH DAKOTA
- Rapid City—Ellsworth AFB

TENNESSEE
- Clarkesville—Fort Campbell
- Memphis—U.S. Naval Hospital, U.S. Naval Air Station
- Smyrna—Stewart AFB

TEXAS
- Abilene—Dyess AFB
- Amarillo—Amarillo AFB
- Austin—Bergstrom AFB
- Beeville—U.S. Naval Aux Air Station
- Big Spring—Webb AFB
- Corpus Christi—U.S. Naval Hospital, U.S. Naval Air Station
- Dallas—U.S. Naval Air Station
- Del Rio—Laughlin AFB
- El Paso—Biggs, AFB, William Beaumont GH
- Fort Worth—Carswell AFB
- Kingsville—U.S. Naval Air Station
- Killeen—Fort Hood
- Laredo—Laredo AFB
- Lubbock—Reese AFB
- San Antonio—Fort Sam Houston, Lackland AFB, Randolph AFB
- Sherman—Perrin AFB
- Waco—James Connally AFB
- Wichita Falls—Sheppard AFB

UTAH
- Ogden—Hill AFB

VIRGINIA
- Fairfax County—Fort Belvoir
- Hampton—Langley AFB
- Lee Hall—Fort Eustis
- Norfolk—U.S. Naval Air Station
- Old Point Comfort—Fort Monroe
- Petersburg—Fort Lee
- Portsmouth—U.S. Naval Hospital

Quantico—U.S. Marine Corps Air Station, U.S. Naval Hospital
Virginia Beach—U.S. Naval Air Station

WASHINGTON
Bremerton—USNH
Moses Lake—Larson AFB
Oak Harbor—U.S. Naval Air Station
Seattle—U.S. Naval Air Station
Spokane—Fairchild AFB
Tacoma—Fort Lewis, McChord AFB

WISCONSIN
Madison—Truax Field

WYOMING
Cheyenne—Francis E. Warren AFB

DISTRICT OF COLUMBIA
Washington—Walter Reed GH

CANAL ZONE
Balboa—Albrooke AFB
Fort Clayton
Rodman—U.S. Naval Station

CUBA
Guantanamo Bay—U.S. Naval Hospital

ENGLAND
London—U.S. Naval Support Activity
Middlesex—RAF West Ruislip

GERMANY
Heidelberg—USAH
Wiesbaden—Wiesbaden AB

GUAM
U.S. Naval Hospital

ITALY
Naples—U.S. Naval Support Activity

JAPAN
Camp Zama
Honahu—Tachikawa AB
Sasebo—Fleet Activities
Yokuska—U.S. Naval Hospital

NEWFOUNDLAND
Argentia—U.S. Naval Station
Stephenville—Ernest Harmon AFB

PHILIPPINES
Luzon—Clark AFB
Subic Bay—U.S. Naval Station

PUERTO RICO
Aguadilla—Ramey AFB
San Juan—U.S. Naval Station

SPAIN
Rote—U.S. Naval Air Station

GH—General Hospital, AH—Army Hospital, AFB—Air Force Base

JANUARY-MARCH 1966 USMA CANDIDATE TEST SITES

The following military installations will conduct USMA candidate testing commencing 8 March 1966. Those installations marked by an asterisk (*) will also conduct testing commencing 5 January 1966. In his letter of nomination, the Test Site will be designated for each candidate. Requests for a change of Test Site should be directed to The Adjutant General, ATTN: AGPB-M, Headquarters, Department of the Army, Washington, D. C. 20315.

ALASKA
Anchorage—Fort Richardson

ARIZONA
Cochise County—Fort Huachuca

CALIFORNIA
*San Francisco—Letterman GH
*San Pedro—Fort MacArthur

COLORADO
*Denver—Fitzsimons GH

FLORIDA
Tampa—MacDill AFB

GEORGIA
Atlanta—Fort McPherson
*Columbus—Fort Benning

HAWAII
Tripler Army Hospital

ILLINOIS
*Highland Park—Fort Sheridan

INDIANA
*Indianapolis—Fort Benjamin Harrison

KANSAS
*Leavenworth—Fort Leavenworth

KENTUCKY
Hardin County—Fort Knox

MASSACHUSETTS
*Ayer—Fort Devens

MICHIGAN
Mount Clemens—Selfridge AFB

MISSISSIPPI
Biloxi—Keesler AFB

MISSOURI
Waynesville—Fort Leonard Wood

NEW JERSEY
*Wrightstown—Fort Dix

NORTH CAROLINA
Fayetteville—Fort Bragg

OHIO
Columbus—Lockbourne AFB

OKLAHOMA
Lawton—Fort Sill

PENNSYLVANIA
Carlisle—Carlisle Barracks
*Phoenixville—Valley Forge GH

PUERTO RICO
San Juan—Fort Brooke

SOUTH CAROLINA
Columbia—Fort Jackson

TENNESSEE
Clarksville—Fort Campbell

TEXAS
El Paso—William Beaumont GH
*San Antonio—Fort Sam Houston

UTAH
Ogden—Hill AFB

VIRGINIA
*Fairfax County—Fort Belvoir

WASHINGTON
*Tacoma—Fort Lewis

WASHINGTON, D. C.
Walter Reed GH—Physical Examining Section (Outpatient Clinic)

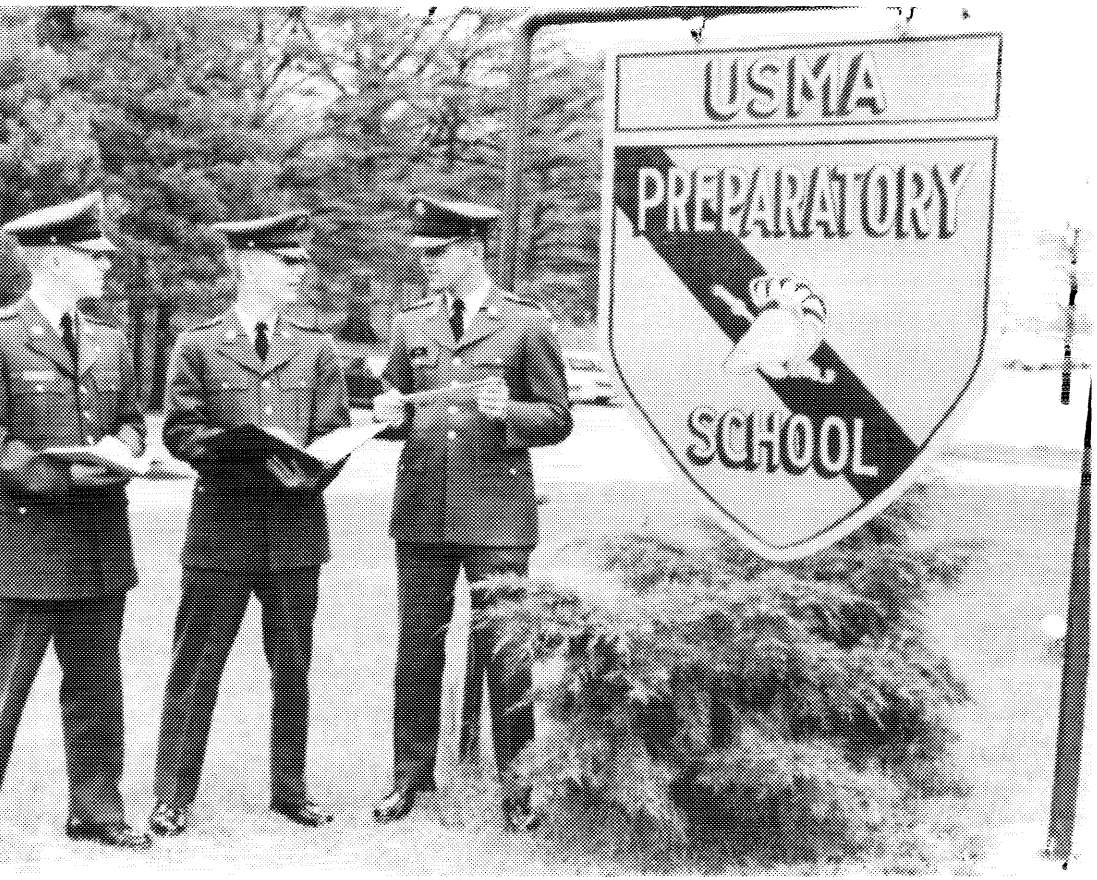
CANAL ZONE
Fort Clayton

GERMANY
Heidelberg, USAH

JAPAN
Camp Zama

GH—General Hospital, AH—Army Hospital, AFB—Air Force Base

UNITED STATES MILITARY ACADEMY PREPARATORY SCHOOL

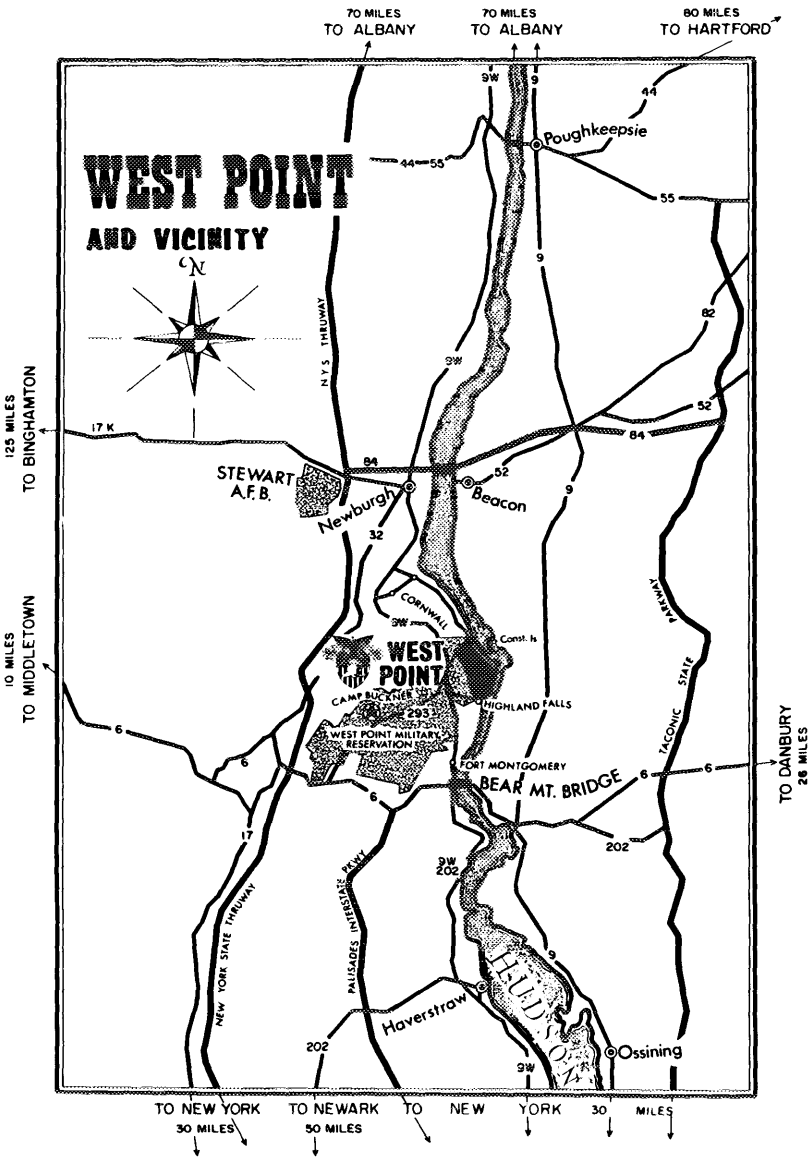


The United States Military Academy Preparatory School is an Army training facility where servicemen on active duty are assigned for intense academic, physical and military training in anticipation of entering the United States Military Academy. All applicants must satisfy minimum academic and medical standards before transfer to the Preparatory School is authorized, and all must either be nominated, or eligible to compete, for admission to the Military Academy.

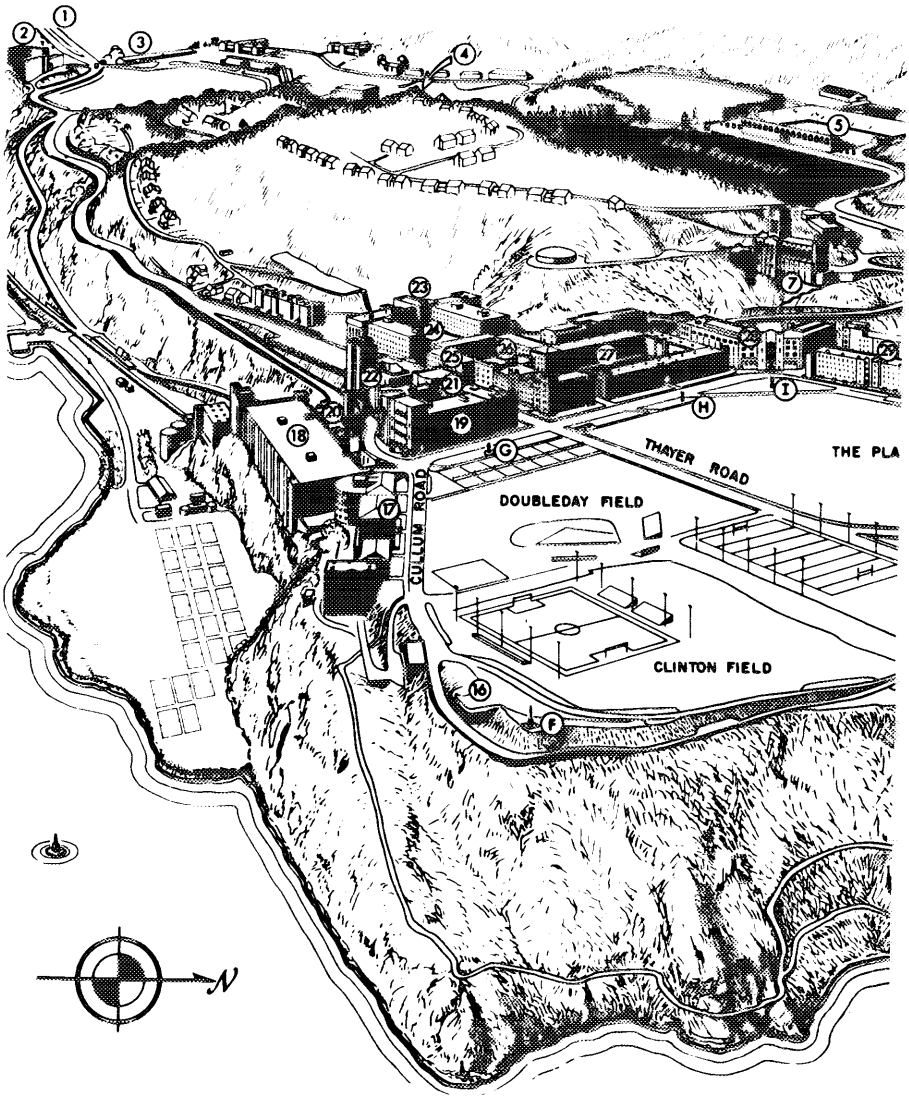
The training course runs from mid-August through May and enrollment at the start of the course is a primary requirement.

Inquiries may be addressed to The Adjutant General, ATTN: AGPB–M, Department of the Army, Washington, D.C. 20315.

WEST POINT AND VICINITY MAPS



West Point and Vicinity Map



LEG

1. South Gate
2. Hotel Thayer
3. Visitors' Information Center
4. Smith Rink
5. Michie Stadium
6. Fort Putnam
7. Cadet Chapel
8. Delafield Pond
9. Catholic Chapel
10. Services Building
11. Field House
12. North Athletic Fields
13. First Class Club
14. Ordnance Laboratory
15. Trophy Point
16. Fort Clinton
17. Cullum H
18. Thayer H
19. Library
20. Museum
21. Bartlett I
22. Headqua
23. Hospital
24. New Sou

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United States Military Academy
West Point, N. Y.
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Barracks

25. South Barracks
26. Headquarters, USCC
27. Central Barracks
28. Washington Hall
29. North Barracks
30. Gymnasium
31. Superintendent's Quarters
32. Commandant's Quarters

A. Air Cadet Memorial
B. Wirt Robinson Memorial
C. Sedgwick Monument
D. Battle Monument
E. Washington Monument
F. Kosciuszko Monument
G. Patton Monument
H. French Monument
I. Thayer Monument

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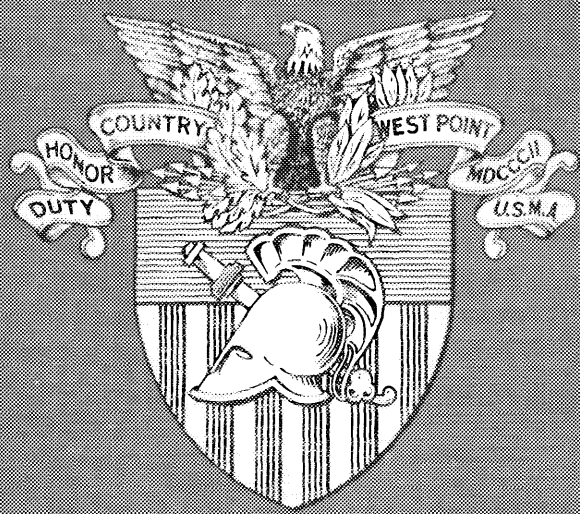
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