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UNITED STATES NAVAL ACADEMY

ANNAPOLIS, MARYLAND

What is the Naval Academy?

The United States Naval Academy is not like any civilian college. It's not supposed to be. As the undergraduate college of the Navy, we put students in a military as well as an academic environment. The life definitely is not for everyone, but many welcome the multi-dimensional challenge, what the academy stands for and where it leads. From the day you enter, you're pursuing a college education *and* preparing for a career.

We have a unique mission: "To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government." To accomplish this, our balanced and integrated program develops mature judgment, confidence, leadership, strong moral character and an appreciation for physical fitness.

A program that does so much in four years must be very demanding, but it isn't impossible for anyone with the qualifications and motivation. More than 75 percent of those entering the academy successfully complete the four-year program.

Graduation opens a lifetime of exciting opportunities as a Navy or Marine Corps officer, serving in the nation's defense. Career fields range from naval aviation, surface warfare and submarines to Marine infantry and armor. In every field you are responsible for leading talented men and women, as well as operating sophisticated military systems. No matter what you do later in life, you'll have talents and experiences that equip you well for success.

"Probably my major gain from the academy has been an increase in self-confidence. I know I can handle responsibilities. When I graduate, I'll know how to work with people and be a leader."

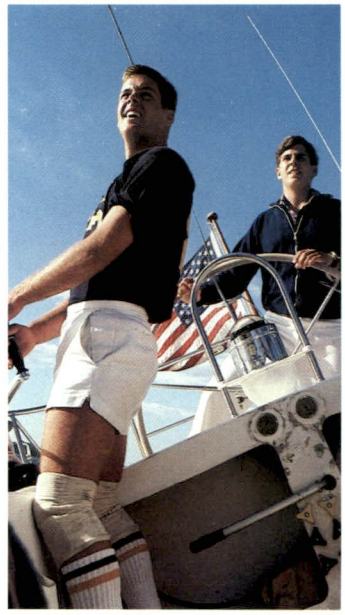
"How is the academic program?"

The 600-member faculty at the academy is about half military officers and half civilian professors. All courses are taught by these faculty members, none by graduate assistants. Extra instruction by the faculty is available on a one-to-one basis. Instructors are dedicated to helping their students succeed.

Eighteen academic majors are offered in engineering, science, mathematics, social sciences and the humanities. About 80 percent choose engineering, math or science. You also must take about 28 semester hours of such military-professional courses as navigation, naval engineering, weapons, leadership and naval history. You learn to use computers in many of your studies, and soon master your own personal computer, which you are required to buy during Plebe Summer.

"This place teaches you how hard you can push yourself and still do more. I think most people go through life and don't find that out."

"What is the professional training program like?"



Remember that the purpose of the Naval Academy is to produce top-notch, well-prepared Navy and Marine Corps officers. Many activities and programs are structured with that in mind.

All students enter as fourth-class midshipmen (freshmen). While every midshipman must attend the academy for four years, you can validate individual courses based on previously completed college-level work. Validating courses, overloading and optional summer school give you the chance to complete required studies early and to pursue an academic minor, independent research or post-graduate education off-campus in your fourth year. Almost all graduates go on to Navy or Marine-sponsored graduate studies later during their careers.

More than 2,000 hours of professional military training are required over the four years at the academy. This includes a wide range of instruction in leadership, naval operations, military routine and drill, as well as practical training in sail and power craft and on the weapons ranges in Annapolis. During summers, midshipmen get on-the-job training in surface ships, submarines, aircraft and Marine Corps units. Summer cruises offer an exciting introduction to life in the naval service, plus unique opportunities to see the world.

"How much emphasis is put on sports and athletics?"

We put great emphasis on sports and physical conditioning because they teach teamwork, leadership, appreciation for fitness and ability to cope with stress. Every midshipman must take four years of physical education, including biannual tests in mile run, applied strength and other areas. Midshipmen also participate in a competitive sport at the intercollegiate or intramural level every season. We offer 33 varsity sports, 23 intramural sports and several club sports. There are more than 100 acres of lighted playing fields for tennis, soccer, lacrosse, football and baseball. There are indoor pools, an ice skating rink, gymnasiums, wrestling and fencing lofts, a bowling alley and a golf course. There also is a boathouse for crew (rowing) teams and a sailing center to support a fleet of more than 150 boats.

"Are there many extracurricular activities?"

Midshipmen are encouraged to be active in one or more of 70 extracurricular activities offered at the academy. There are choirs, a drum and bugle corps, glee clubs and church choirs. Midshipmen staff a radio station, yearbook, humor magazine and a number of other publications. There are clubs for those interested in drama, photography, amateur ham radio, art and printing, languages, oceanography, foreign relations and many other areas. You can learn to scuba dive and parachute. There is recreational sailing in everything from sailboards to large offshore racing boats.

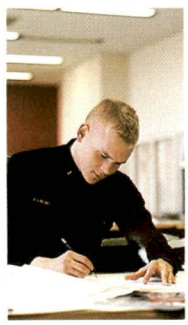
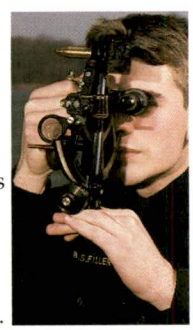
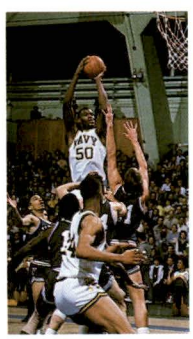
"Is there much social life?"

Social life during plebe (freshman) year is limited by heavy military and academic requirements on new midshipmen. However, there's some free time for movies, concerts, plays, athletic events and local sightseeing. Also, each plebe is sponsored by a local family for dinners and relaxing off campus. After the first year, social life opens up considerably with more privileges and free time. Weekends off allow time to enjoy the hundreds of attractions in the Annapolis-Baltimore-Washington area.

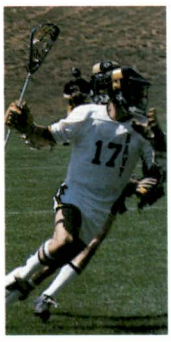
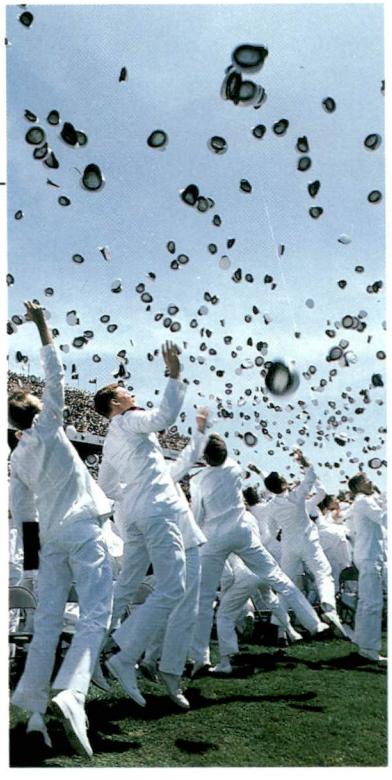
"What is the tuition?"

All midshipmen receive, in effect, a full four-year scholarship with paid room and board, medical and dental care and a salary of $504.30 each month. In return, you agree to serve at least five years on active duty after graduation as an officer in the Navy or Marine Corps. Most graduates decide to serve well beyond five years.

How are the fou

	Plebe Summer	Fourth-Class Year (Freshman)	Third-Class Year (Sophomore)
Education:	Validation exams, initial academic counseling.	Required courses: calculus, chemistry, computers, leadership, literature, history, naval science, naval engineering. You will decide on your major course of study during the second semester of plebe year.	 Required courses: naval science, navigation, thermo-dynamics, naval architecture, physics; basic courses in major.
Professional Training:	Military orientation, seamanship (sailing), small arms (pistol), physical training.	Courses in naval engineering, naval science and leadership. Hands-on experience with basic shiphandling on board yard patrol crafts. Indoctrination to Navy ships and aircraft, military etiquette, Soviet military.	Leadership experience: assist with fourth-class training. Third-class cruise: 8 weeks of training, including 4 weeks with the fleet with enlisted duties. 
Physical Education **Athletics:**	Plebes are introduced to many of the 33 intercollegiate and 30 intramural sports offered at the academy, ranging from pistol and fencing to lacrosse and sailing. Midshipmen choose a sport each season over the four years.	Instruction in boxing, golf, lacrosse, gymnastics, crew, soccer, squash, track, fencing, wrestling and swimming. Tests in several areas. 	Instruction in tennis, swimming, boxing, wrestling, basics of judo. Women take fencing in place of boxing. Tests in applied strength, mile run, swimming and boxing.
Extra-curricular Activities: (ECAs)		More than 70 recreational, professional and athletic ECAs offered. Includes club sports of boxing, powerlifting, judo, karate, trap and skeet, bowling, rugby, ice hockey, tennis and softball.	

years organized?

Second-Class Year (Junior)	First-Class Year (Senior)	Graduation
Required courses: electrical engineering, leadership; required courses for major.	Required courses: leadership, weapons systems; required courses for major or special study programs such as Trident Scholars.	Bachelor of science degree awarded in 18 subject areas: 8 in engineering, 6 in science and math, 4 in humanities and social sciences.
Leadership experience: in charge of fourth-class and third-class training. Second-class cruise training includes Marine Corps training, surface and submarine cruises and one week of flight orientation at Pensacola, FL. Professional courses at the academy.	Leadership experience: direct training and activities of the brigade. First-class cruise: 8 weeks of training including 4 weeks with the fleet as a junior officer.	Officer commission as ensign in United States Navy or second lieutenant, United States Marine Corps.
Advanced racquetball, swimming, personal conditioning, officiating and hand-to-hand combat. Performance tests given. 	Advanced instruction in swimming and personal conditioning. Electives in sports. Tests in applied strength, obstacle course, mile run and swimming.	
Professional and academic ECAs include Dolphin Club, Drill Team, Military Parachute Club, Semper Fidelis, Surface Action Group, Astronomy Club, Forensic Society, History Club and International Club.	Recreational ECAs include archery, photography and scuba. Musical ECAs such as the Drum and Bugle Corps, choirs, Glee Club, Trident Brass, and Drama Club also are offered. Other activities include Log Magazine, Brigade Activities Committee, WRNV Radio and Big Brothers/Big Sisters.	

How do I become a midshipman?

There are six basic steps: You must (1) meet the basic eligibility requirements, (2) obtain a nomination, (3) qualify academically, (4) qualify medically, (5) qualify physically, and (6) be selected by the academy for admission. These steps are explained in more detail below.

(1) Basic eligibility: You must be a U.S. citizen of good moral character, at least 17 years old and not past your 22nd birthday on July 1 of the year you enter the academy. You must be unmarried, not pregnant, and have no legal obligation to support a child, children or other individual.

(2) Obtaining a nomination: Nominations are usually obtained from members of Congress. The first step is to apply for a nomination to the representative from your congressional district and both senators representing your state. Sample letters can be found in the academy catalog. Apply to all sources for which you are eligible in April of your junior year, or as soon as possible afterwards. Congressmen may submit nominations to the academy up to January 31 of an applicant's high school senior year, but most submit their nominations earlier, during the fall. You don't have to know a congressman personally, nor do you need political influence to receive fair consideration. If you are a strong, well-rounded student, it's not difficult to get a nomination.

"I made a big commitment when I came to the academy, but, looking back, it seems like the best decision I've ever made."

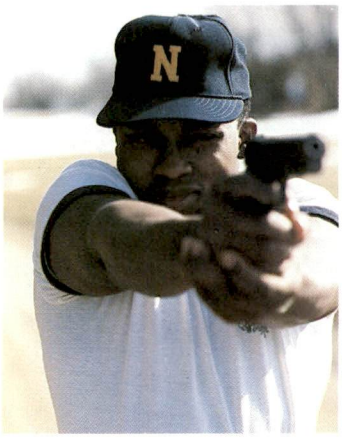
Other sources of nomination include the president, vice president and secretary of the Navy. Detailed information on sources and eligibility is in the Naval Academy catalog. You can also call the Candidate Guidance Office for assistance.

(3) Qualifying academically: This process begins when you return the pre-candidate questionnaire (PCQ) to our Candidate Guidance Office. Once received, your file is opened and a preliminary screening is done. If your class standing and SAT or ACT scores are satisfactory, you will be scheduled for a medical exam and mailed a candidate packet. (The Candidate Guidance Office can give you information on recent qualifying scores.) When your candidate packet is completed and returned to the academy, the Admissions Board considers your record. At this time, your high school transcript is carefully evaluated. It should include all or most of the following: four years of math (including trigonometry), four years of English, two years of a modern language and a year each of chemistry and physics.

"I'm glad I decided to come here, because it has helped me to develop a sense of pride, both in myself and in my country."

(4) The medical examination: You will be scheduled for a medical examination as soon as the Admissions Office determines you have a reasonable chance of qualifying academically. Normally you receive notification by mail explaining where to go for the examination. You usually are notified of the results four to six weeks afterward.

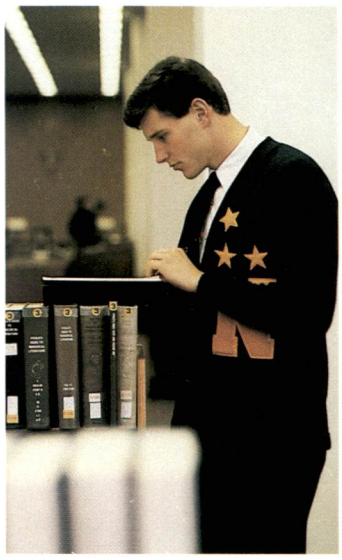
Unaided 20/20 vision in each eye is our basic requirement. If your eyes are without excessive refractive error and can be corrected to 20/20 with glasses, you are considered within waiverable limits. Up to 35 percent of the incoming midshipmen can be granted eye waivers. No waivers for defective color vision are granted.



(5) The physical aptitude examination: The Candidate Guidance Office will send you an illustrated pamphlet describing the test and explaining how to take it. There are four parts: chinning (flexed arm hang for women), a timed shuttle run of 300-yards (six round trips between two parallel lines spaced 25 yards apart), a standing broad jump for distance and a basketball throw for distance from a kneeling position. Your gym instructor can administer the test which takes about 40 minutes to complete.

(6) Selection for appointment: Once the results of the medical exam, physical aptitude exam and Admissions Board screening are in, you are about 75 percent through the application process. If you have been successful in obtaining a nomination, you will be considered a qualified candidate. Of about 15,000 young men and women who apply, about 2,400 make it to this stage. Of those 2,400, about 1,600 of the best qualified candidates are offered appointments to become midshipmen.

Could the Naval Academy be for me?



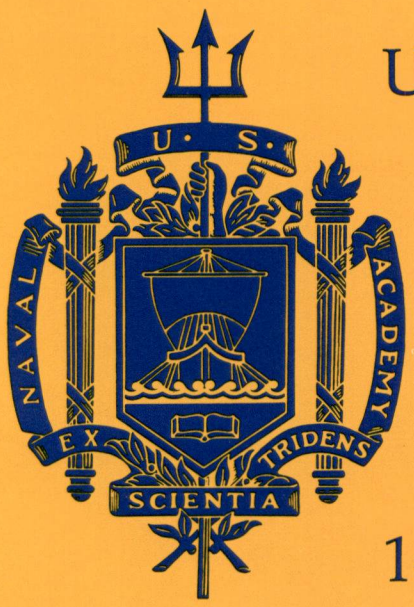
With midshipmen from all 50 states, the academy offers you a unique opportunity to associate with a broad cross section of the country's finest young men and women. Pulling together, you pursue a four-year program that develops you mentally, morally and physically as no civilian college can. As you might expect, this program is demanding, but the opportunities are limitless and more than worth the effort.

Graduates of the Naval Academy include a former president of the United States, the first American scientist to receive a Nobel Prize, more than 25 Rhodes Scholars and 30 NASA astronauts and mission specialists. Of course, the academy is first and foremost a professional college for future Navy and Marine Corps officers.

"Can I make it into the academy?"

There is only one way to know for sure, and that is to prepare and *apply early!* You need four years of high school preparation to develop the strong academic, athletic and extracurricular background required to compete successfully for admission to the Naval Academy. Unfortunately, many candidates don't realize this until late in high school. You should begin preparing in your freshman year and apply for admission towards the end of your junior year.

If you think you measure up, have a strong will to achieve great things and want to be a leader serving your country, your opportunities of a lifetime can begin at the Naval Academy. Contact one of our admissions counselors toll free at 1-800-638-9156, or write to the Candidate Guidance Office, United States Naval Academy, Annapolis, MD 21402-5018.



UNITED STATES
NAVAL ACADEMY
Candidate Guidance Office
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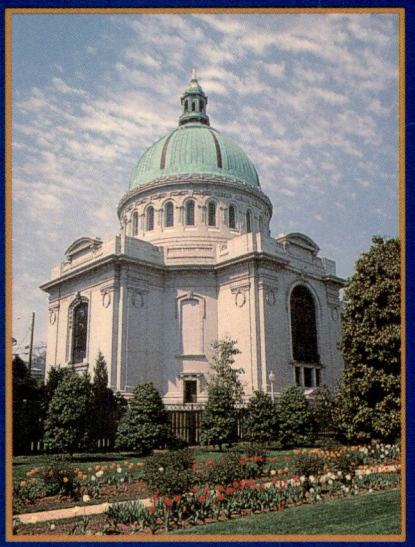
United States Naval Academy

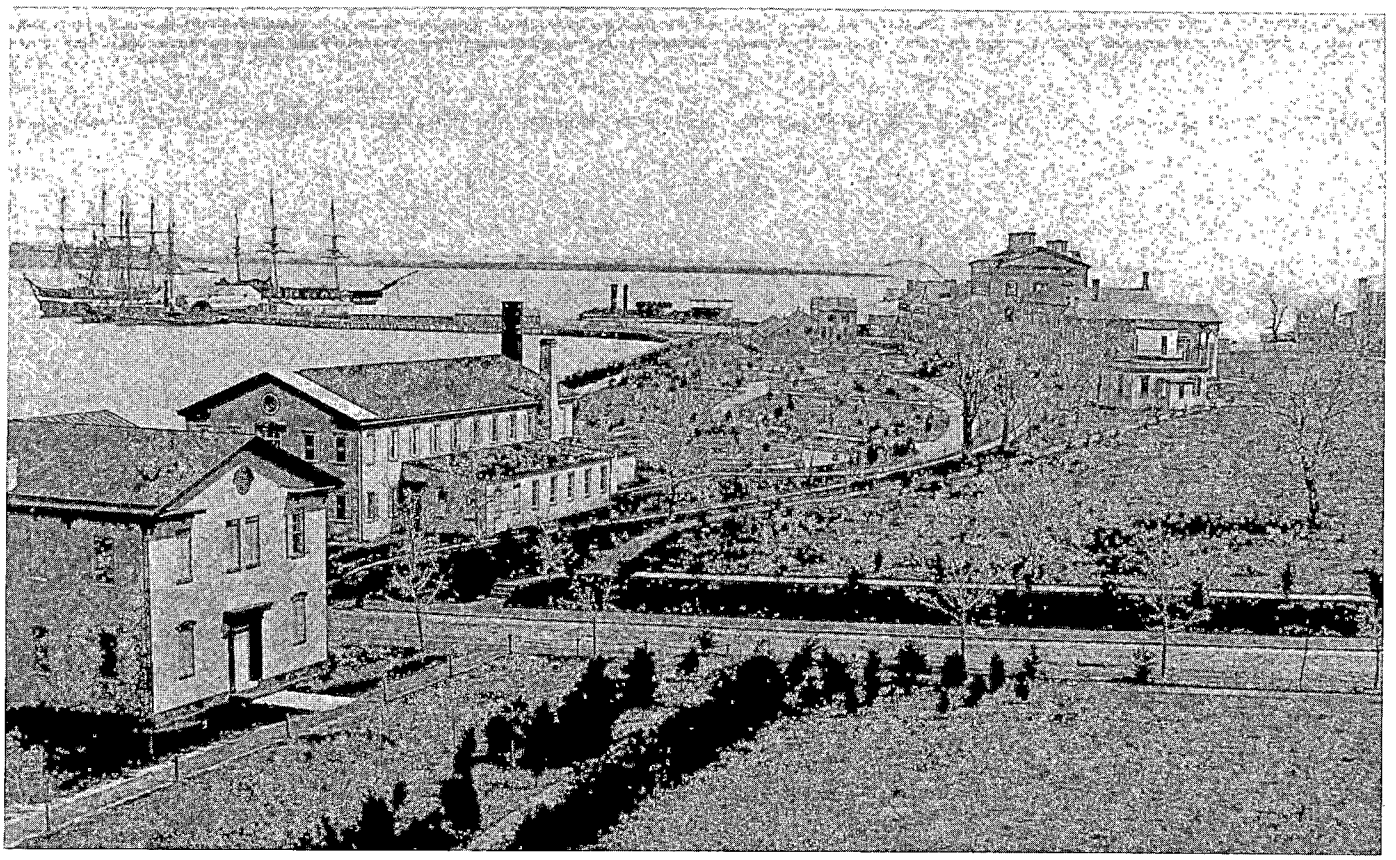


United States Naval Academy

The Naval Academy is the undergraduate college of the U.S. Navy. Established in 1845 on the Severn River in Annapolis, MD., the Academy has changed in many ways since then to keep pace with the technology, tactics and needs of the service. Unchanged is the Academy's basic mission: "To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government."

The Naval Academy's curriculum today is designed to graduate well-rounded Navy and Marine Corps officers who are technically competent and fully capable of employing some of the most sophisticated military equipment and systems in the world. At the same time, graduates are prepared to learn quickly, apply individual creativity and good judgment, and make early contributions to their ships, squadrons and companies.

History



Secretary of the Navy George Bancroft laid the foundation for the Naval Academy when, in 1845, he established the Naval School at Fort Severn in Annapolis. Commander Franklin Buchanan, served as the first superintendent. His faculty consisted of four officers and three civilian professors. There were 50 students. Initially, the academic and professional instruction required five years -- the first and last at Annapolis, with the intervening three at sea.

In 1850, the Naval School became the United States Naval Academy. The following year, the Academy adopted its current course of instruction which includes four consecutive years at Annapolis, with at-sea training provided during the summers.

The Naval Academy moved to Newport, RI, during the Civil War. In 1865, it was re-established at Annapolis under the leadership of Vice Admiral David Dixon Porter. During these early years, the Academy was one of the few institutions of higher learning offering a sophisticated undergraduate course in technical education.

The late 19th century saw immense changes in naval technology with the conversion from sail-powered, wooden ships to steam-powered vessels of steel, which also resulted in rapid developments in naval weaponry and tactics. With the Spanish-American War in 1898, the United States became a world naval power, and early Naval Academy graduates like George Dewey and Alfred Thayer Mahan made significant contributions to our national heritage.

The new century saw the nation's undergraduate naval college grow in size and academic prowess. The Class of 1895 had produced 41 graduates. By World War I there were nearly 200 graduates each year, along with 2,500 reserve officers who received their training at the Academy.

With the entry of the United States into World War I, courses were shortened to three years, a program which remained in effect until 1921. To meet the increased need for naval leaders, some 2,500 reserve officers received their training at the academy.

Between the two world wars, the curriculum and training equipment were modernized to keep pace with rapid advances in the naval profession and American education. In 1930, the Association of American Universities accredited the Naval Academy, and in 1933, an act of Congress authorized the Naval Academy to confer the degree of bachelor of science on graduates, beginning with the Class of 1931. Congress authorized award of the degree to all living graduates in 1939. The Middle Atlantic States Association of Colleges and Secondary Schools first accredited the Academy in 1947.

During World War II, summer sessions were instituted and the course was again shortened to three years. As during World War I, reserve officers, along with reserve midshipmen, also trained at the Academy.

In 1963, the Academy initiated the Trident Scholar Program, under which a number of exceptional students are permitted to pursue independent research during the first class (senior) year.

The 1964-65 academic year saw the civilian positions of academic dean and dean of admissions established and far-reaching changes made to the curriculum. The number of required core courses was reduced and, for the first time, each midshipman was allowed to pursue academic areas of individual interest for a minor or major. Additional changes, introduced in the 1969-70 academic year, now require every midshipman to complete a major.

In 1975, President Gerald R. Ford signed legislation authorizing admission of women to the service academies. The first women midshipmen entered the Academy in July 1976, and graduated with the class of 1980.

It all begins with fourth class year. From their first day at the Academy, the fourth class midshipmen, or plebes, undergo an intensive and unabated program of military training and indoctrination. Physical and mental demands on them and their time seem never-ending. But it all has a purpose: the development of leadership ability, motivation, moral strength, physical skills and stamina.

However traumatic, Plebe Summer is a time which most midshipmen will remember for many years. New midshipmen are kept constantly busy learning basic skills in seamanship, navigation and marksmanship. Their pride and company spirit are boosted through infantry drill, small arms training, sailing Navy yawls and cruising in yard patrol craft. Their competitive spirit and desire to win are developed in activities such as athletics, dress parades and seamanship.

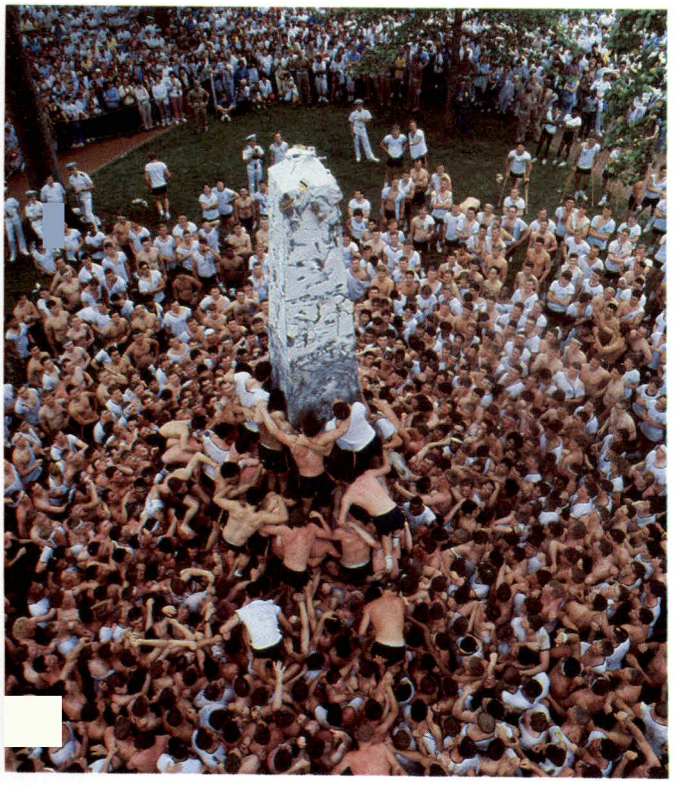
Plebe Summer is highlighted in August during Parents' Weekend, when parents visit the Academy and witness the progress of their sons and daughters.

The arrival of the upperclassmen in late August heralds the beginning of the academic year. The plebes embark on a four-year course of study while plebe indoctrination continues.

September brings the excitement of football and other fall sports. During the football season, only selected units of the brigade travel to away games, but the entire brigade attends all home games and the annual fall classic, the Army-Navy game in Philadelphia.

Commissioning Week, in May, brings the graduation of the first classmen and the end of plebe year. Plebes signify the end of their first year at the Academy by scaling the smooth granite sides of Herndon Monument to replace, at its summit, a plebe cap with upperclass headgear.

Between plebe and third class years, midshipmen get their first taste of life at sea and their introduction to the enlisted men whom they will lead when commissioned as



officers. The midshipmen perform a host of shipboard duties including standing deck, gunnery, operations and engineering watches.

Third classmen begin work in their academic majors and assume more responsibility in the military regimen at the Academy. Less emphasis is placed on indoctrination, leaving more time for studies, sports and extracurricular activities. It's a welcome change from the rigors of plebe year.

During their third summer, midshipmen get their first training in the four warfare specialties which comprise the naval service. They learn about submarines at New London, CT; surface warfare at Norfolk, VA; naval aviation at Pensacola, FL; and the Marine Corps at Quantico, VA.

Second class midshipmen are assigned still additional military responsibilities. They are selected and trained to direct the Brigade of Midshipmen during absences of the first class. They are also assigned an important role in the indoctrination of the new plebe class, which develops their leadership skills. In academics, the second class midshipmen enter increasingly advanced areas of study.

During their final year at the academy, first class midshipmen complete the core curriculum and their academic majors' course requirements. Many undertake independent research projects, and some begin graduate-level studies at nearby universities. The first class midshipmen also take over the responsibilities for plebe indoctrination. They also lead the brigade at parades, formal ceremonies and daily formations. They are responsible for the conduct, military smartness and competitive records of their units. The skills which the first class midshipmen develop this year will help them when they assume their leadership responsibilities in the Navy and Marine Corps following graduation.

One common denominator which binds the four years into a unit which will forever shape the life of an Academy graduate is the Honor Concept.

Established and administered by midshipmen, the Honor Concept is based on the principle that honorable individuals do not lie, cheat or steal. All midshipmen are expected to conduct their lives in accordance with the Honor Concept so that their decisions as midshipmen, naval officers and civilians reflect the highest levels of honorable conduct.

Curriculum

With the aid of academic and military advisors, midshipmen design their own blend of the curriculum's three elements:

- Courses providing the professional and leadership skills required in the naval service.
- "Core" requirements in engineering, social sciences, natural sciences, and the humanities to ensure breadth in education.
- Completion of a major program in an academic subject chosen by each midshipman to develop individual interests and talents in depth.

The Naval Academy offers major programs in 18 subject areas: eight in engineering; six in science and mathematics, including computer science; and four in the humanities and social sciences. Seven of the engineering majors are accredited professionally by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

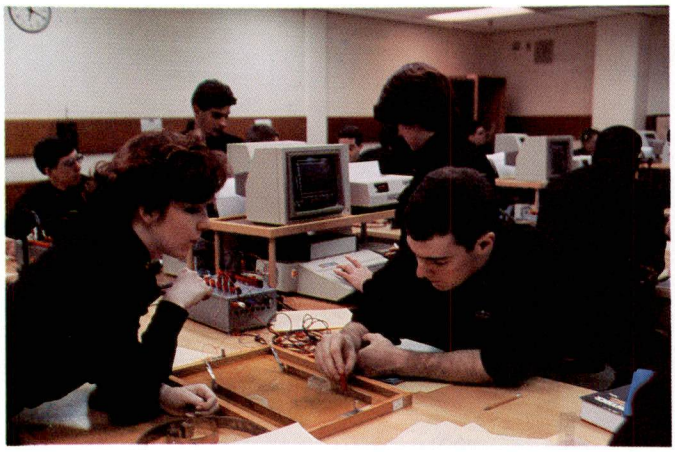
Selected humanities and social science majors with excellent records are invited to enter the rigorous honors programs offered by the departments of economics, English, history and political science.

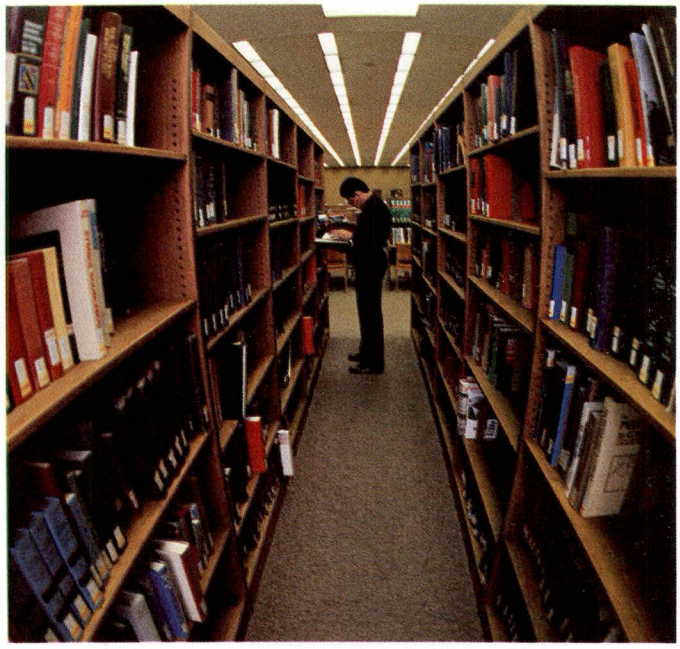
Outstanding students also have the opportunity to engage in independent study and research during their senior year. Those selected as Trident Scholars carry a reduced formal course load so that they can pursue a major research project and prepare a thesis. They are assisted by one or more faculty advisors who specialize in the field of study.

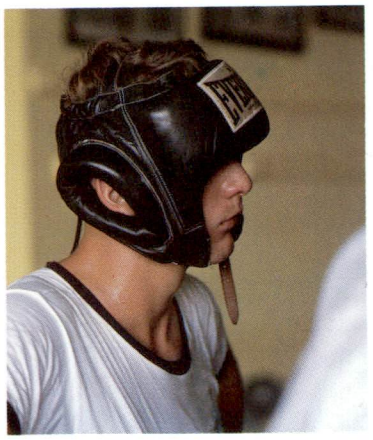
A number of first class midshipmen who complete academic requirements early are encouraged to enroll in graduate classes at area universities. This Voluntary Graduate Education Program gives them the chance to graduate and receive commissions with their classmates, finish their graduate studies locally, and then go to their first assignments with master's degrees.

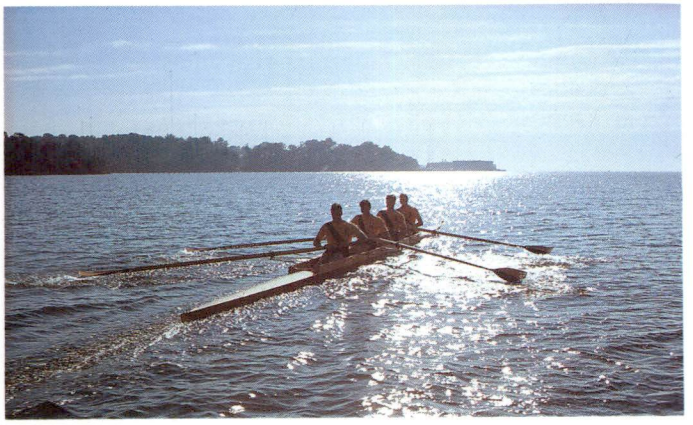
All midshipmen undertake professional military training, beginning on the first day of Plebe Summer and continuing through first class year. This includes classroom studies, drills, and practical training at the Naval Academy and with Navy and Marine Corps units during summer programs. Navigation, seamanship, tactics, naval engineering, weapons, leadership and military law are among the areas studied. To advance and graduate, midshipmen must pass professional competency examinations covering general knowledge and subjects related to their service selection.

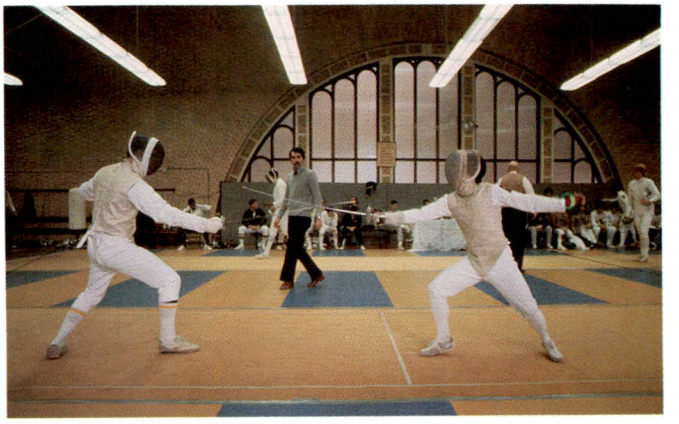
The Naval Academy's physical education program complements academic and professional development of midshipmen. Instruction and training aim to develop individual skills and competitive spirit, lifelong habits of physical fitness, and the capability to withstand physical hardship when necessary. All midshipmen must complete the four-year program, including regular tests in applied strength, swimming, boxing, wrestling, gymnastics, mile run and an obstacle course. Women participate in the same program, except that fencing and hand-to-hand combat skills are substituted for boxing and wrestling.











All midshipmen are required to take part in sports, either at the intercollegiate or intramural level.

These organized athletics further develop fitness, teamwork and competitive spirit, and they also provide an enjoyable, positive release from academic and military requirements.

Thirty-seven intramural sports give every midshipman at the Academy the opportunity to enjoy competitive athletics at different levels of skill. Intramural sports include basketball, boxing, crew, cross-country, fencing, field ball, football and lacrosse. Also offered are powerlifting, racquetball, rugby, sailing, soccer, softball, squash, swimming, team handball, tennis, touch football, track, volleyball, water polo and wrestling. Women midshipmen compete in all intramural sports except football, boxing, lacrosse, field ball, wrestling and rugby. Competition is organized at the company and battalion levels.

Midshipmen meet topflight competition in 33 intercollegiate sports, including 10 for women, all sponsored by the Naval Academy Athletic Association. Navy meets its most time-honored opponent, West Point, in 24 engagements each year. The Naval Academy also meets such teams as Notre Dame in football, Maryland in basketball, Columbia in fencing, Temple in gymnastics, Johns Hopkins and Maryland in lacrosse, Lehigh in wrestling, and Harvard in squash. As a member of the Colonial Athletic Association, Eastern Collegiate Athletic Association, and the National Collegiate Athletic Association, Navy sends teams along the eastern seaboard and occasionally, across the country, for competition with top schools. Navy teams and athletes regularly earn a share of eastern, national and All-America honors.

Sailing

The Naval Academy has an extensive sailing program designed to teach skills and knowledge of seamanship and the sea. These skills are as relevant as ever in bringing a ship safely home to port. By developing better seamen, the Academy's sailing program contributes to the development of better naval officers.

The Naval Academy has one of the finest sailing fleets in the world, from Lasers and knockabouts to ocean racers.

The Division of Professional Development conducts basic training in sailing during Plebe Summer, using the Academy's fleet of 80 Lasers, 30 26-foot Knockabouts, and 12 44-foot Luders yawls. After Plebe Summer, sailing is voluntary on varsity or extracurricular levels.

Twelve J-24's, 30 420's, and 55 sailboards are available to midshipmen and varsity sailing teams for competition and recreation.

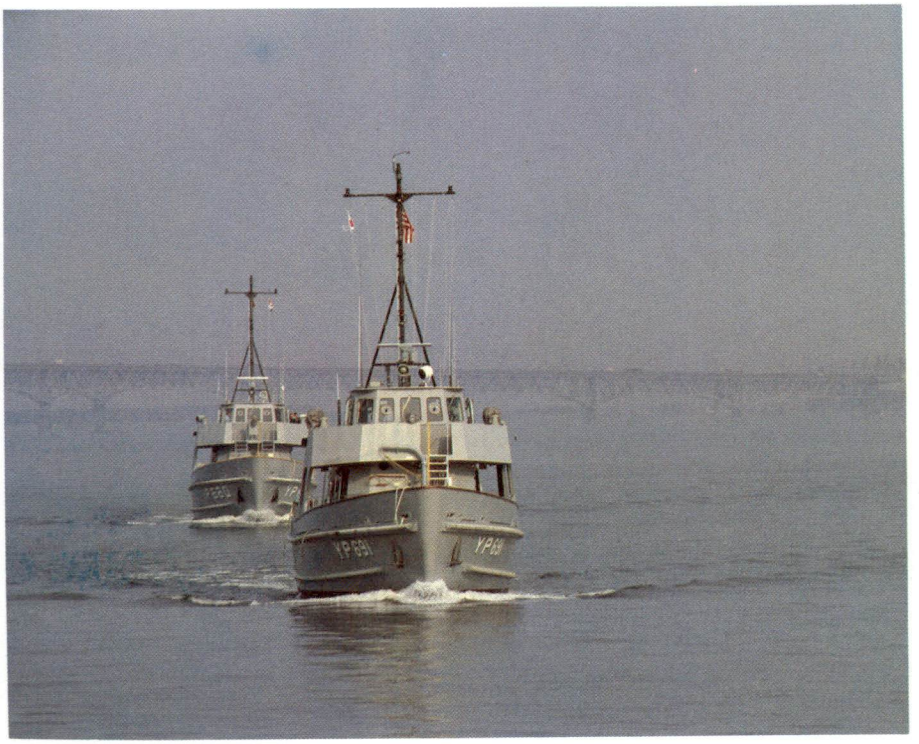
Intercollegiate sailing is conducted by the Naval Academy Sailing Squadron in conjunction with the Naval Academy Athletic Association. The Sailing Squadron sponsors numerous intercollegiate and Chesapeake Bay Yacht Racing Association regattas, including the McMillan Cup and John F. Kennedy Cup regattas. During the summer, the squadron's offshore racing fleet is entered in International Offshore Racing (IOR) and International Measurement System (IMS) class events such as the Annapolis to Newport, RI, Newport to Bermuda-Onion Patch, and Marblehead, MA, to Halifax, Nova Scotia races, as well as several New England race weeks.

The varsity sailing team won the national collegiate sailing championship last year.

Extracurricular Activities

Midshipmen are encouraged to get involved in extracurricular activities (ECAs) that develop academic, professional and personal interests and talents. There are more than 70 activities from which to choose. Academy faculty and staff members and local citizens often take part as sponsors and advisors.

Midshipmen interested in music perform in the Glee Club, the Drum and Bugle Corps, the Trident Brass ensemble, and the Antiphonal, Protestant and Catholic chapel choirs. The Glee Club, as well as the Masqueraders drama group, sponsor annual theatre productions for the community.



Religious organizations range from the chapel choirs to groups such as the Fellowship of Christian Athletes, L'Chaim, Newman Club and the Officers' Christian Fellowship.

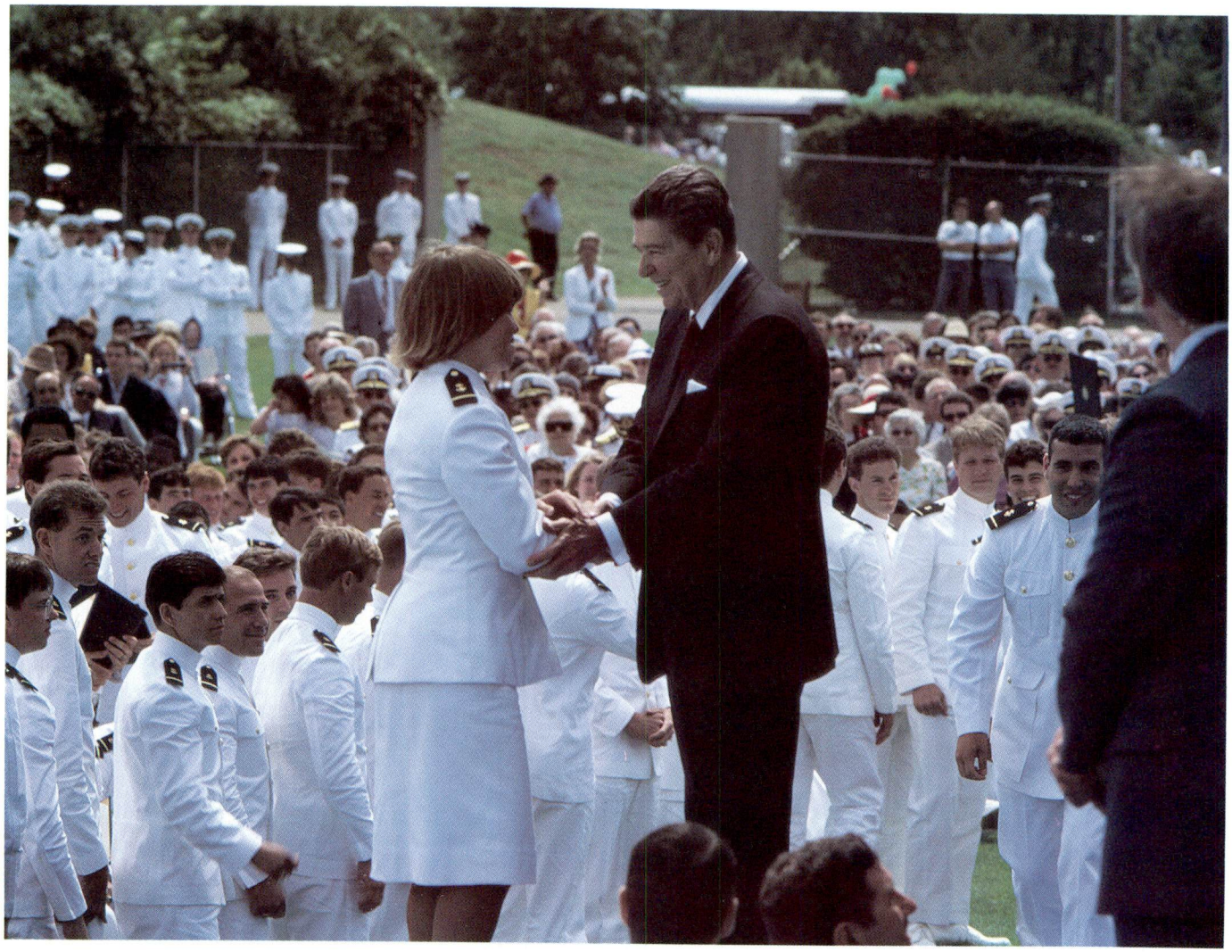
Members of the brigade publish the *Lucky Bag*, the yearbook of each class; the *Log Magazine*, the humor magazine of the brigade; the *Trident Calendar*, embellished by photographs and cartoons; and *Reef Points*, a pocket-sized guide to Academy and Navy organization, lore, and customs for the new plebes.

Dramatic and musical activities involve the Masqueraders and the Glee Club and their supporting groups including the Juice (electrical) Gang. Other interests find expression through such organizations as the Photography Club, the Rugby Club, Karate and Judo Clubs, the Scuba Club, an Ice Hockey Club, Big Brothers-Big Sisters, the Brigade Activities Committee, the Public Relations Committee, Radio Station WRNV, Ring and Crest Committee, and the Bicycling Club, to name only a few.

Academic and professionally oriented activities include the International Club (composed of individual language clubs), Forensic (debate) Club, Chemistry Club, History Club, Black Studies Club and numerous honor societies.

The Naval Academy's Yard Patrol (YP) Squadron gives its volunteer midshipmen members the unique opportunity to test and develop professional knowledge and skills acquired in the classroom while underway on the Chesapeake Bay and its tributaries. The organization and operations of the YP Squadron are similar to those of Navy destroyer squadrons on duty around the world. Each of the squadron's six yard patrol craft is commanded by a midshipman first or second class selected on the basis of seamanship and leadership abilities. The commanding officer and crew of 20, composed of midshipmen from all classes, get underway three afternoons a week and conduct classroom training two other days.

Commissioning



Commissioning Week

Six days of parades, athletic events, colorful ceremonies, formal dances and receptions bring to a climax four years of challenging education and training.

One highlight of Commissioning Week is the Color Parade. Each year, intra-brigade competition is conducted to determine which of the 36 companies stands highest overall on the basis of academics, intramural sports, professional drills and parade performance. During the parade, the color girl, who is selected by the Color Company commander, transfers the flags from the past Color Company to the new one.

The biggest social event of Commissioning Week is the ring dance for the second class midshipmen. An elegant formal affair, it is at this event that the midshipmen begin wearing their class rings.

First class midshipmen and their families attend the superintendent's garden party and reception, plus other social events. Athletic, academic and professional awards are presented in Halsey Field House. The evening before graduation, everyone is invited to attend the farewell ball.

On graduation day, friends and relatives gather with the midshipmen at the Navy-Marine Corps Memorial Stadium. After the diplomas are presented and the oath of office is administered, the senior midshipman of the new first class leads three cheers for "those about to leave us." The graduates, led by the class president, reply with three cheers for "those we leave behind." On the last "hooray" of this cheer, the more than 1,000 graduates toss their midshipmen caps into the air, to be recovered by spectators as mementoes of the occasion. According to tradition, the honor of putting on the new Navy ensign and Marine Corps second lieutenant shoulder devices is shared by mothers and Commissioning Week dates.

After Graduation

Naval Academy graduates have a wide range of career options, by far the broadest offered by any of the service academies. Based on their class standing, qualifications and personal preferences, those choosing Navy commissions may elect surface warfare, submarine service or naval aviation. Others may select fields ranging from cryptology and supply to civil engineering and oceanography. One out of every six Naval Academy graduates may select the Marine Corps, which offers careers in ground combat or aviation.

Academy graduates must serve a minimum of five years on active duty after commissioning. Most find the naval profession personally rewarding and choose to continue in the service beyond those five years.

Naval Academy Organization

The **superintendent of the Naval Academy**, a Navy rear admiral, is responsible to the secretary of the Navy and the chief of naval operations for the direction and administration of the academy. He has six principal assistants, the commandant of midshipmen, academic dean, director of athletics, deputy for operations, deputy for management, and the dean of admissions.

In addition to the advice and counsel of his assistants, the superintendent is aided in the administration of the academy by three major boards.

The **Board of Visitors** consists of leading United States senators and representatives and six persons designated by the president of the United States. They meet annually at the Naval Academy (at least once, usually twice) to inquire into the state of morale and discipline, the curriculum, instruction, physical equipment, fiscal affairs, academic methods, and related matters. They submit a written report of recommendations to the president of the United States.

The **Academic Advisory Board** is composed of distinguished members of the educational community, business leaders and selected naval officers, all appointed by the secretary of the Navy. As its name implies, this board concerns itself primarily with academic matters and makes its comments and recommendations to the superintendent. A third group, the **Academic Board,** meets often to make major academic decisions at the Naval Academy. It is composed of the superintendent, the commandant, the academic dean, and the five division directors. The dean of admissions serves as secretary.

Second in command at the Naval Academy is the **commandant of midshipmen**, a one-star rear admiral or senior captain. He commands the 4,500-member Brigade of Midshipmen and directs military-professional training. This training includes courses at the Academy as well as operational training with fleet units. Principal assistants to the commandant include the deputy commandant, director of professional development, heads of the physical education, medical, dental, and midshipmen supply departments, and senior-ranking midshipmen.

The **academic dean** is the principal advisor to the superintendent in all matters relating to the academic program and faculty. He manages the academic program with the assistance of the directors of the four academic divisions: Engineering and Weapons, English and History, Mathematics and Science, and U.S. and International Studies.

Also under the dean's charge are the library, Educational Resources Center and the archives. His principal assistants are the vice academic dean, the associate dean for administration, the director of research, the assistant dean for academic affairs, the assistant dean for faculty and finance, and the registrar.

The Naval Academy faculty is an integrated group of about 600 military officers and civilians in approximately equal numbers. The officers, rotated at intervals of about three years, bring a continuing input of new ideas and experience from the fleet. The civilians provide a core of professional scholarship and teaching experience as well as continuity to the Academy's educational program.

More than 100 colleges and universities are represented in the backgrounds of the Academy's faculty. Most officer faculty members are Navy or Marine Corps officers, but all of the Armed Forces plus the State Department and the National Aeronautics and Space Administration (NASA) are represented. Foreign officers also serve with the faculty through exchange programs, some instructing in their native languages and giving midshipmen an early insight into the international aspects of the naval profession.

The **deputy for operations** is responsible for such administrative and logistic support functions as public works, supply, security, safety, fire protection, communications, civilian personnel, Family Service Center, officer personnel, administration, some legal matters, and the museum.

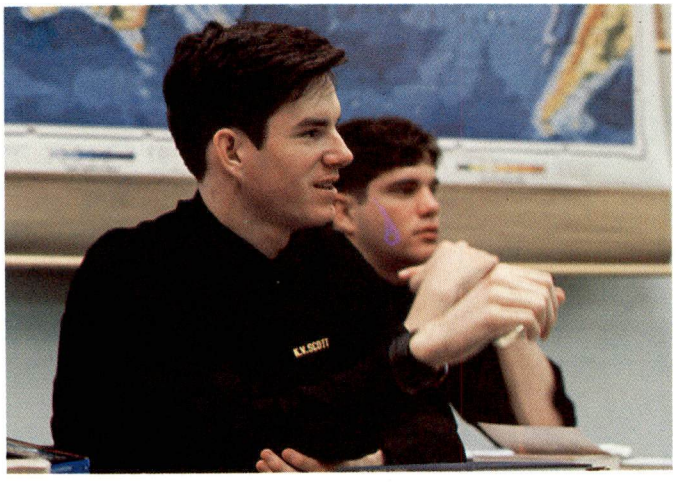
The **deputy for management** is responsible for the maintenance of an integrated management system which includes management planning, systems management, resource management and management control.

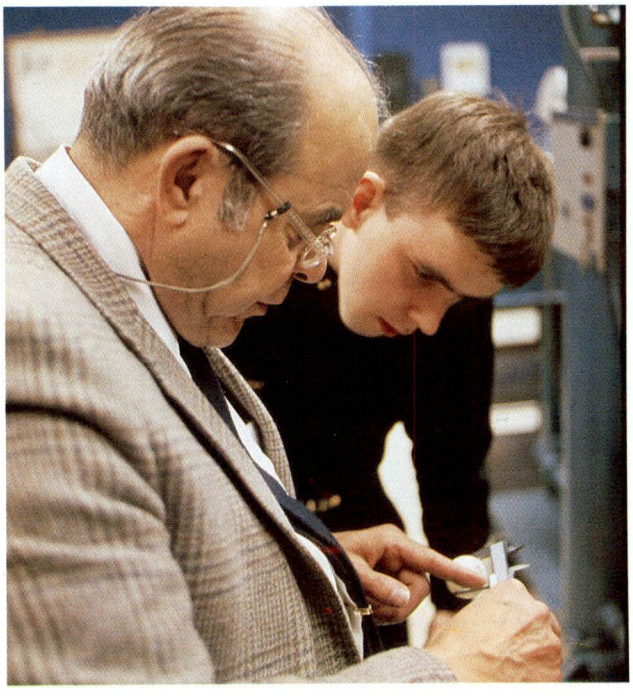
The **dean of admissions** coordinates all matters relating to recruiting, guidance, and selection of candidates for appointment as midshipmen. His director of candidate guidance is responsible for the counseling of and dissemination of information to prospective midshipmen. He directs the nationwide Naval Academy Information Officer ("Blue and Gold") Program.

The **director of computer services** oversees Naval Academy computer facilities, which include time shared multi-computer systems; an extensive library of computer programs available for use by all midshipmen, staff and faculty; and special programs, such as war gaming, computer aided design and interactive video, used in Academy classes. Computer services personnel help Naval Academy departments develop computer systems to meet their needs. Hardware and software are available for check-out, and special training courses are offered year around.

The **director of athletics** heads the Naval Academy Athletic Association. This non-profit organization, founded in 1891, sponsors and manages the intercollegiate sports program for the midshipmen. The program is supported entirely from non-appropriated funds.

Academic Divisions





The **Division of Engineering and Weapons** provides midshipmen with an excellent undergraduate engineering education, teaching them to approach problems analytically and developing their technical judgment. Theoretical and practical engineering knowledge required of all naval officers is taught. Interested midshipmen can undertake in-depth studies in the fields of aerospace, electrical, general, marine, mechanical, ocean, and systems engineering, and in naval architecture. Professional applications of engineering, stressed during summer at-sea training with the fleet, complement classroom and laboratory work at the Academy.

Laboratory facilities include a sub-critical reactor, wind tunnels, analog and digital computer technology laboratories, thermo and fluid dynamics laboratories, and structure laboratories. In addition, the Rickover and Maury Hall complex houses:

* A 380-foot tow tank with wavemaker, dry dock, towing carriages and major data acquisition system.
* The Marine Propulsion Lab with a working model of ship's steam propulsion plant.
* A neutron source and pulse generator in support of studies in nucleonics.
* The Aero Propulsion Lab with test stands for demonstrating the operating characteristics of full-size rocket, turbine and reciprocating engines.
* A Computer-Aided Design and Interactive Graphics Center (CADIG).

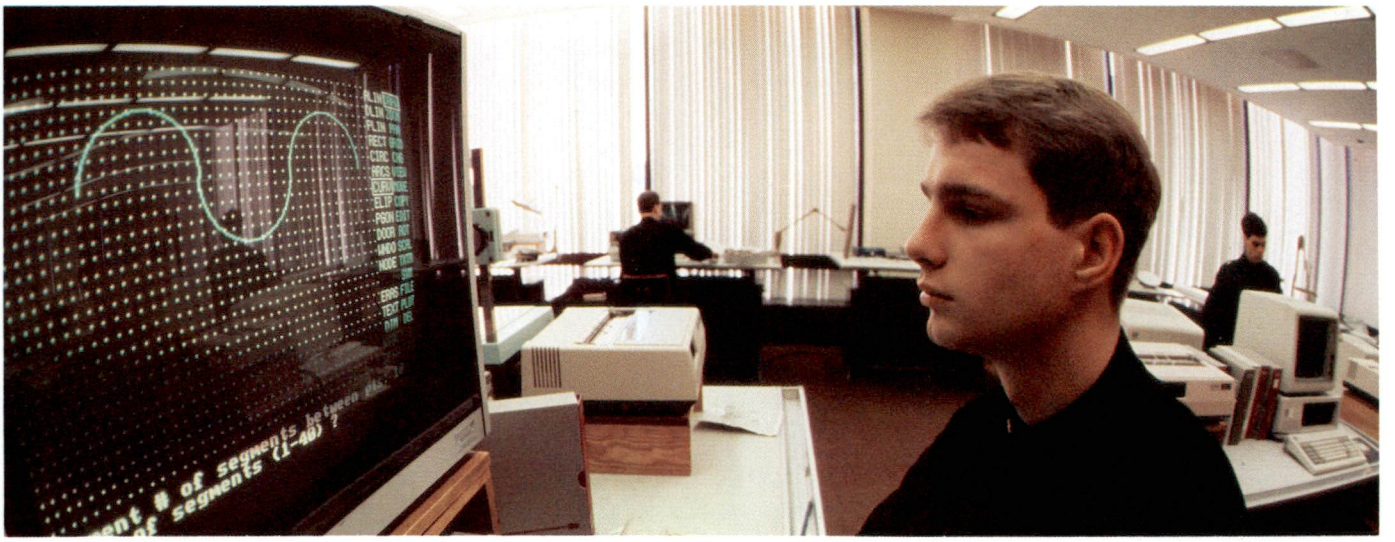
The Division of Engineering and Weapons has five departments in aerospace, electrical, mechanical, naval systems, and weapons and systems engineering.

The **Division of English and History** is located in Sampson Hall. Its history department teaches midshipmen about sea power and the development of civilizations and states. These courses give future officers a better understanding of important current social and political situations and perspective on the future role of sea power.

The English department offers courses that emphasize the effective oral and written communication of ideas, as well as the study of significant works of ancient and modern literature. Midshipmen are given frequent opportunities to develop effective writing techniques and to broaden their awareness of different cultures.

The Division of English and History sponsors a number of extracurricular activities open to all midshipmen, including the cultural affairs program. Created to enrich life at the Academy and to stimulate a lively interest in the performing arts within the brigade, it offers opportunities for midshipmen to attend professional productions of dramas, operas, symphonies and ballets in nearby Washington and Baltimore.

The **Division of Mathematics and Science** includes five departments: mathematics, physics, chemistry, oceanography and computer science. The mission of the division as a whole is to impart basic concepts and theories of the primary sciences through classroom lectures, and reinforce these concepts through the use of the division's extensive laboratory facilities. The study of fundamental principles is emphasized throughout the division's courses, which comprise the largest part of the core curriculum studied by all midshipmen. More than 40 percent of all midshipmen also are enrolled in one of the majors administered by the division.



The mathematics department, the largest single department at the Naval Academy, teaches all midshipmen fundamental mathematical concepts, giving them the facility to use mathematics in solving practical problems in other courses.

The physics department offers a major in physics for midshipmen interested in laying a strong foundation for later specialization in a broad range of technical fields.

Chemistry is the most laboratory-oriented program at the Academy, offering midshipmen the opportunity to experiment and observe as they pursue the scientific method.

The oceanography major provides basic special knowledge of the ocean environment and its impact on naval operations.

The computer science department provides basic instruction in computer programming for all midshipmen, as well as advanced training on state-of-the-art computer hardware for those midshipmen seeking a major in computer science.

The Michelson-Chauvenet Hall complex, completed in 1968, is one of the finest facilities of its kind in the country. Many innovations in classroom, lecture room and laboratory design are featured. Full use is made of remote computer terminals and audio-visual teaching aids, including closed circuit television.

An observatory with a 16-inch telescope, located on the roof of Michelson Hall, supports courses in astronomy and astrophysics. A weather data center includes charts, satellite facsimile pictures and other meteorological information. The Hendrix Oceanography Lab, a new, fully equipped waterfront facility, and a uniquely configured patrol boat are used for field studies in oceanography.

The **Division of Professional Development** is responsible for formulating standards of professional expertise and monitoring the professional development of midshipmen throughout their four years of training, with a goal of providing the Navy with fully prepared young officers ready to meet fleet requirements.

The division includes the departments of leadership and law, seamanship and navigation, and professional programs. The division plans and controls professional training of midshipmen from their first course in basics of naval science through a sequence of classroom instruction, practical experience and shipboard training.

Academic courses present the fundamentals and techniques of naval leadership, military law, navigation and the basic elements of naval operations. These courses are complemented by practical instruction on the yard patrol craft (YPs), single-screw motor launches and on a variety of in-shore and off-shore sailcraft. YPs are equipped to provide training and instruction in fleet operating procedures, seamanship, navigation, basic engineering, communications and tactics. They also have open water cruising capability.

Summer training with fleet units is planned, developed and controlled through the division's professional programs department. Each summer, midshipmen travel throughout the world for training and indoctrination ashore and afloat, allowing them the opportunity to apply their newly acquired skills and gain additional professional credentials.

The Division of Professional Development operates primarily out of Luce Hall. In addition to classrooms, Luce Hall contains two seamanship laboratories, four fully equipped operational trainers for instruction in basic command and control procedures, a navigation laboratory for electronic navigation instruction, and the newly installed Navy Tactical Wargaming (NAVTAG) Center. Also, a multi-media planetarium gives celestial navigation students a three dimensional look at the stars.

The **Division of U.S and International Studies** educates midshipmen in the U.S. and economic system, and the complexities and dynamics of international relations. The departments of political science, economics and language studies are included in the division.

The political science department offers courses designed to make prospective naval officers more conversant with the political characteristics of this country and the international environment.

The economics department acquaints prospective officers with the economic institutions and problems of the U.S. and international economic relations.

The language studies department offers courses in French, German, Spanish, Russian and Chinese at levels ranging from introductory to advanced. These courses offer midshipmen an opportunity to develop proficiency in a language and, at the more advanced levels, to gain a fuller understanding of other peoples and cultures.

Touring the Yard

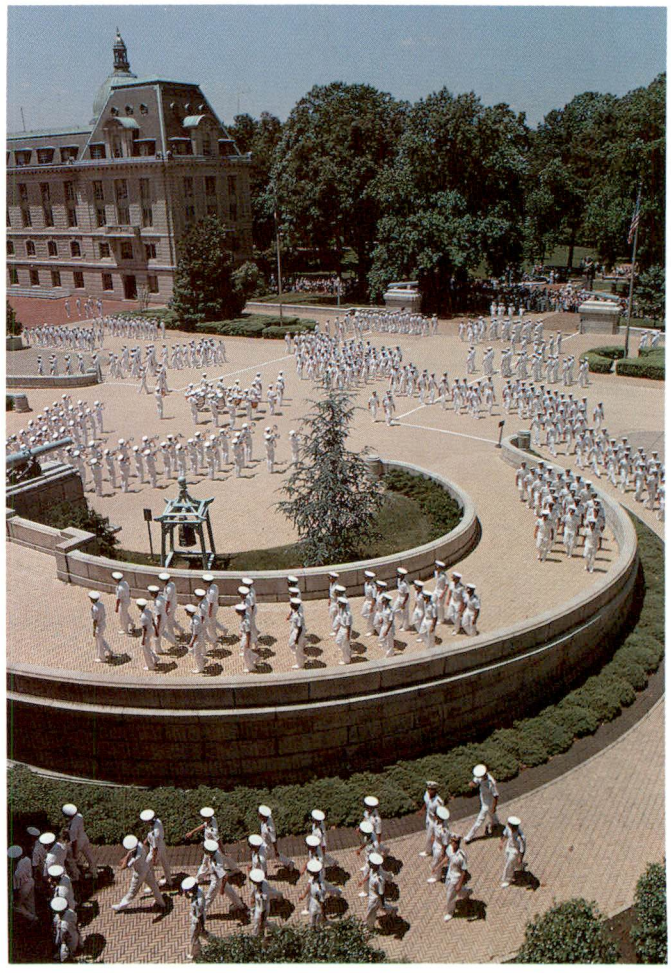
The Naval Academy is a national tourist attraction. Many of its buildings, as well as numerous statues and monuments, represent highlights in the history of the naval service and the Naval Academy. Several buildings and most areas of the Yard (as the campus is known) are open to visitors from 9 a.m. to sunset. Academic buildings and residences are closed to the general public, except on special occasions.

The Marine Corps, as well as the Navy, is represented at the Naval Academy. The Marine Barracks, quartered across the Severn River, provides the honor guard for the superintendent and Marine guards at the tomb of John Paul Jones and at the Naval Academy Museum, which are open to the public.

Ricketts Hall, named for Admiral Claude Ricketts, was completed in 1966. It houses the Visitor Information Center which includes a tour guide service and gift shop. Ricketts Hall also holds the offices of the Naval Academy Athletic Association as well as offices for the football coaches, ticket offices for Navy athletic events, and dormitory facilities for visiting athletic teams.

The 80,000 square foot **Halsey Field House**, completed in 1957, is used for sports and physical training. Many offices of the physical education department are in this building, which also boasts squash and tennis courts, a 6,000-spectator basketball court, a 200-meter synthetic track and a display of sports trophies. The field house was named after Fleet Admiral William Halsey Jr., a Class of 1904 Naval Academy graduate, and a World War II naval hero.

The **Lejeune Physical Education Center** is the first building in the Yard named for a Marine Corps officer, Major General John Lejeune. It was completed in 1981, and its facilities include an Olympic-size pool and six practice wrestling rings. The center is also equipped for television



coverage of various meets. The building houses an impressive indoor swimming pool, as well as a weight room, saunas, men's and women's locker rooms, and a sports trophy area.

Ward Hall is home to the Academy computing center. Ward Hall was named after Commander James Ward, first commandant of midshipmen.

Adjacent to Ward Hall, **Dahlgren Hall** provides additional recreational facilities for the midshipmen, including an ice rink and restaurant open to Academy visitors. Dahlgren Hall, named for Rear Admiral John A. Dahlgren -- inventor of large naval guns, is also the site of many dances and other special events during the year.

Some of the world's most distinguished figures, including presidents of the United States and members of royalty, have been guests in **Buchanan House**, the residence used as the superintendent's quarters. The lovely garden at the rear of the building is the site of many special events including the Commissioning Week garden parties. Buchanan House was named after Commander Franklin Buchanan, the first Academy superintendent.

Bancroft Hall, named after former Secretary of the Navy George Bancroft, is home for the entire brigade of 4,600 midshipmen. It contains 1,873 midshipmen rooms, nearly five miles of corridors and about 33 acres of floor space, making it one of the largest single dormitories in the United States. All of the basic facilities midshipmen need for daily living, and many for recreation, are found in the hall.

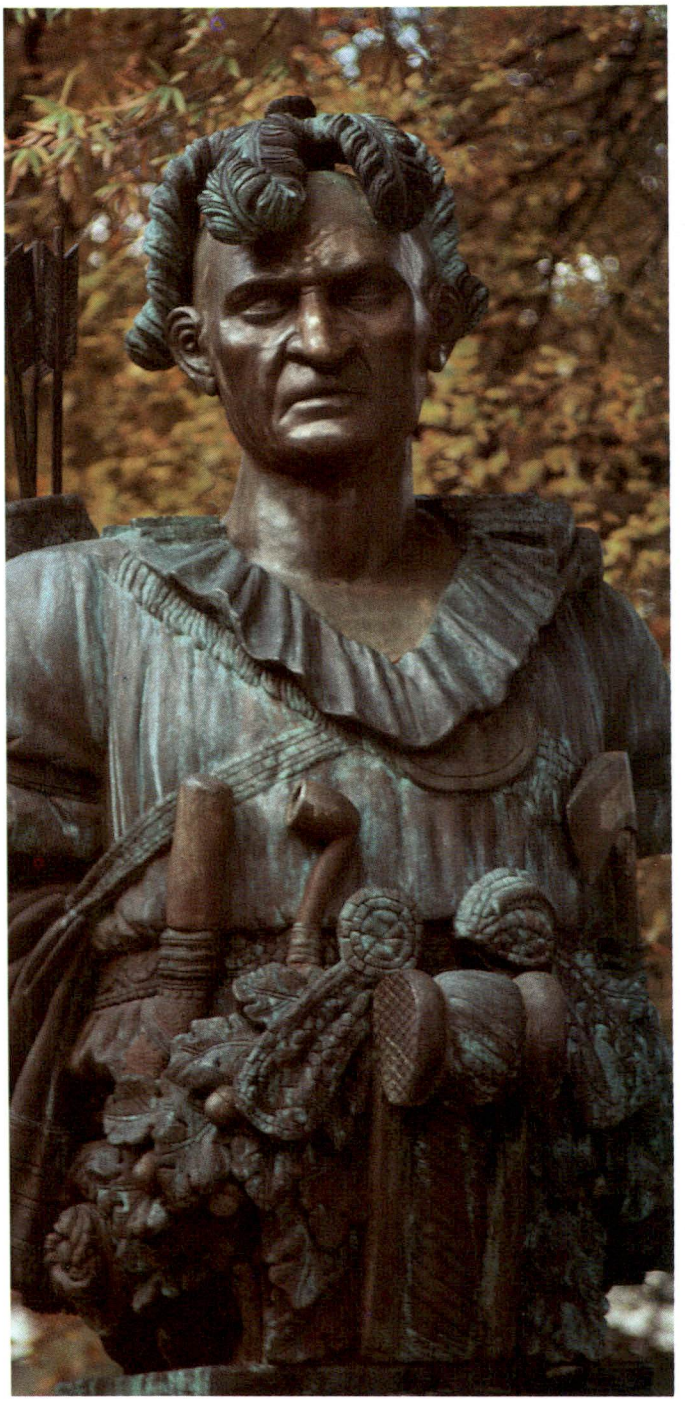
Although the living areas of Bancroft Hall are off limits to visitors, several other areas are open. These include the vast rotunda and Memorial Hall, dedicated to alumni killed in action. Near the Main Office, visitors can see a sample midshipmen room, as well as displays describing Academy life.

King Hall is named after Fleet Admiral Ernest J. King, the chief of naval operations from 1942-45 and one of the shapers of American global strategy. Located under the roof of Bancroft Hall, King Hall is one of the largest dining areas in the world, encompassing some 55,000 square feet. Each day nearly 13,000 hot meals are served in the wardroom. When the 4,500 midshipmen sit down for dinner simultaneously at 372 tables, they all are served within three minutes. The wardroom's nutritionally balanced daily diet approximates 4,000 calories per midshipman.

Mitscher Hall is located between Bancroft Hall's seventh and eighth wings and contains the Chaplain's Center, an auditorium, and an interfaith chapel. Mitscher Hall honors World War II Pacific strike force commander Admiral Mark Mitscher.

Perhaps the best known of all monuments in the Yard is that of the Indian warrior, **Tecumseh**. As "lord of football games" and "God of 2.0," he has for years received a deluge of pennies and left-handed salutes as midshipmen pass by to exams or football games. Before the traditional game against Army, he is bedecked in full warpaint.

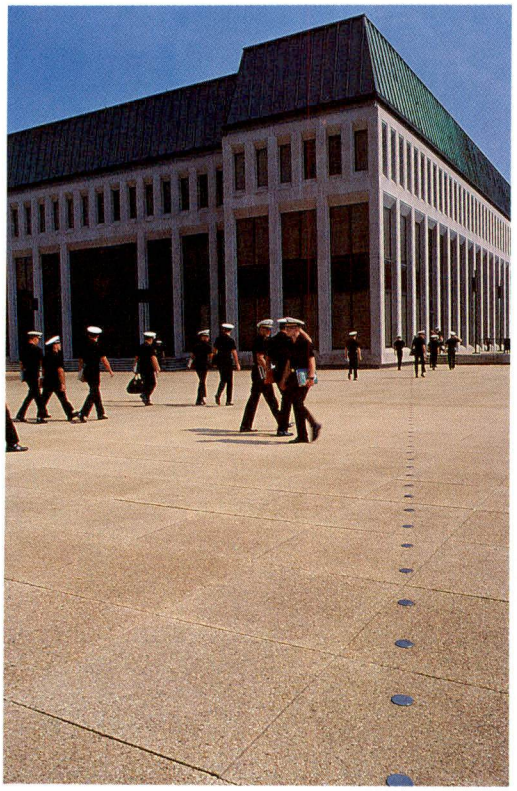
The figurehead, really of Tamanend, a Delaware chief, was brought to the Academy after the ship-of-the-line USS Delaware was scuttled. It was given several names before Tecumseh was generally accepted. When Tecumseh began to weather, the Class of 1891 replaced his timbers with bronze and the original figurehead was moved into the field house.

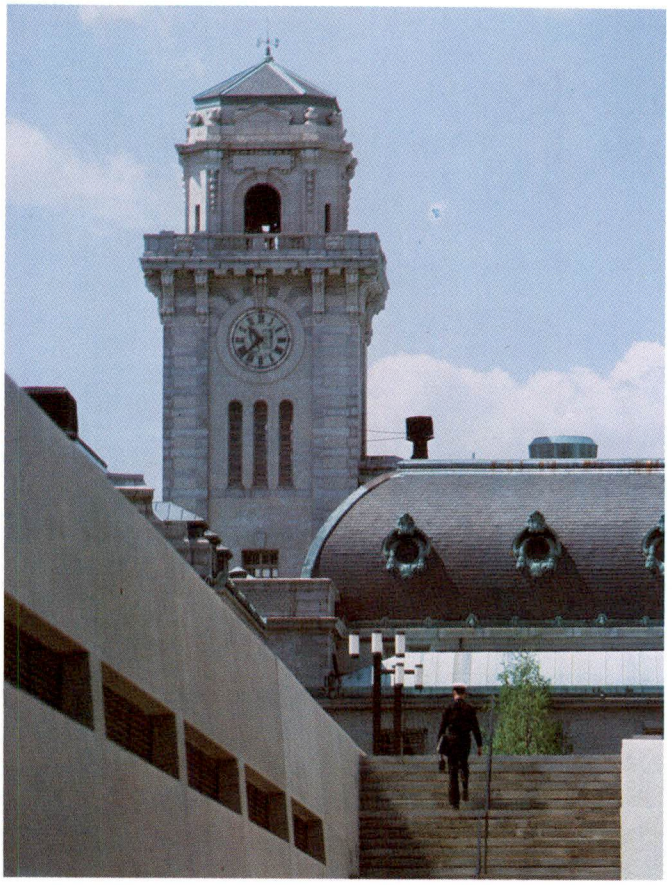


Tecumseh Court, the area at the front of Bancroft Hall, is one of the most photographed spots at the Naval Academy. It is the scene of pep rallies and innumerable formations. The noon formation of the Brigade of Midshipmen is held in the court whenever the temperature is 55 degrees or warmer. If the weather is too cold, or if it is raining, formations are held inside Bancroft Hall. The brigade forms at 1210 weekdays and Saturdays, and 1230 Sundays and holidays. Visitors are always welcome to view meal formation in Tecumseh Court.

A small plaque in the center of Tecumseh Court marks the site of Recitation Hall, where classes were first held at the Naval Academy.

Touring the Yard





Chauvenet and Michelson Halls house the Division of Mathematics and Science. The former is named after Professor William Chauvenet, one of the original seven faculty members when the Academy was founded in 1845. The latter honors Albert Michelson, a graduate of the Class of 1873, and the first American scientist to receive the Nobel Prize for physics.

Radford Terrace is named for the late Admiral Arthur Radford, Naval Academy Class of 1916, and chairman of the Joint Chiefs of Staff during the Eisenhower administration. Dedicated in May 1985, the terrace offers a sweeping view of the Academy grounds and chapel on one side, and the Severn River on the other.

Maury Hall, named for distinguished 19th century oceanographer Matthew Fontaine Maury, hosts the electrical engineering and the weapons and systems engineering departments.

Mahan Hall, which includes the Academy's largest auditorium, is named for the naval historian Alfred Mahan. Theatre productions, concerts and other cultural events, many open to the public, are staged in Mahan Hall. Also located in Mahan Hall is a reception area dedicated to Admiral Thomas Hart, Naval Academy superintendent from 1931-1934.

The Division of English and History is located in **Sampson Hall**, which was named after Rear Admiral William Sampson, commander of naval forces in the Spanish-American War, and a former Academy superintendent.

Rickover Hall, the center of the engineering studies complex, houses the Division of Engineering and Weapons and recognizes Admiral Hyman Rickover, father of the nuclear Navy.

The Division of U.S. and International Studies is located in the **Nimitz Library** building. The Naval Academy library is named after Fleet Admiral Chester Nimitz, commander-in-chief of the Pacific fleet in World War II. The library includes the Park Benjamin collection of 1,200 rare books dealing with the history of electricity and the 5,000-volume Harry Guggenheim collection containing the works of rocketry pioneer Dr. Robert Goddard. The library also has one of the world's great naval history collections.

The Naval Academy Museum, located in **Preble Hall**, contains artifacts of some of the most important episodes in our nation's history. Its collection of more than 50,000 individual items -- an important reference source for the teaching of naval history -- contains some of the finest ship models in the world, including the outstanding Rogers Collection. There is also a superb collection of maritime paintings, a large collection relating to the life and career of John Paul Jones; the table from the mess deck of the battleship Missouri on which was signed the instrument of surrender ending World War II; and the Beverly R. Robinson Naval Battle Print Collection, which depicts naval history and the history of print-making from 1500 to the present.

Preble Hall is also home to the Naval Institute, which publishes books and monthly magazines on the subjects of navigation, seamanship, naval science and engineering.

Most of the Academy's valuable collections are located within the museum, but other items of interest are located in the chapel, Memorial Hall and in other buildings throughout the Yard. Museum items in Bancroft Hall include the flag hoisted by Commodore Oliver Hazard Perry at the Battle of Lake Erie on which were emblazoned the

immortal words, "Don't Give Up the Ship!"

Preble Hall is named after Commodore Edward Preble, commander of the naval attack on the Barbary stronghold of Tripoli in 1804.

Behind Preble Hall are the **Tripoli Monument** and **Leahy Hall**. The Tripoli Monument, one of the oldest monuments at the Academy, honors six young naval officers killed off the African coast in 1804 during the war with the Tripolitan pirates. Leahy Hall, named after Fleet Admiral William Leahy, provides offices for the dean of admissions, the registrar and the director of candidate guidance. The Candidate Guidance Office is the source for information about how to apply to enter the Naval Academy.

Worden Field is the scene of weekly dress parades during the fall and spring. It is named for Rear Admiral John Worden, who commanded the Monitor during the Civil War.

Hubbard Hall, the boathouse, is located on Dorsey Creek. It was the first Academy building to be named in honor of a living man -- Rear Admiral John Hubbard, Class of 1870, stroke on the crew team at that time.

Many of the offices providing logistic and administrative services to the Academy are in **Halligan Hall**, located by Gate #8. Halligan Hall, named after Rear Admiral John Halligan, was built in 1903. Halligan was the first director of the Naval Postgraduate School when it was located at the Academy.

Heading back toward the chapel and Maryland Avenue, the Officers' and Faculty Club is located across from Leahy Hall and is distinguished by its blue and white canopy.

The **Administration Building** near Gate #3 houses the offices of the superintendent and members of his staff. Across the street from the Administration Building is **Herndon Monument**, dedicated to the memory of Commander William Herndon, who elected to go down with his ship when she sank.

The **Naval Academy Chapel**, with its copper-covered dome towering 192 feet, is the most imposing building in the Yard. Designed by Ernest Flagg, the cornerstone was laid in June 1904 by Admiral George Dewey. The chapel was completed in 1908. An addition was dedicated in 1940, increasing the seating capacity to 2,500 and changing the basic design from that of a Greek Cross to that of a Roman Cross. The much smaller St. Andrew's Chapel is located directly beneath the main chapel.

The massive entrance doors were designed by Evelyn Beatrice Longman in a competition sponsored by the National Sculpture Society. Many of the large stained windows were made in the studios of Louis Comfort Tiffany, the famous American designer. The chapel also houses the crypt of John Paul Jones. Originally buried in Paris in 1792, Jones' body was located by the American ambassador to France in 1905. He was brought to the Naval Academy, and in 1913 enshrined in the sarcophagus of Grand Antique des Pyrenees Marble, sculpted by Sylvain Salieres. It is a fitting resting place for the gallant officer who gave the Navy its earliest traditions of heroism and victory. The crypt is open from 0900 to 1650 daily except Sunday, when the hours are 1200 to 1650.

In John Paul Jones' crypt is his commission as a captain, signed by John Hancock; his membership certificate in the Society of Cincinnati, signed by George Washington; and the dress sword presented to him by King Louis XVI of France.

Down on the Severn River is the **Robert Crown Sailing Center**, the focal point of all sailing activities at the Naval Academy and home of the Intercollegiate Sailing Hall of Fame. The center was named in honor of Captain Robert Crown, a former president of the Navy League and important supporter of the Naval Academy.

Near the Triton Light Point are a monument to World War II submarines and the foremast of the USS Maine, whose destruction in Havana Harbor in 1898 led to the Spanish-American War. The mainmast of the Maine is located in Arlington National Cemetery, making her the "longest ship in the Navy."

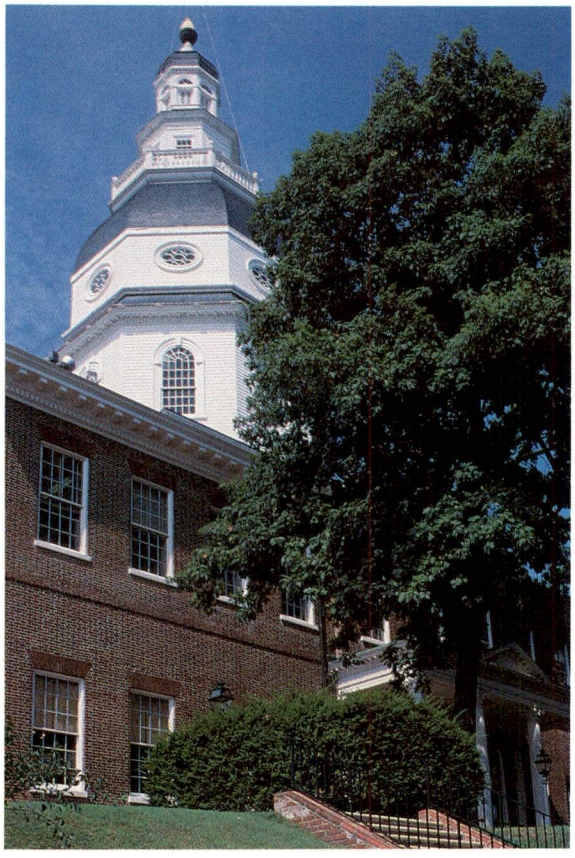
The **Hendrix Oceanography Laboratory** is a multi-function facility which features a wet laboratory and classroom space. Tanks, continually circulating salt water from the Severn River, offer a study of the living environment of the Chesapeake Bay. The laboratory was dedicated in1985, in memory of the late Captain Charles Hendrix, a 1939 Academy graduate and a specialist in submarines and undersea warfare.

Luce Hall is the home of the Division of Professional Development, responsible for leadership, law, seamanship and navigation instruction. Luce Hall was named after Rear Admiral Stephen Luce, founder of the Naval War College and author of a basic navigation book. In front of Luce Hall is the **Hirosi Saito Monument** which was given to the Academy by the family of a former Japanese ambassador to the United States.

Macdonough Hall houses facilities for soccer, lacrosse, gymnastics, fencing, boxing, 150-pound football, and volleyball. The hall was named after Commodore Thomas Macdonough, who served under Preble in the War with Tripoli and distinguished himself in the War of 1812 by destroying a British flotilla of 14 vessels.

While not in the Yard proper, but of great significance, the **Navy-Marine Corps Memorial Stadium** is located in West Annapolis off Rowe Boulevard. This 30,000 seat stadium was financed entirely by private donations.

Dedicated in September 1959, the stadium has seating on both sides of the playing field which provides for ease of entry and exit, nearness to the playing field, and maximum visibility for all spectators. It also hosts outdoor graduation ceremonies.

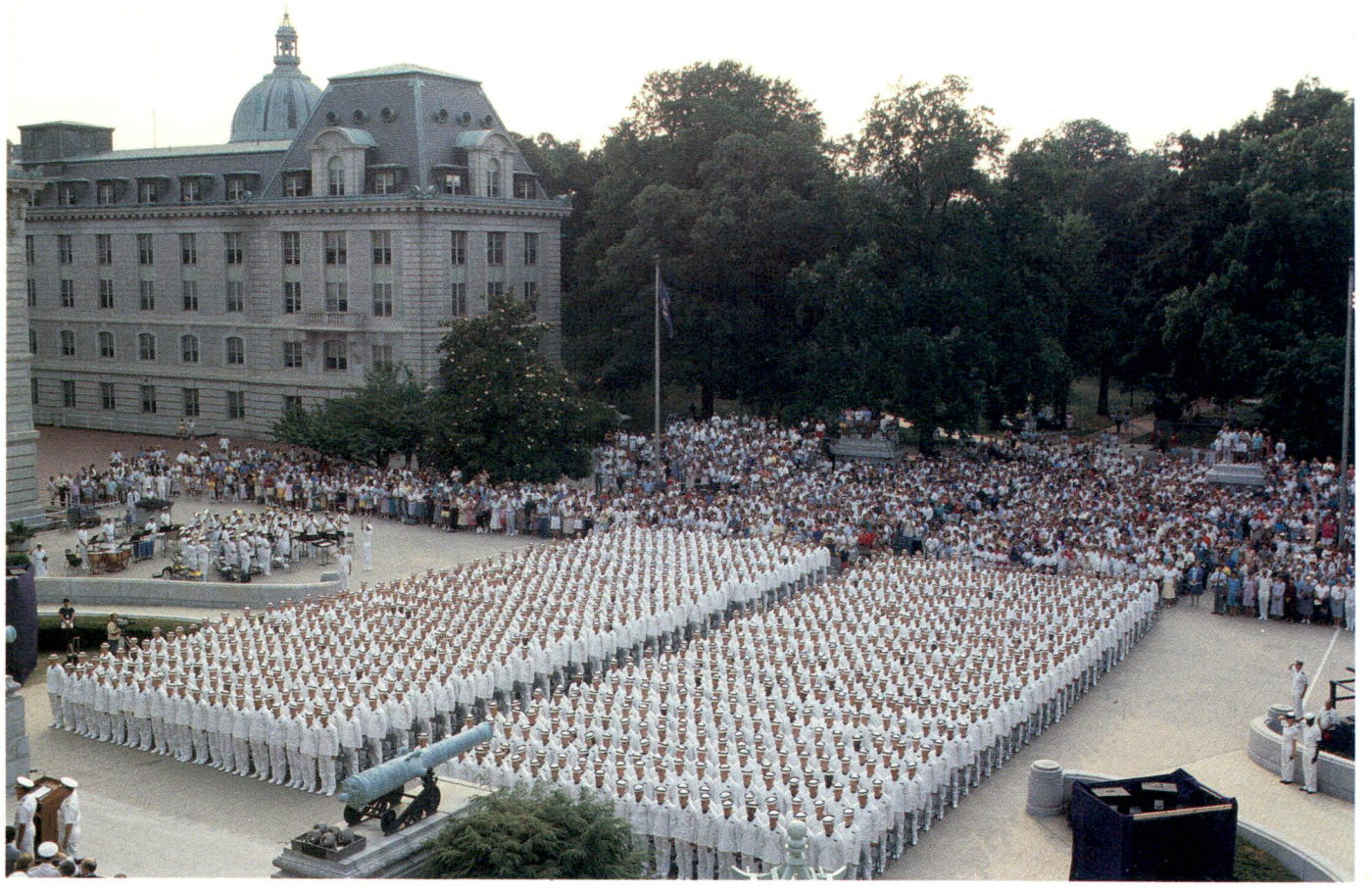


The lovely and historic city of Annapolis is the capital of Maryland as well as the seat of Anne Arundel County. In 1694, a new capital for the Province of Maryland was laid out, replacing the original capital in St. Mary's City. Annapolis, named to honor Queen Anne of England, was granted a royal charter as a city in 1708. Annapolis can also lay claim to having been a capital of the United States. From November 1783 to August 1784, the Continental Congress met in the State House. It was here that they accepted George Washington's resignation as commander-in-chief and ratified the Treaty of Paris, which ended the Revolutionary War.

The heart of downtown Annapolis has also been designated a National Historic District. Many fine examples of colonial architecture, including the State House, Hammond-Harwood House, Chase-Lloyd House and the William Paca House and gardens, are open to visitors.

From its earliest days, Annapolis was also a busy port. Though hogsheads of tobacco are no longer rolled to the dock for transport, the water still plays a vital role in the city's economy. With some 2,500 sailboats homeported in the harbor, it is no surprise that Annapolis is called the Sailing Capital of the East. The city dock is the focal point of the Annapolis waterfront. Workboats outfitted for harvesting crabs and oysters are tied up next to sailing yachts and power boats. During mild weather, the dock is the scene of concerts, boat shows and festivals. You can treat yourself to a crabcake sandwich from a local market and then watch the activity on the dock. Or, for a more formal dining experience, take a watertaxi to one of the harborside restaurants. Don't let the small size of Annapolis (38,000 pop.) fool you. There are plenty of diversions -- fine restaurants, boutiques, sailboat races, live theatre, art galleries and interesting museums -- all of which combine to make Annapolis a delightful place to call home.

Three services offer guided tours of Annapolis: Historic Annapolis Tours, Inc., in the old Treasury Building on State Circle (267-8149); Three Centuries Tours of Annapolis, 48 Maryland Avenue. (263-5401); and Town Crier, 3 Church Circle (263-7330). Tours of the Naval Academy offered by the Naval Academy Guide Service begin from Ricketts Hall (267-3363).



Becoming a Midshipman

With midshipmen from all 50 states, the Naval Academy offers a unique opportunity to associate with a cross section of the country's finest young men and women. Pulling together, midshipmen pursue a four-year program that develops them mentally, morally and physically as no civilian college can. As one might expect, this program is demanding, but the opportunities are limitless and more than worth the effort.

Graduates of the Naval Academy include a former president of the United States, the first American scientist to receive a Nobel Prize, more than 25 Rhodes Scholars and 30 NASA astronauts and mission specialists. Of course, the Academy is first and foremost a professional college for future Navy and Marine Corps officers.

As the undergraduate college of the Navy, students learn in a military as well as an academic environment. The life definitely is not for everyone, but many welcome the multi-dimensional challenge, what the Academy stands for and where it leads. From the day young men and women take the oath as midshipmen, they are pursuing a college education *and* preparing for a career.

A program that does so much in four years must be very demanding, but it isn't impossible for anyone with the qualifications and motivation. More than 75 percent of those entering the Academy successfully complete the four-year program.

The admissions process helps to ensure that every new midshipman has the capability to meet the academic, physical and professional challenges of the Naval Academy. In considering candidates who are competing for appointment, the Academy's Admissions Board takes into account the quality of the secondary school record, any additional studies, SAT or ACT scores, extracurricular activities, athletics, honors and awards, employment outside school hours and the results of the Strong Interest Inventory (a standardized test provided and scored by the Naval Academy.) The Admissions Board also considers recommendations of teachers, guidance counselors, principals, coaches, Naval Academy Information Officers and others who know firsthand about a candidate's accomplishments, potential and movitation for a career in the naval service.

Steps Toward Admission

There are six basic steps to becoming a midshipman: Candidates must (1) meet the basic eligibility requirements, (2) obtain a nomination, (3) qualify academically, (4) qualify medically, (5) qualify physically, and (6) be selected by the Academy for admission. These steps are explained in more detail below.

(1) Basic eligibility: Applicants must be U.S. citizens of good moral character, at least 17 years old and not past their 22nd birthday on July 1 of the year they enter the Academy. They must be unmarried, not pregnant, and have no legal obligation to support a child, children or other individuals.

(2) Obtaining a nomination: Nominations are usually obtained from members of Congress. The first step is to apply for a nomination to the representative from the

congressional district and both senators representing the state. Applicants don't have to know a congressman personally, nor do they need political influence to receive fair consideration. Strong, well-rounded students have little difficulty getting a nomination. Other sources of nomination include the president, vice president and secretary of the Navy. See the Naval Academy catalog for more information, or call the Candidate Guidance Office for assistance.

(3) Qualifying academically: This process begins when the pre-candidate questionnaire (PCQ) is returned to the Candidate Guidance Office. If their class standing and SAT or ACT scores are satisfactory, applicants will be scheduled for medical exams and mailed candidate packets. The Admissions Board considers the applicants' records and candidate packets. At this time, the high school transcript is carefully evaluated. It should include all or most of the following: four years of math (including trigonometry), four years of English, two years of a modern language and a year each of chemistry and physics.

(4) The medical examination: Applicants will be scheduled for medical examinations as soon as the Admissions Office determines they have a reasonable chance of qualifying academically. Unaided 20/20 vision in each eye is the basic requirement; however, waivers can be granted to applicants if their eyes are without excessive refractive error and can be corrected to 20/20 with glasses. Up to 35 percent of the incoming midshipmen can be granted eye waivers. No waivers for defective color vision are granted.

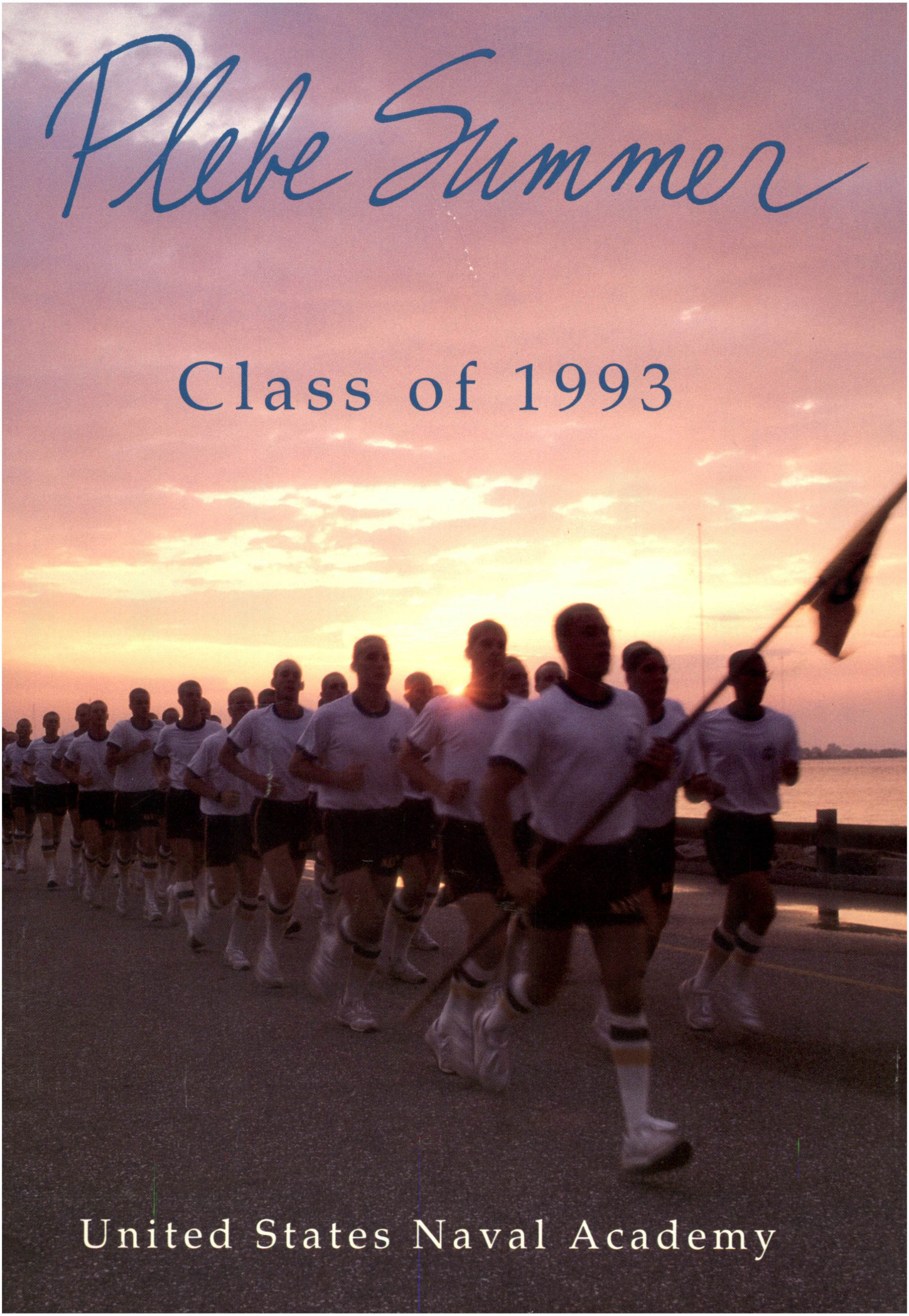
(5) The physical aptitude examination: There are four parts to the test: chinning (flexed arm hang for women), a timed shuttle run of 300-yards (six round trips between two parallel lines spaced 25 yards apart), a standing broad jump for distance and a basketball throw for distance from a kneeling position. A gym instructor can administer the test which takes about 40 minutes to complete.

(6) Selection for appointment: Once the results of the medical exam, physical aptitude exam and Admissions Board screening are in, applicants are about 75 percent through the application process. Those who have been successful in obtaining a nomination will be considered qualified candidates. Of about 15,000 applicants, about 2,400 make it to this stage. Only 1,600 of those 2,400 are offered appointments to become midshipmen.

Competition for admission is keen, as these figures show. To be successful, prospective midshipmen must prepare and *apply early!* Four years of high school preparation are essential to develop the strong academic, athletic and extracurricular background required to compete for admission to the Naval Academy. Unfortunately, many prospective applicants don't realize this until late in high school. Those interested in becoming midshipmen should begin preparing in their freshman year and apply for admission towards the end of their junior year.

If you have a strong will to achieve great things and want to be a leader serving your country, opportunities of a lifetime can begin at the Naval Academy.

Contact a Naval Academy admissions counselor toll free at 1-800-638-9156, or write to the Candidate Guidance Office, United States Naval Academy, Annapolis, MD 21402-5018.


Plebe Summer
Class of 1993
United States Naval Academy

UNITED STATES NAVAL ACADEMY MISSION:

To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government.

THE WHITE HOUSE
WASHINGTON

June 27, 1989

It gives me great pleasure to welcome the Class of 1993 to the United States Naval Academy.

Today, you begin four years of study and arduous training that will enable you to serve the American people. You have been given the great honor of following in the tradition of those who have kept our nation strong and independent for more than two centuries. I commend you for your patriotism and selflessness. Though you will face many challenges, keep in mind that you will also gain an outstanding education, excellent preparation for leadership, and friendships that will last a lifetime.

As Commander in Chief, I'm proud to greet you. You have my best wishes for success in your years at the Academy and beyond. God bless you, and God bless America.

George Bush

Foreword

On Induction Day, before they took the oath of office last month, I told your sons and daughters that day would be the first day of the rest of their lives. During this crash course called Plebe Summer, some of them may have wondered just what kind of life this is. In the last six hot and humid weeks we began each day at sunrise with an hour-long workout known as PEP (Physical Exercise Program). Each day was filled with constant activity such as taking orders, marching, running, learning the manual of arms, cleaning rooms, swimming tests, sailing, learning Navy jargon and history, reciting rates, learning ship damage repair, firing a 45 caliber pistol and on and on and on.

They have learned to continue past the point of exhaustion. They have been anxious, frustrated and unsure of themselves. They have had to carefully plan and provide for every minute of the last 39 days and use every ounce of mental and physical strength they could muster.

But since you saw them last, they have learned some very important things -- not just about the Navy and the Naval Academy, but about themselves. They have learned the absolute limit of their abilities, and they have learned to trust and depend on their classmates. Don't be surprised at the subtle changes in your midshipmen. They will seem more mature, self-confident, leaner and taller. They will look at their watches frequently. They will want you to meet their classmates and to share the knowledge and experiences of this unforgettable summer, to demonstrate to you their personal and professional growth. This is their weekend to shine.

Parents' Weekend offers a welcome respite from the rigors of Plebe Summer and marks a milestone for the plebes. They have succeeded. Although summer training continues for another week, they have cleared the biggest hurdle of their young lives.

The members of the Class of 1993 must now look ahead to the academic year. In the next four extremely rewarding years they will benefit from one of the finest educations this country has to offer. Four years from now, when they throw their hats into the air and pin on their officer insignia, they will look back on Plebe Summer as a turning point in their lives.

Virgil L. Hill Jr.
Rear Admiral, U.S. Navy
Superintendent

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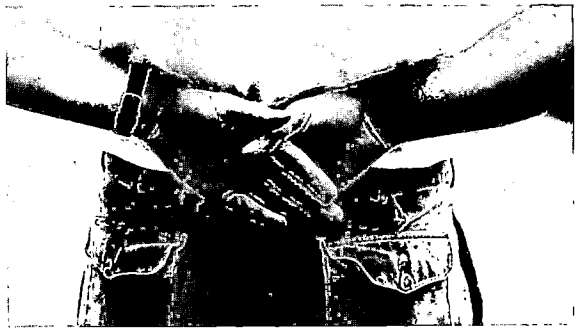

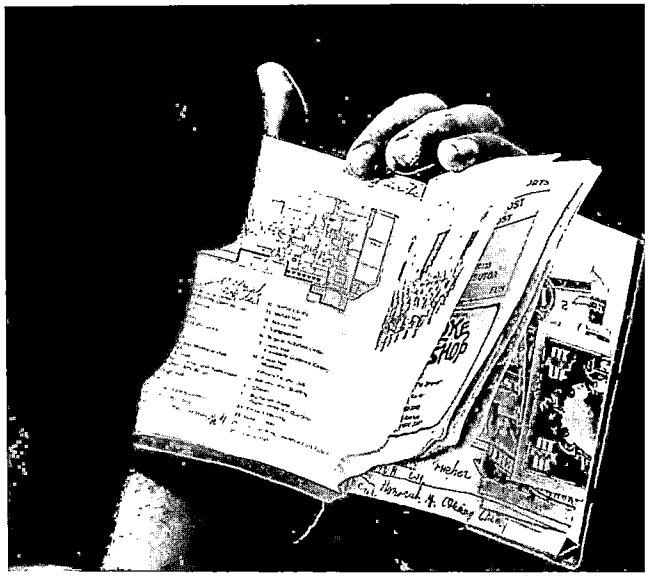

This book was sponsored by the United States Naval Academy Alumni Association and prepared by Susan Worsham of the United States Naval Academy Public Affairs Office and PHC Paul J. Salesi of the Naval Academy Photographic Branch. All photographs of midshipmen appearing in this book were taken at the Academy during the first weeks of Plebe Summer, 1989. Photography is by David Eckard, Wayne McCrea, Ken Mierzejewski and Jack Moore, all of the Naval Academy Photography Branch.

For admissions information write:

Candidate Guidance Office
United States Naval Academy
Annapolis, MD 21402-5018

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Introduction

"They tell you it won't be easy, but you don't know what they mean until you experience it."

Plebe Summer is a demanding, fast-paced orientation that begins the four years of preparation for commissioning as naval officers. Physical and mental demands upon the plebes' time seem never ending, but they all have a purpose: the development of leadership ability, motivation, moral strength, physical skills and stamina -- attributes of any outstanding naval officer.

Although some form of military training is found at many American universities, the rigorous routine and challenges of a year-long plebe indoctrination system are unique to the service academies. Complementing other phases of midshipmen training and education, the plebe year at the Naval Academy is designed to test and develop. It is a challenging year, requiring midshipmen to stand on their own feet, to produce under pressure, to respond promptly and intelligently to orders, and finally, to measure up to the highest standards of character, honor and morality.

The first day of Plebe Summer, Induction Day (I-Day), is a day that most midshipmen will remember forever. This is scarcely surprising because, in one very busy day, they begin adjusting to a different and challenging way of life. It's quite a shock. The day begins as prospective plebes arrive and report to Halsey Field House to begin induction. There they meet their upperclass company officers, selected first class (senior) and second class (junior) midshipmen, and the commissioned officers who supervise the Plebe Summer training program. They also meet their classmates, many of whom will become close friends and confidants by summer's end.

During the induction process, plebes cycle through medical examinations, uniform fittings and equipment issue. They get their first plebe haircuts. They fill out forms and more forms.

Plebes are assigned to military units comprising the Fourth Class Regiment. The regiment consists of two battalions, the port and starboard. Each battalion has six companies, and each company has three numbered platoons, for a total of 36. Each platoon has three squads with about 12 plebes per squad. There are 108 squads during Plebe Summer.

About 12 hours after they first arrive at the Academy, the plebes assemble for the Oath of Office ceremony. With anxiety, fatigue and great pride, the new midshipmen pledge to "well and faithfully discharge the duties of the office on which (they) are about to enter."

Evening meal formation and their first meal as real plebes follows, after which they return to the company area for squad leader instruction and a little personal time. Then, at 10:00, they fall into bed after an exciting but exhausting and traumatic first day as United States Naval Academy plebes.

Reveille jars everyone back into reality. It is 5:45 of their first full day at the Academy. "Another day in which to excel," as the upperclassmen say. And so it goes; there's no

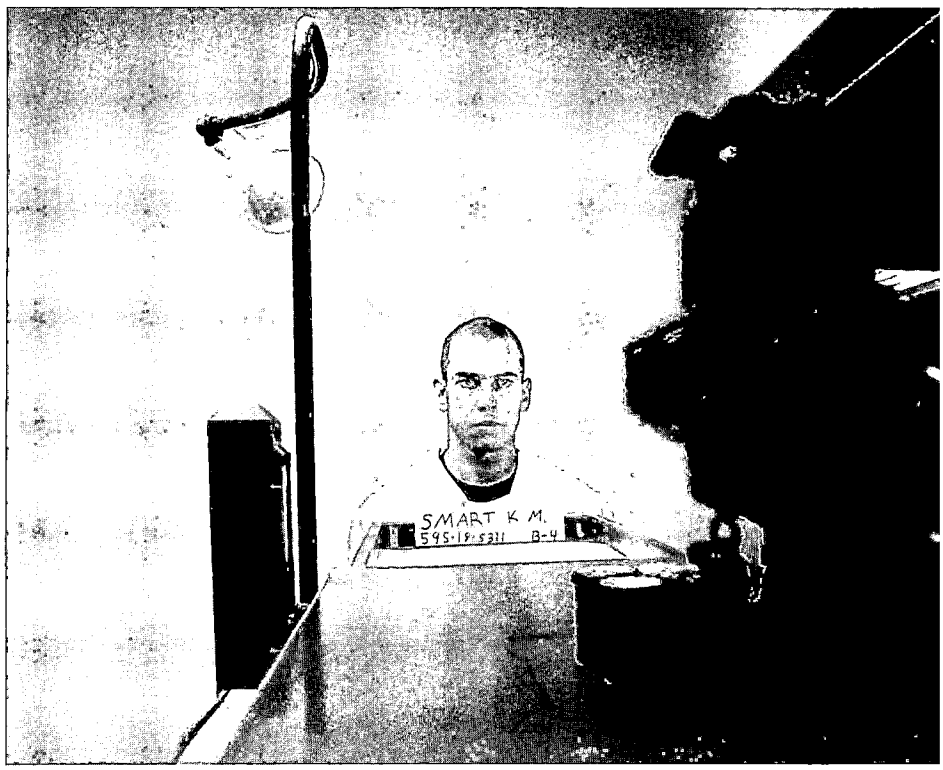
letup in sight. Days blur into weeks through the hot summer. Civilian ways and days soon seem far behind.

As the summer progresses, the new midshipmen rapidly assimilate basic skills in seamanship, navigation and signaling. Infantry drill, shooting of .45 caliber pistol and M-16 rifle, sailing Navy yawls, and handling yard patrol craft all contribute to making each midshipman a proudly versatile individual. A rigorous physical conditioning program, including calisthenics, running, pullups, situps, swimming, wrestling and boxing, are only a small part of the daily regimen. Team spirit and a desire to win are developed through competition in activities ranging from athletics to dress parades and seamanship drills.

Plebes also receive instruction and indoctrination on the Brigade of Midshipmen's Honor Concept. Honor is the backbone of the naval profession. We recognize that individuals are not born with a sense of honor and that its attainment results from an educational process. The internalization of these ideals in every midshipman is one of the key objectives of the Naval Academy's educational program. The Honor Concept stresses that each individual has the moral courage and the desire to do the right thing because it is right, not from a fear of punishment.

However difficult, Plebe Summer is a time most midshipmen will never forget. Plebes experience both success and failure. Their successes are rewarded with commendations, and their failures result in constructive criticism and guidance.

Making each hurdle brings a feeling of relief that it is over and a sense of pride that the challenge has been met -- and conquered.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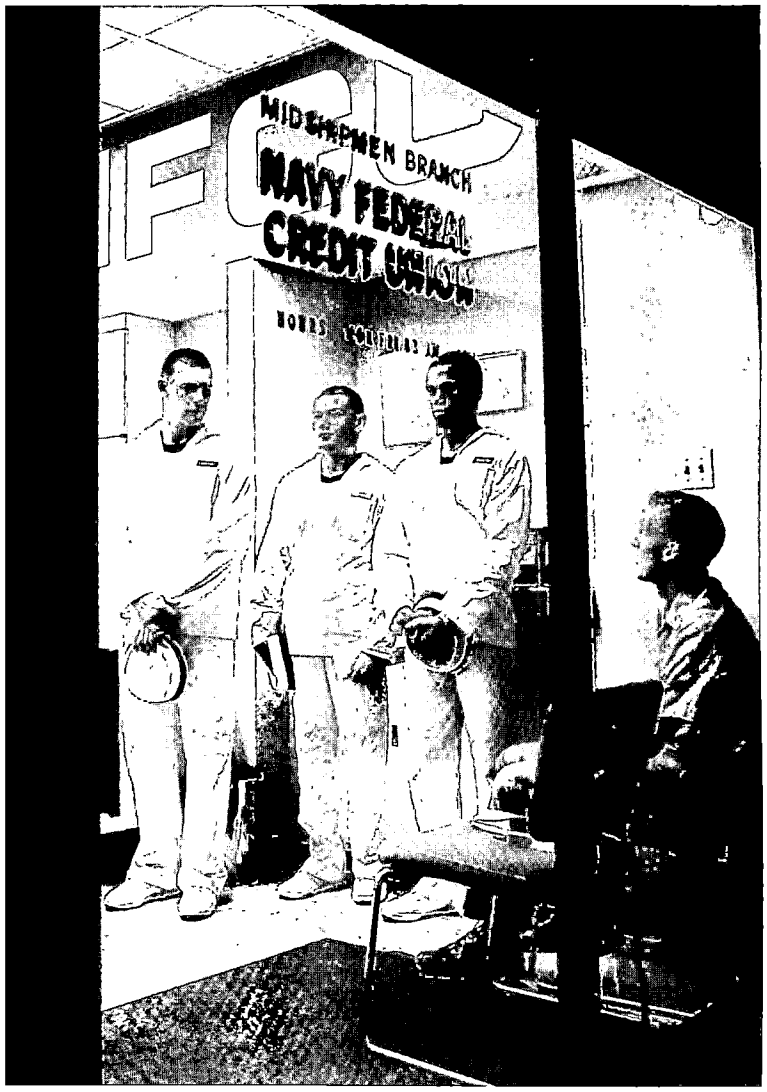
THE MORE I HAVE,
FOR EARTH
ARE INFINITE.


MIDSHIPMEN BRANCH
NAVY FEDERAL
CREDIT UNION

SPEEDO

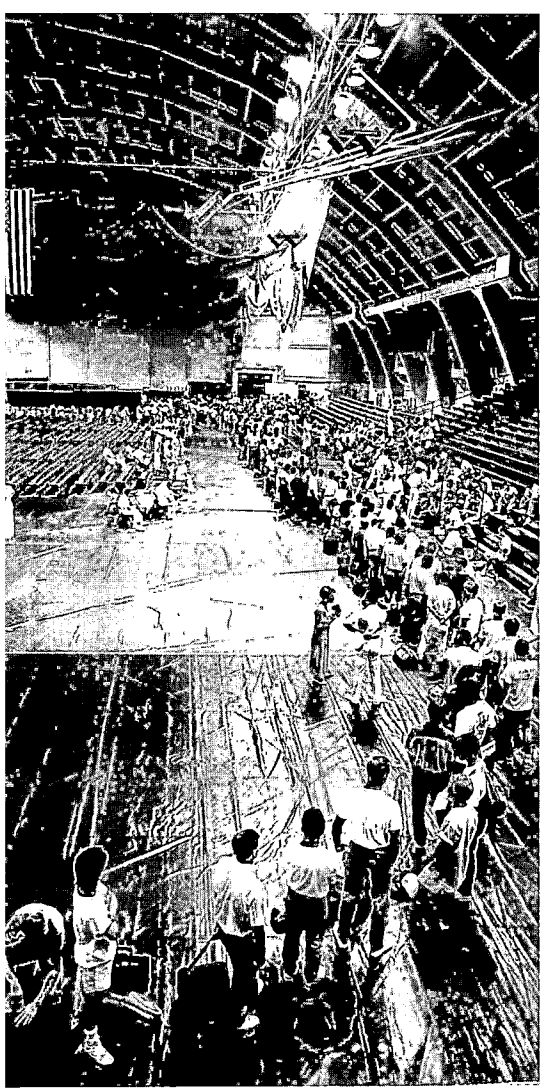
I-Day

Induction Day ("I-Day") is that magical day on which civilians begin the transformation to midshipmen. For those with prior enlisted experience in the Navy and Marine Corps and for students from the Naval Academy Preparatory School, I-Day begins a day early. Because of their previous military training, some aspects of Plebe Summer -- such as learning to stand at attention, salute, march and prepare for inspections -- may be second nature to them. But the physical and academic challenges are equal to those faced by the other plebes.

I-Day begins at 6:30 a.m., when the candidates, dressed in their civilian clothes, gather in a long line at Halsey Field House. Here they place their personal belongings aside, begin checking in and learn their squad assignments.

New squad leaders teach their charges how to stand at attention and parade rest, and how to salute. They learn to keep their eyes "in the boat," or straight ahead, using their peripheral vision to see everything else.

"The only comforting thing was knowing that 1,300 other plebes were going through the same thing."



The plebes then are given the first of their material issue: a T-shirt, blue and gold socks, tennis shoes, and the prized "dixie cup" hat. They are taught how to square and wear the dixie cup -- two fingers above the brow, with the bangs tucked in. Each is also issued a huge laundry bag which contains their "white works," or jumper uniforms, and other uniform items.

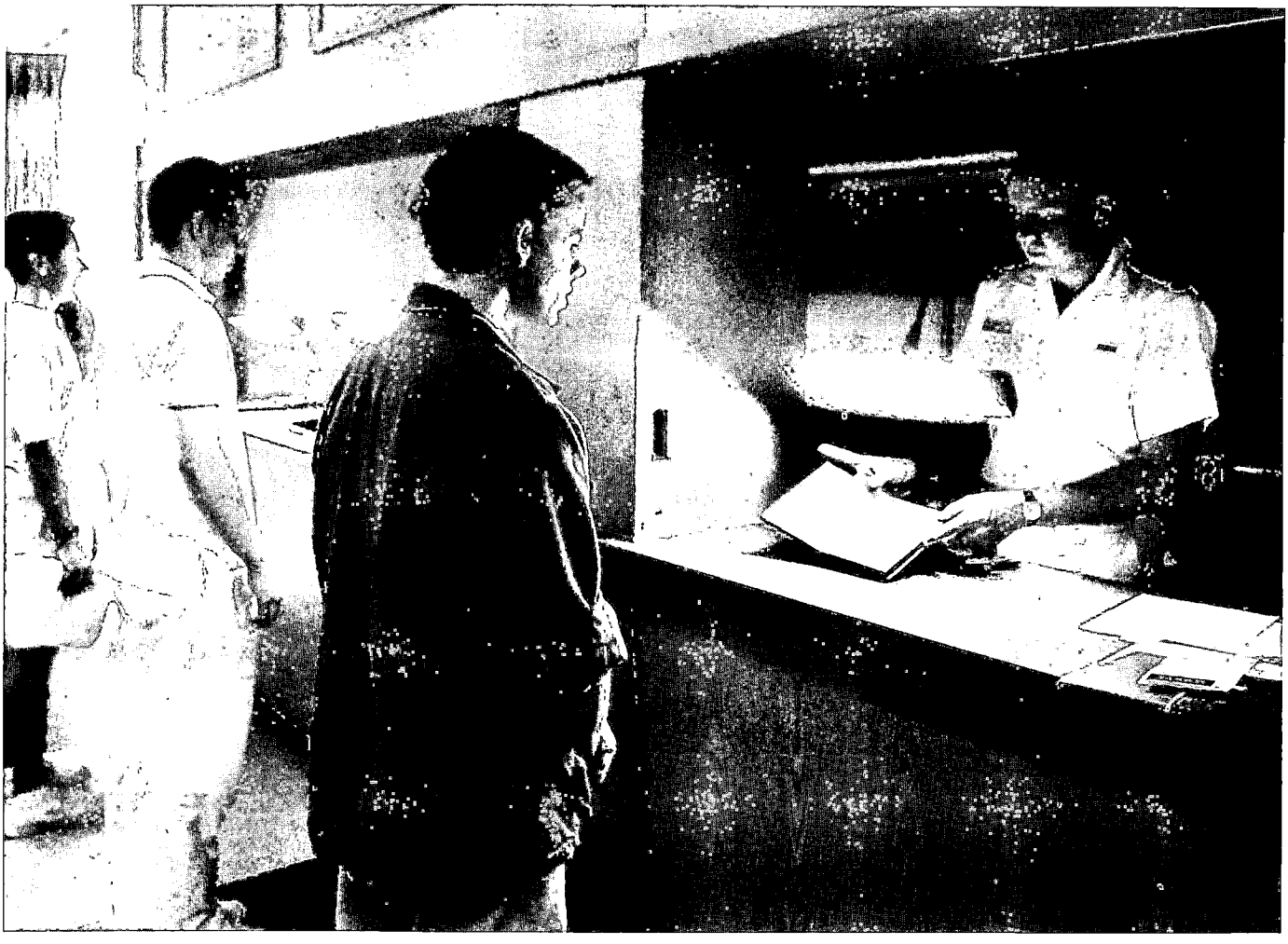
Next they go back outside Halsey Field House, where they line up in squads under the watchful eyes of families and friends. Then, marching in step, they make their way through the barber shop and various check points for medical and dental screenings.

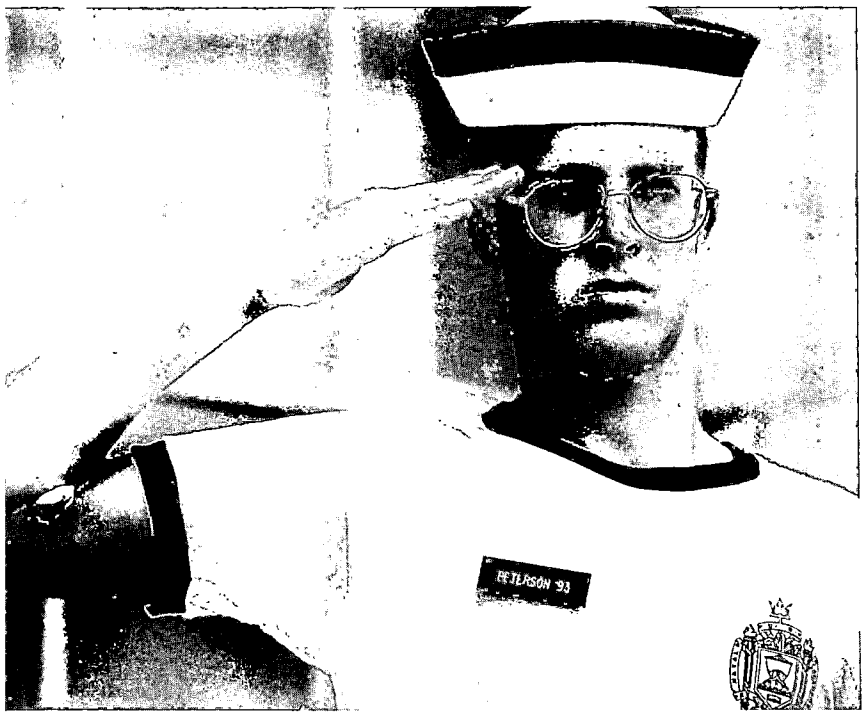
Afterward, the plebes are given a short time to unload all their gear in their rooms in Bancroft Hall and meet their roommates. Then it's back in formation, lunch in King Hall, and more waiting in line through the seemingly never-ending process of checking in.

The relentless pace continues into the afternoon. Early evening brings an important pause in the day for the Oath of Office Ceremony, with many proud family members and friends watching. Standing together, the plebes are asked if, " ... having been appointed a midshipman in the United States Navy, do you solemnly swear (or affirm) that you will support and defend the Constitution of the United States against all enemies, foreign and domestic; that you will bear true faith and allegiance to the same; that you take this obligation freely and without any mental reservations or purpose of evasion; and that you will well and faithfully discharge the duties of the office on which you are about to enter, so help you God." Right hands raised, the plebes respond, "I do."

Congratulations are in order, and the plebes have a few minutes to enjoy the feeling. Then, another new class of midshipmen heads for evening meal formation. The action picks up again during supper. Upperclassmen are ever present in Bancroft Hall -- giving orders, instructing, challenging every step -- as plebes struggle to stay afloat in their new home. Finally, their first day as plebes ends. Taps: it's 10:00 p.m., time for welcome, well-deserved sleep.

"You grow up a little faster. You have to mature to be able to handle the environment here. It's good for you."




PETERSON '93

OSBORNE '93

CLARK '93
RICH '93

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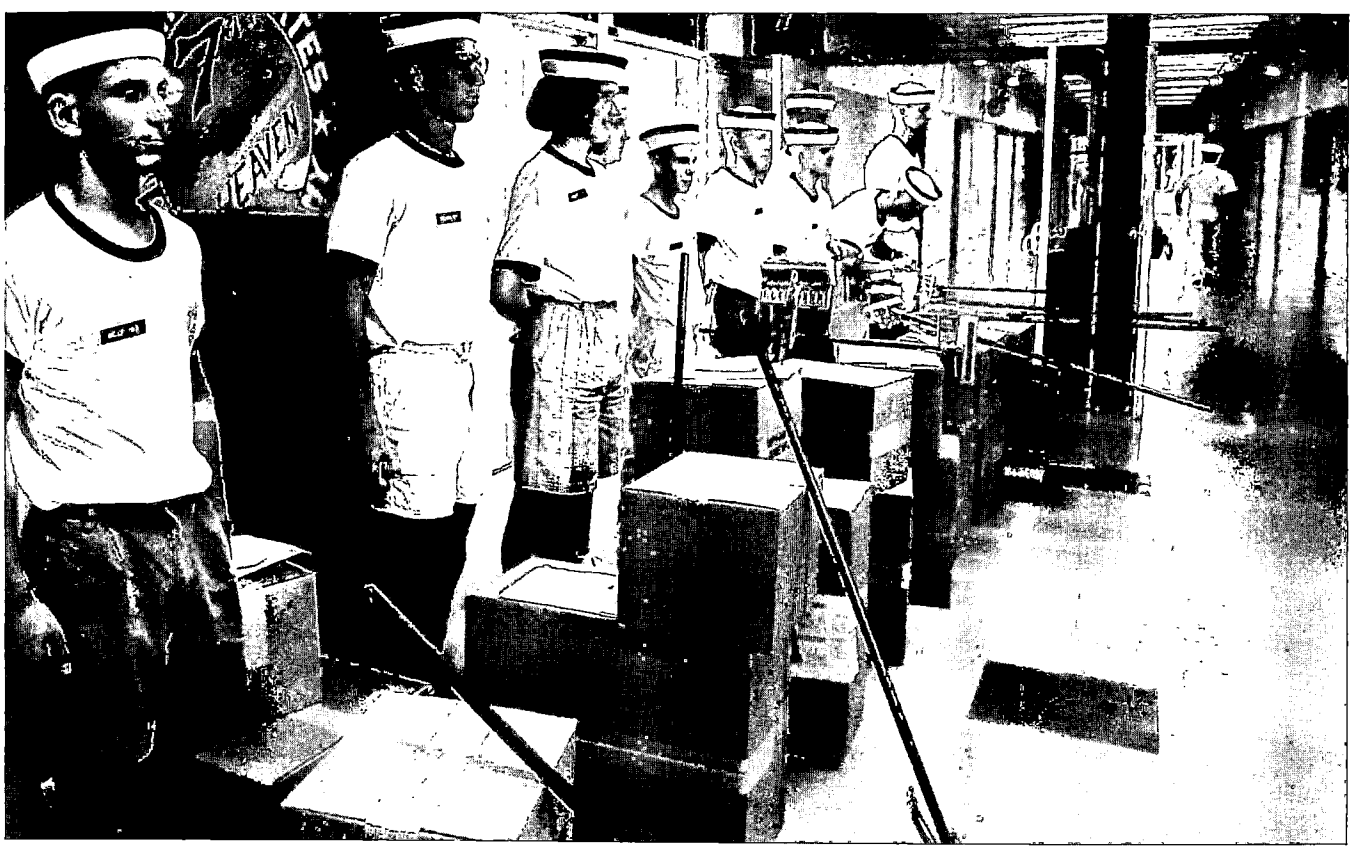
CLASS OF 1993
USNA BOX ISSUE
CLASS OF 1993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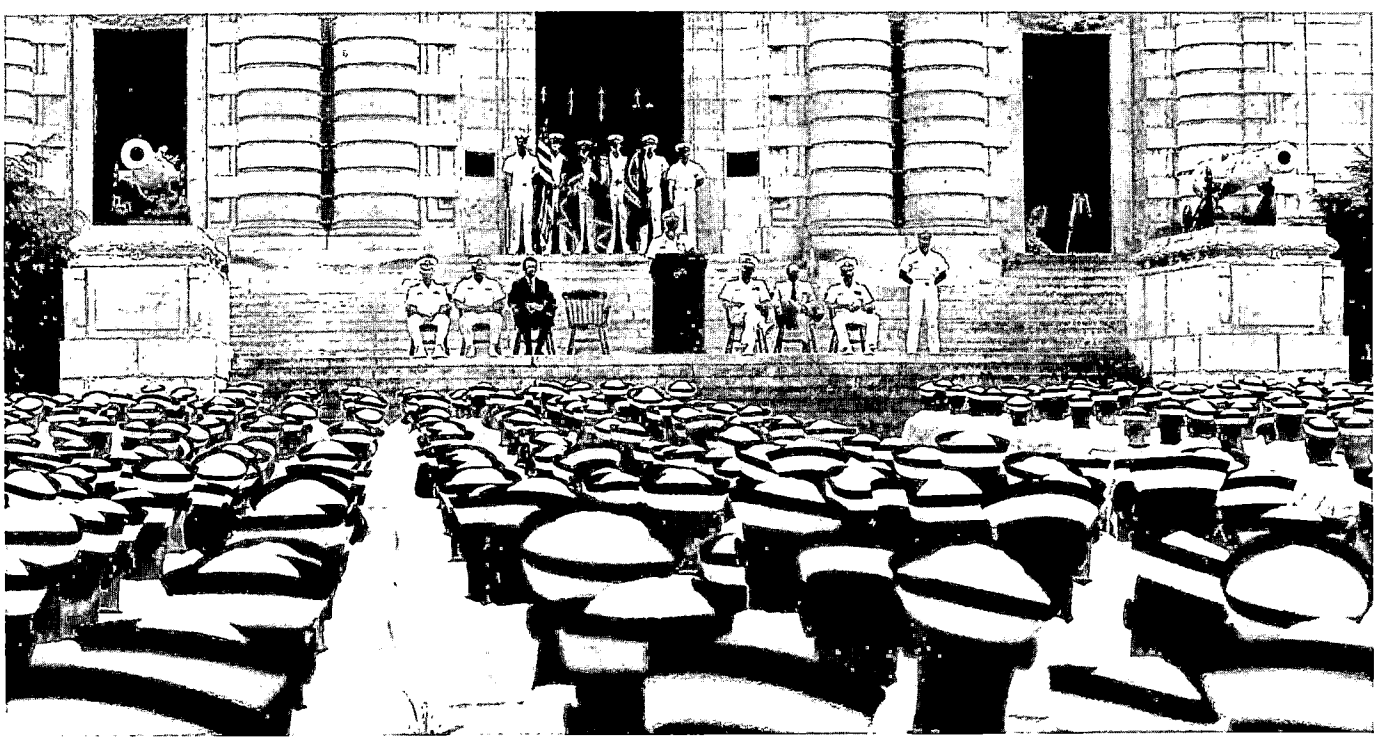
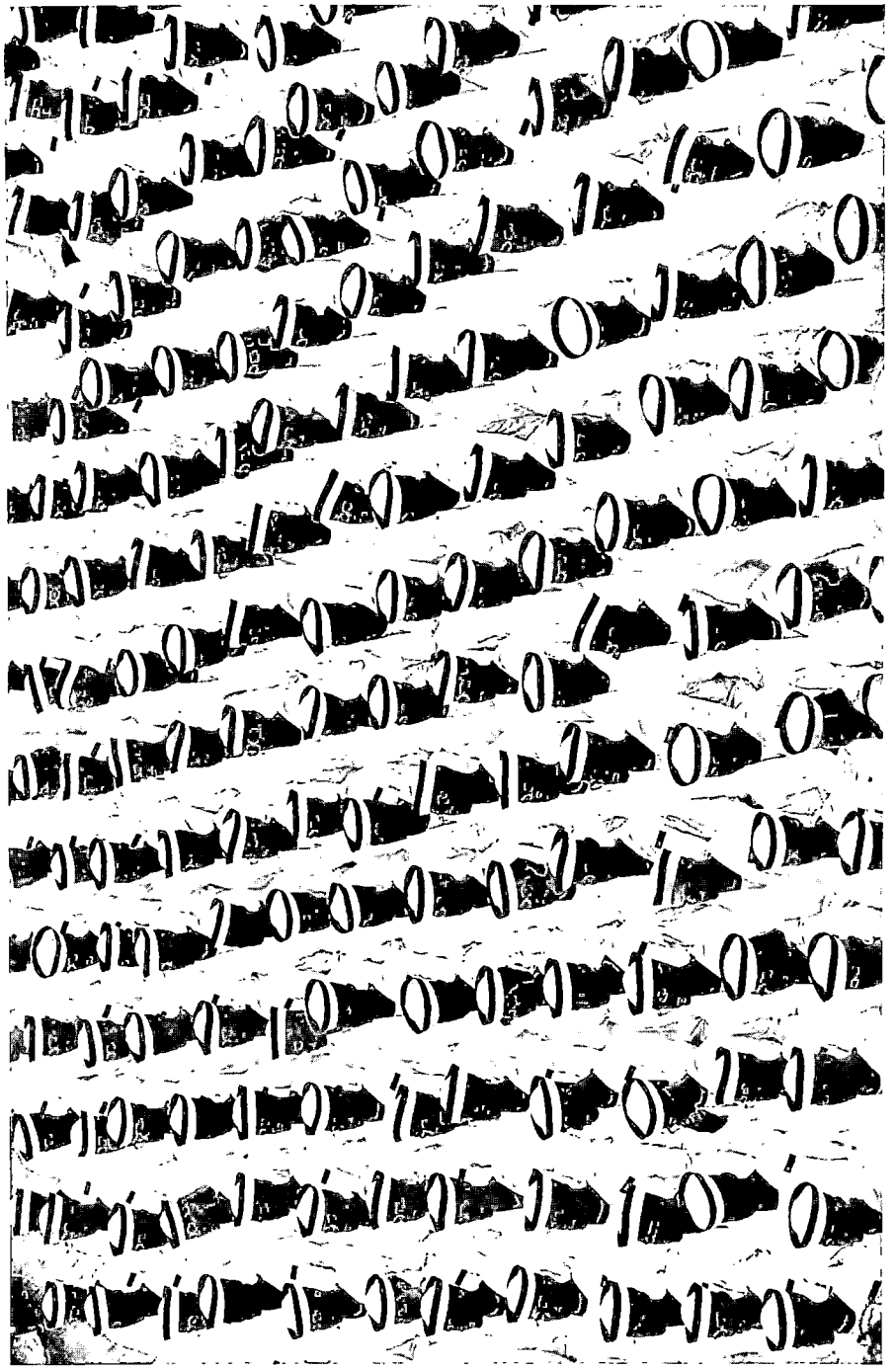
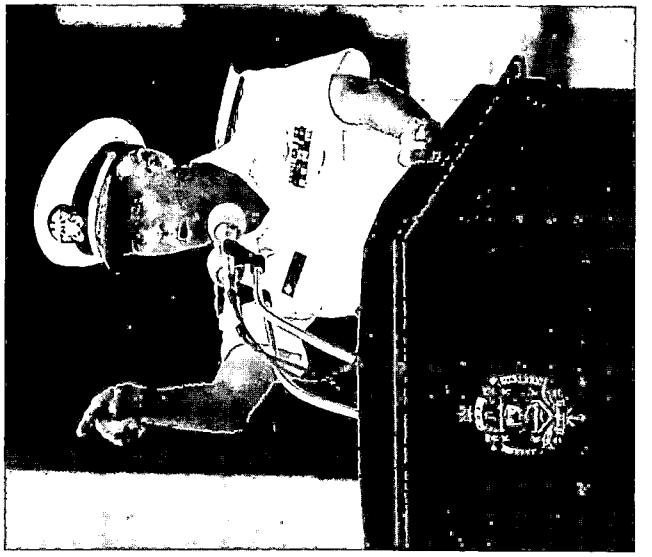
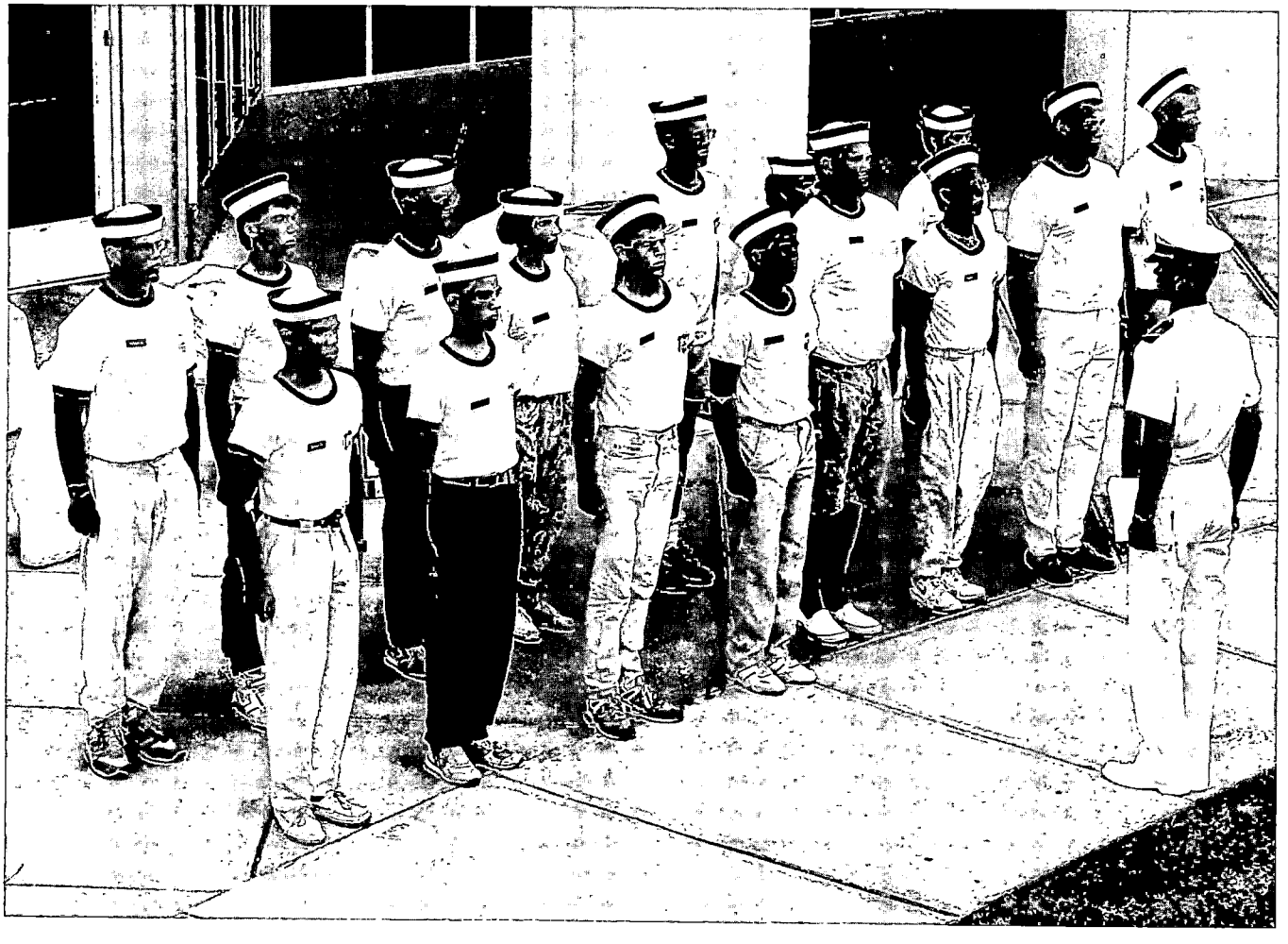


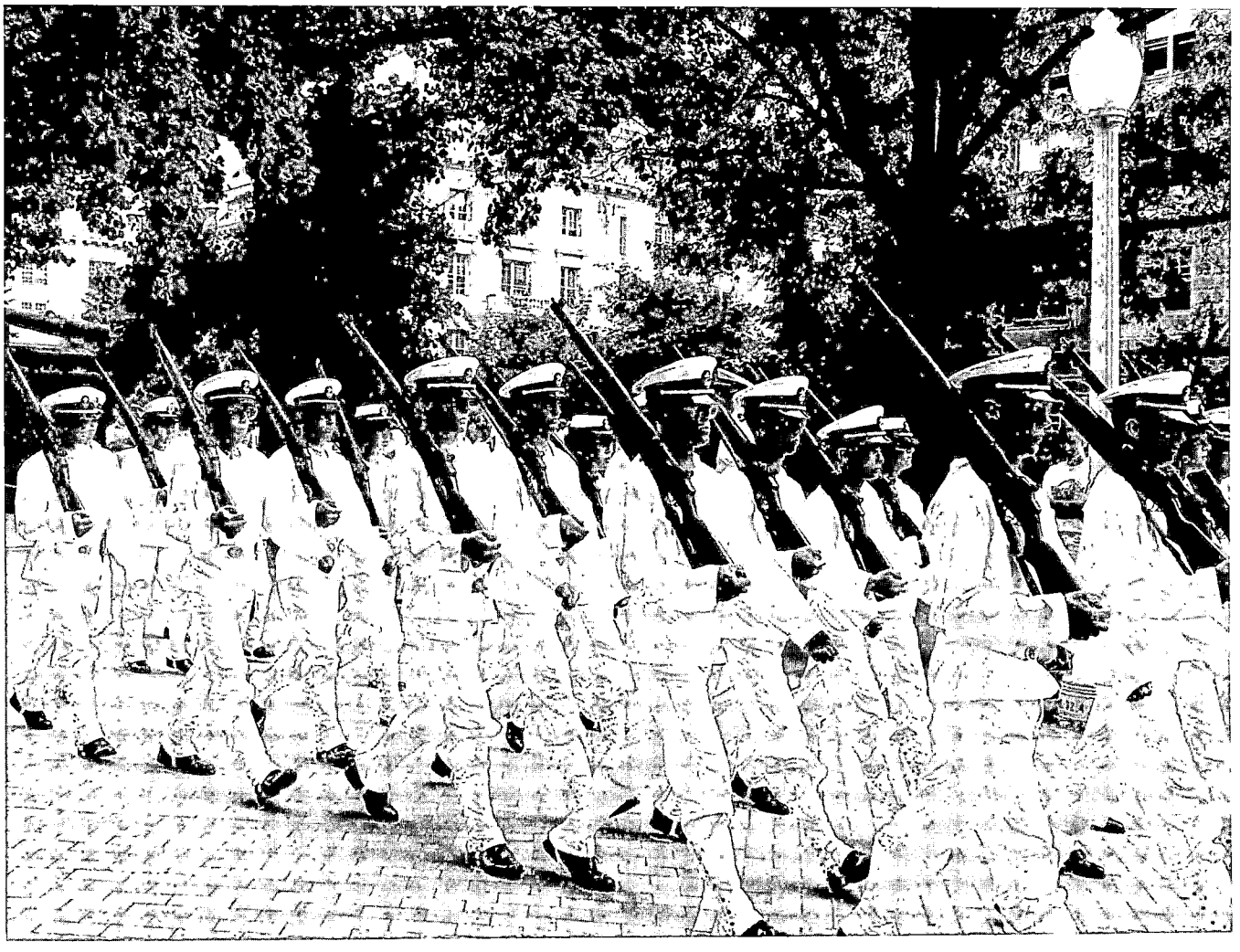




LOWERY '93

Learning the Navy Way

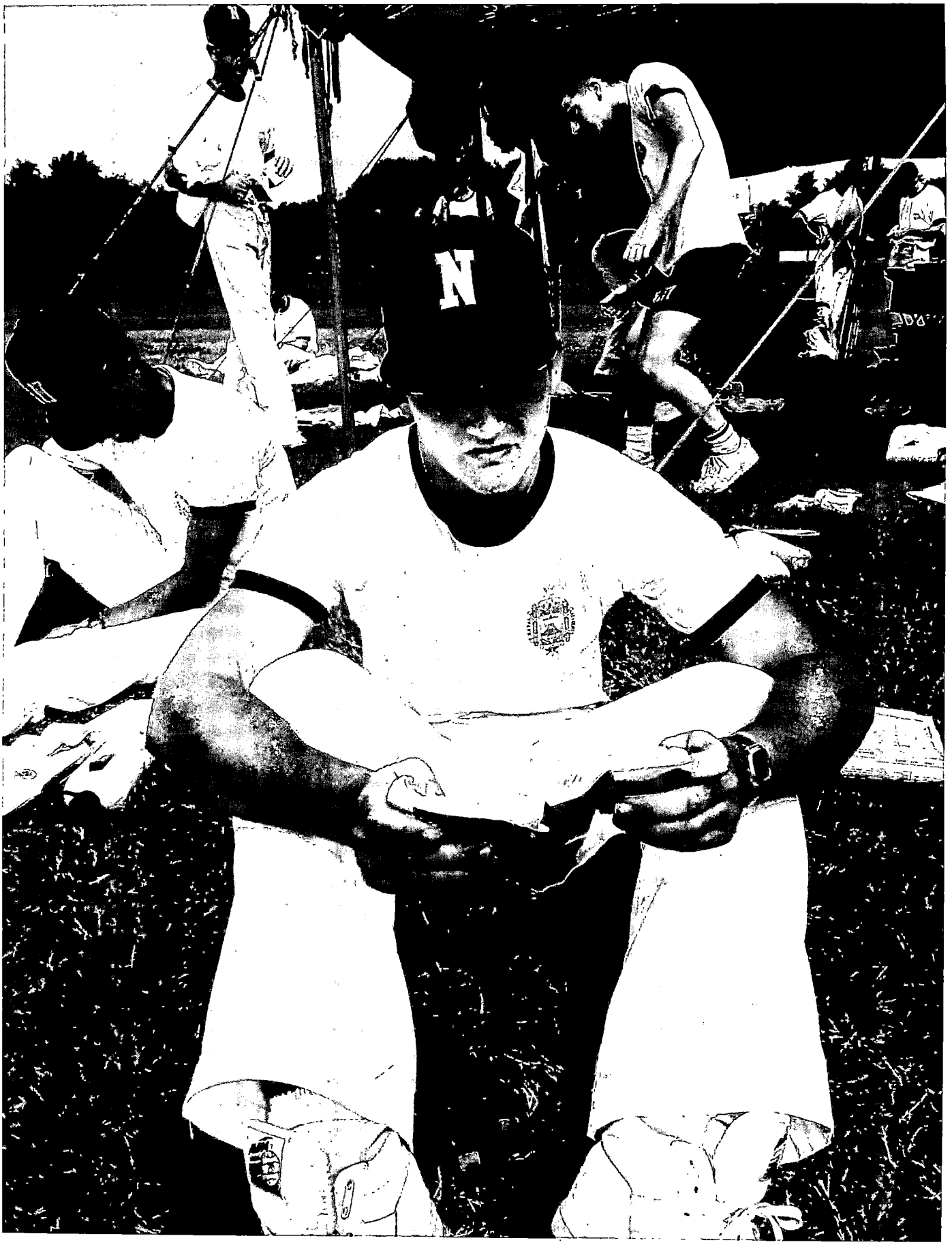




Gig lines, edge dressing, tucks, brush offs, and working out the smiles mean little to the civilians who come to the Naval Academy as plebes. But in no time these techniques of perfecting their appearance in uniform along with a host of other military practices such as saluting and marching, become a natural part of their lives as midshipmen.

Even before they get out of their civilian clothes, plebes are taught how to salute, who to salute, and how to stand in ranks at attention and parade rest.

They learn how to carry a piece (rifle) and spend hours learning how to march, perfecting their synchronicity on the field. Perfection in every detail -- in marching, inspections and physical fitness competitions -- earns points toward the title of "color company." The winner of color competition earns extra privileges and a blue border on the company guidon, which distinguishes it as best in the regiment. Each platoon's Plebe Summer color points become the first of the academic year for its company.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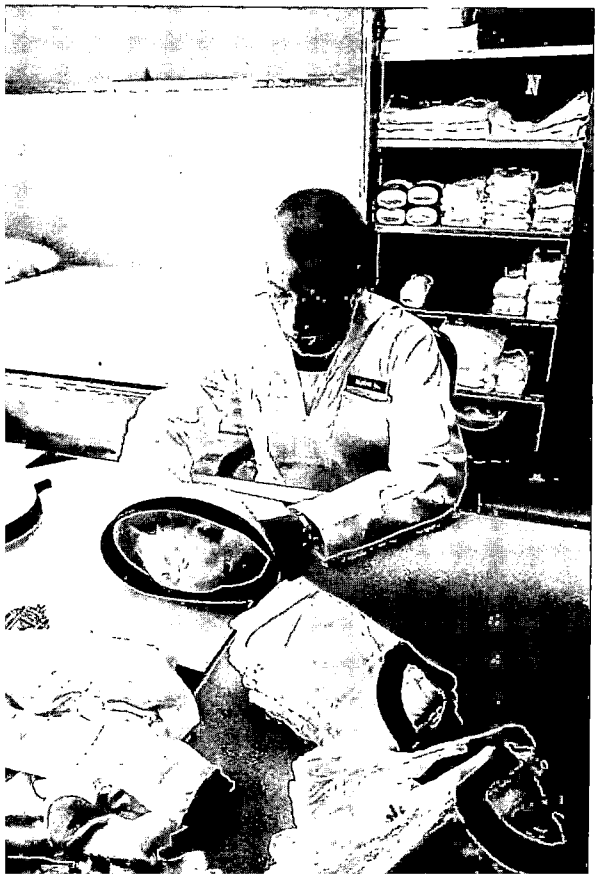
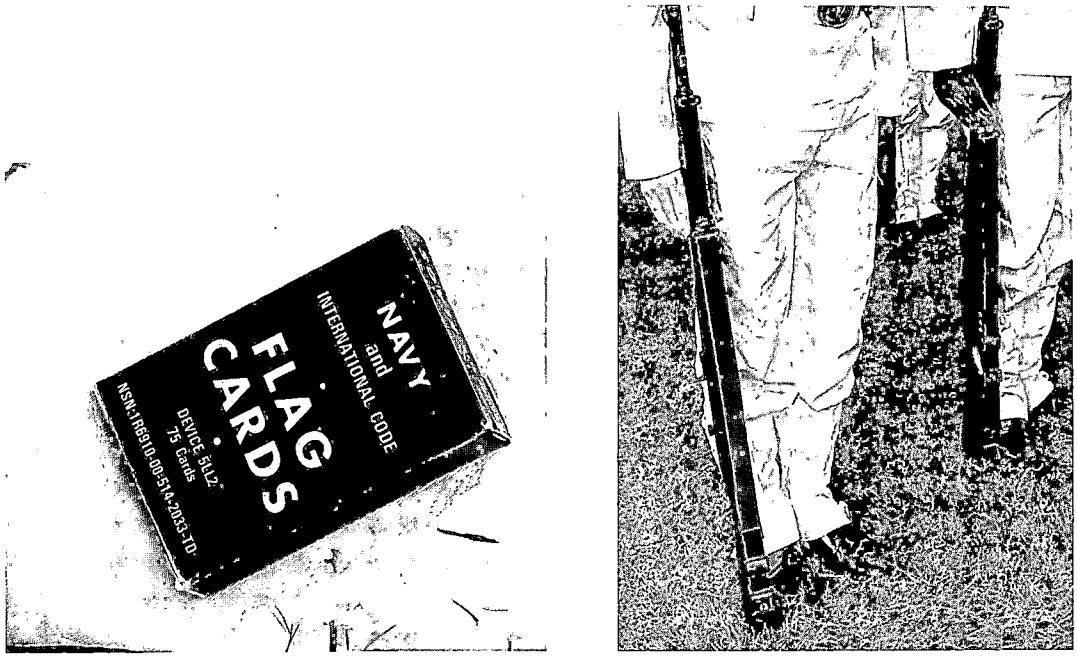


"If you really need a true definition for discipline, look no further than Plebe Summer."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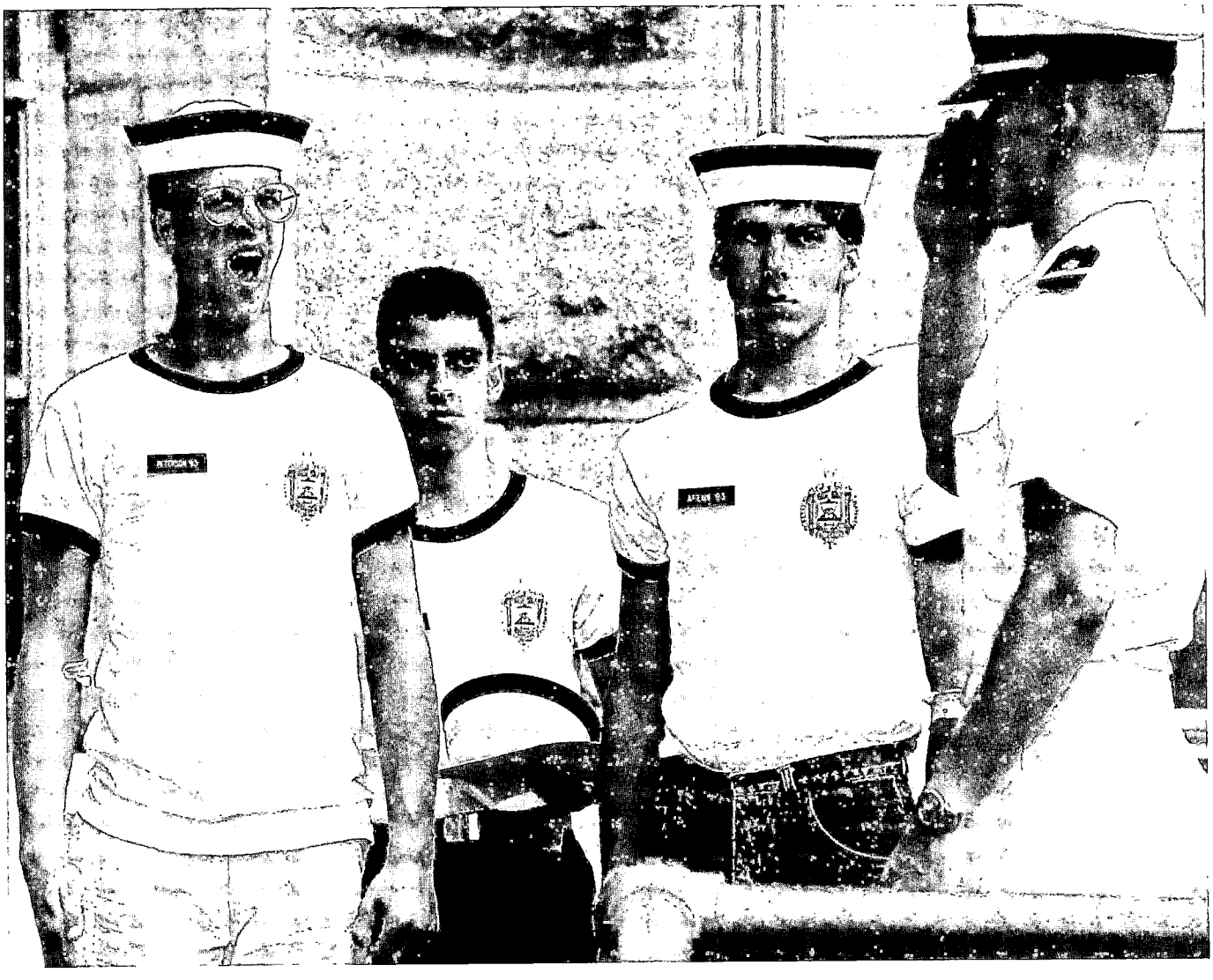

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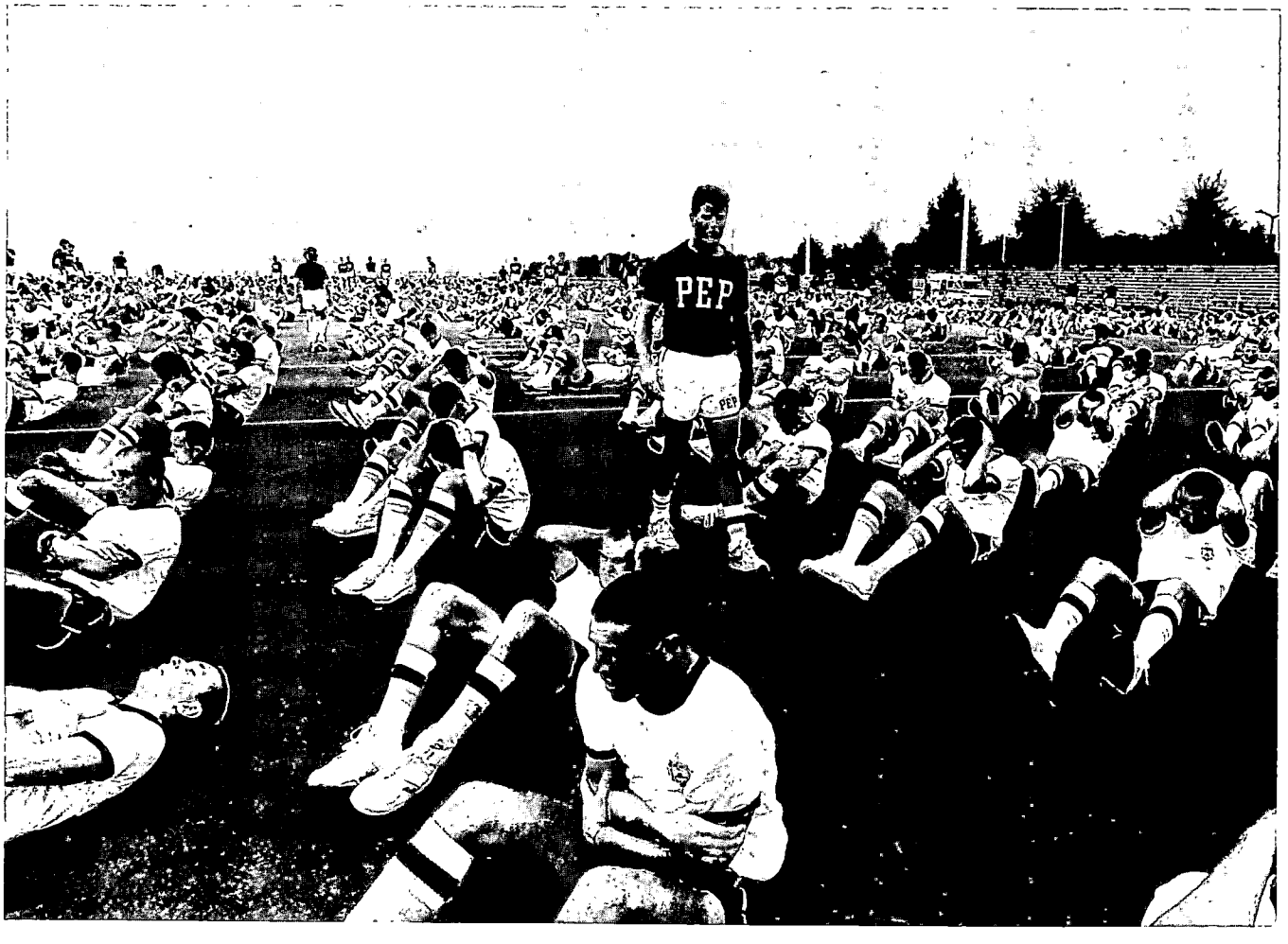
Shaping Up



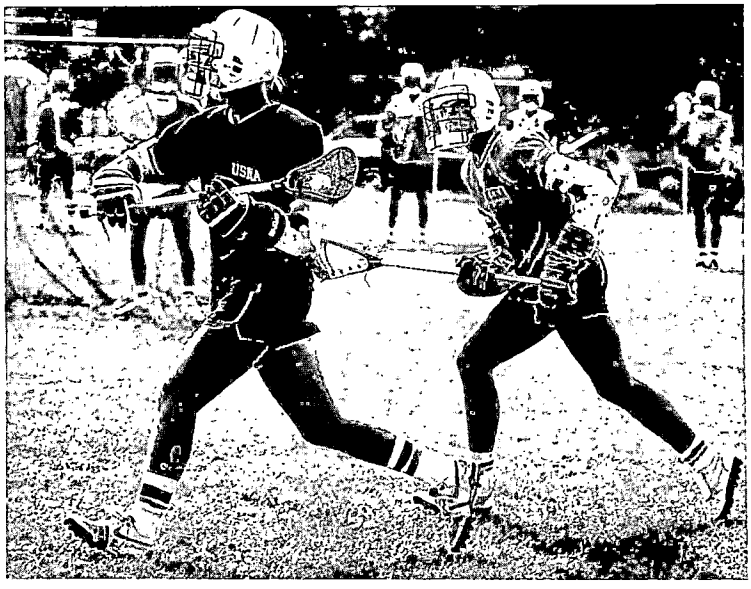
Physical education and competitive sports programs support an important part of the mission of the Naval Academy. The physical fitness program gets off to a fast start during Plebe Summer; plebes spend more than 145 hours, or 19 percent of their time, engaging in physical fitness and athletic activities.

Each day of Plebe Summer begins at 6 a.m. with 45 minutes of calisthenics, running, pushups, situps, and other exercises designed to increase strength, endurance, agility and flexibility, and general athletic ability. Plebes also receive instruction and practice in boxing, wrestling, lacrosse, fencing, soccer, gymnastics, crew, golf, tennis, squash, swimming, track, judo and running an obstacle course. In place of boxing and wrestling, women midshipmen receive extra instruction in hand-to-hand combat skills.

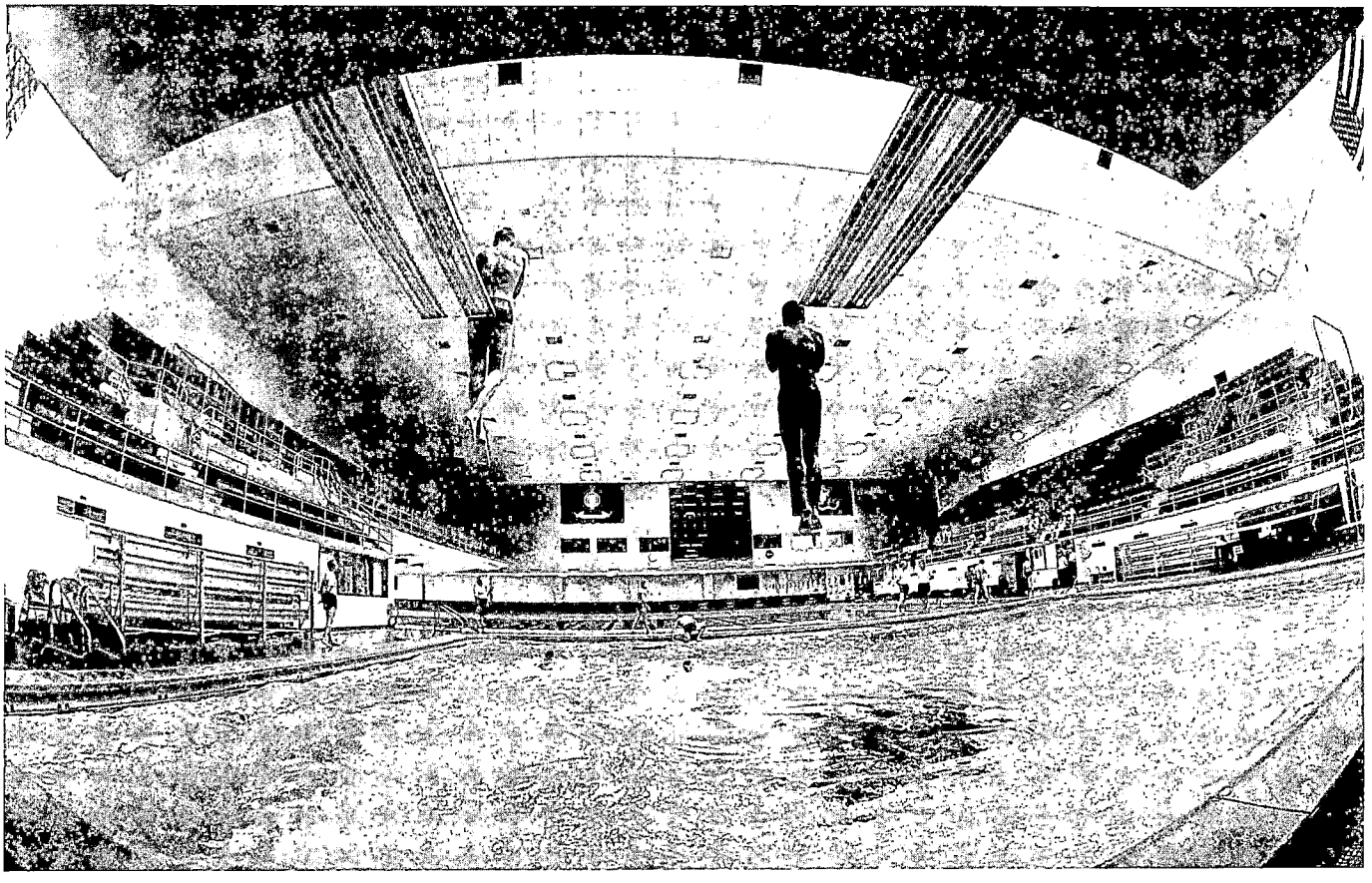
Even plebes in the best shape can find this overall physical conditioning program a challenge, but few can argue with its results. After seven weeks of this routine, they feel stronger and they look better. But the ultimate purpose of this program is even more important. It is designed to develop the personal fitness and aggressive spirit found in an outstanding naval officer.

During their years at the Academy, midshipmen can participate in intercollegiate and intra-brigade athletic programs. They also receive 164 hours of physical education instruction. Midshipmen are graded on their performance, and the grade is reflected in their overall class standing. Successful completion of the required physical education program is a prerequisite for advancement and graduation.

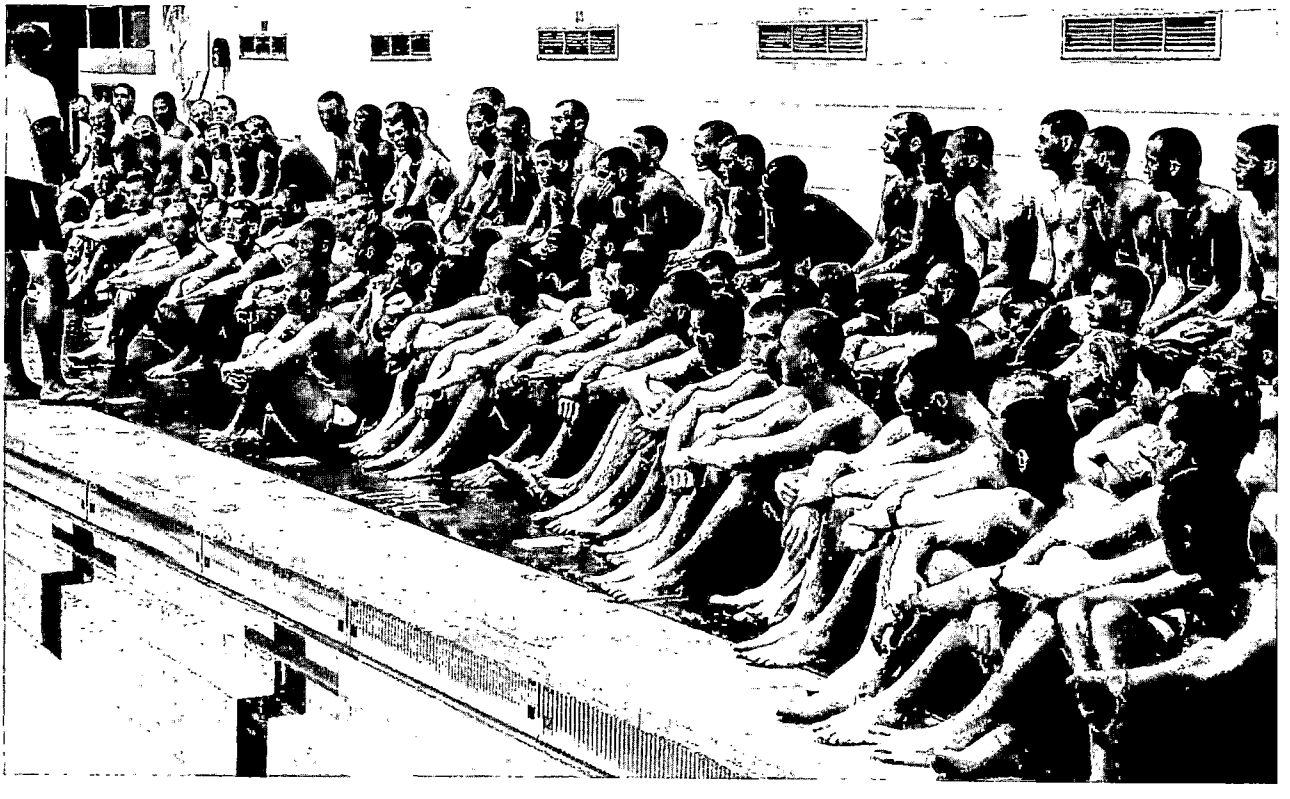
"Plebe Summer was the hardest thing I've ever done. You constantly doubt yourself and you wonder if you'll survive, but when it's over—besides being physically fit—you have a tremendous feeling of accomplishment."



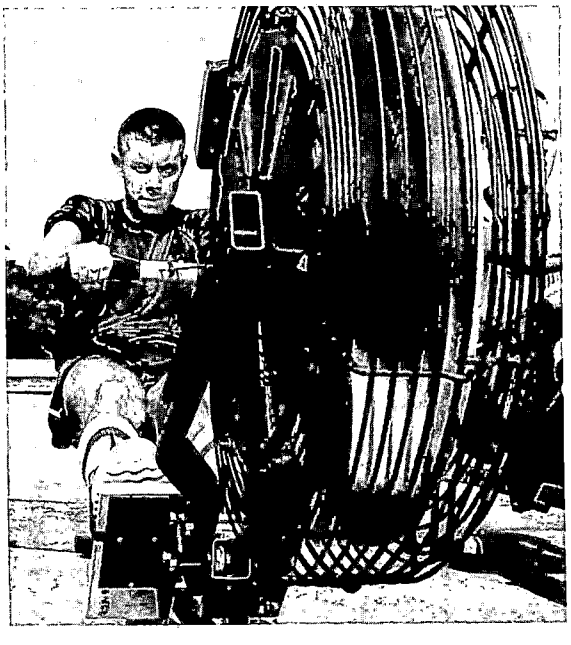
"Plebe Summer is like a VCR on fast forward."

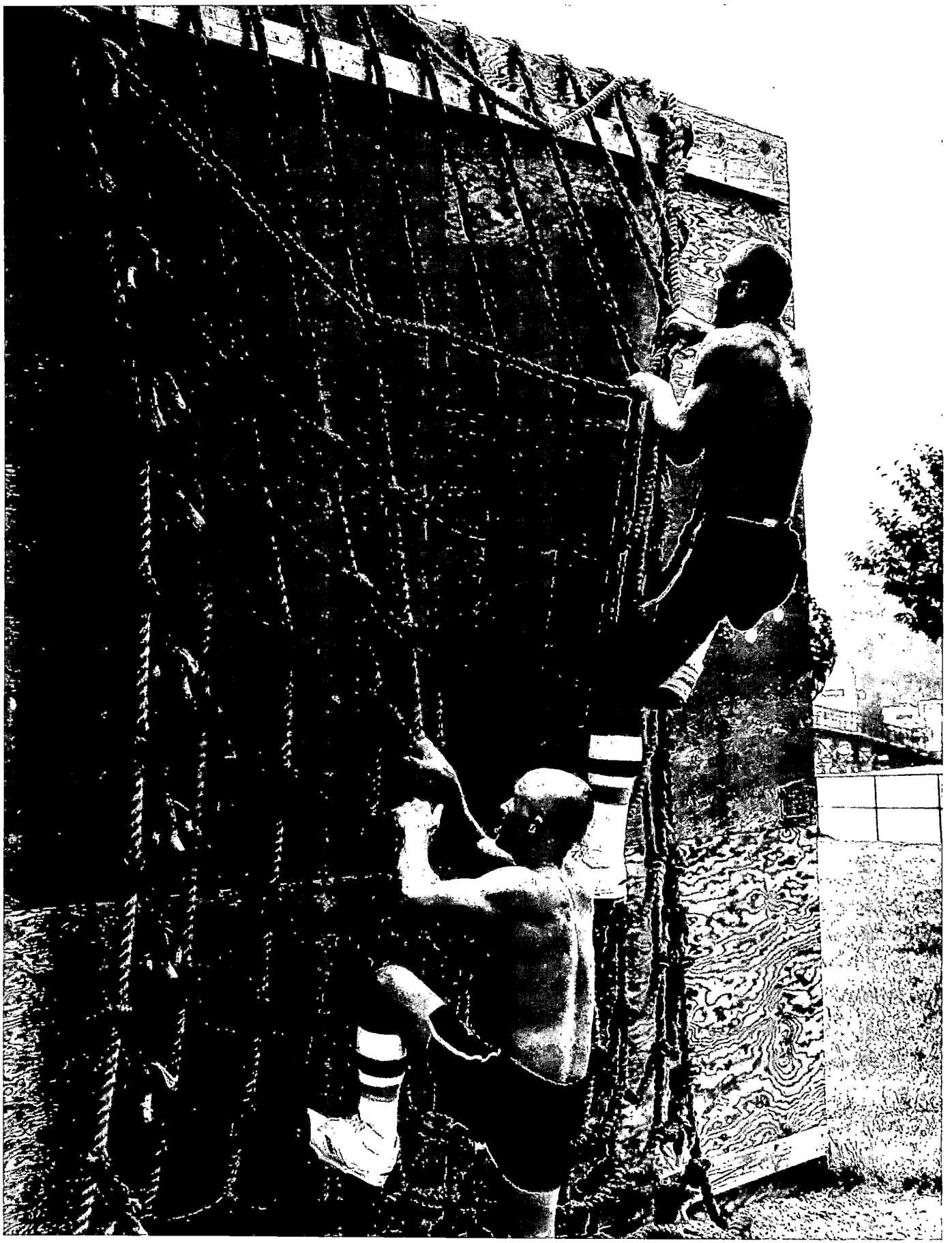


"Nothing here is easy for anyone, but nothing is so hard that it can't be done."



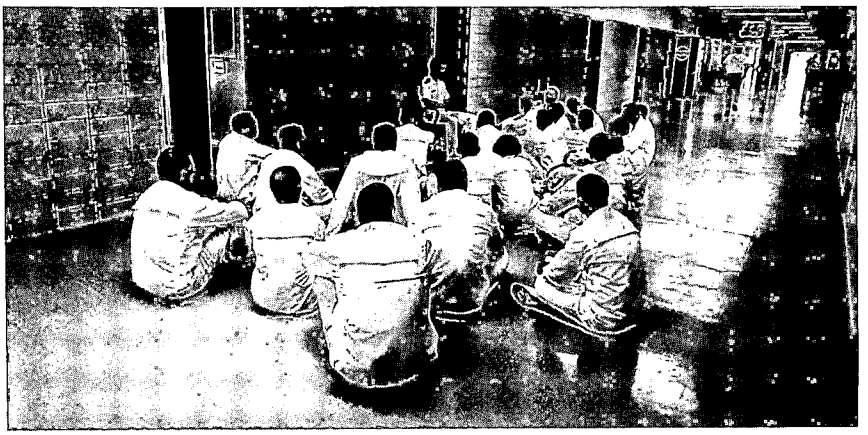
"This place teaches you how hard you can push yourself and still do more. I think most people go through life and don't find that out."





MEMO

Living in 'Mother B'



'Mother B,' Bancroft Hall, is home away from home for the entire Brigade of Midshipmen. They spend practically every moment in Bancroft Hall when they are not going to class, marching, attending sports events, or religious activities, or on liberty.

Plebes learn the intricacies of preparing for meticulous room inspections. They must wax the deck, wash the bulkheads, showers and windows, and stow their clothes in a prescribed way. During the inspections, upperclassmen examine every surface and corner with a white glove and black sock.

Plebes learn quickly that a "4.0" room represents the ideal standards of cleanliness and organization. Frequent inspections are meant to encourage attention to detail and military readiness.

An important part of life in "Mother B" is dining in King Hall, the 65,000-square-foot wardroom in which all of the midshipmen are served meals at once, three times a day. For plebes, meals here are different from anything they've ever experienced. Plebes double time to King Hall, find their squad tables and stand at attention at their chairs. They must be prepared to answer a barrage of questions or recite their rates -- passages from "Reef Points," the menu, the names of officers of the watch and memorized news or sports stories from the day's newspaper. The plebes get permission from their squad leader to stow their covers (under their chairs) and their neckerchiefs (tucked inside jumpers). After hearing the announcements, they ask permission to sit and begin passing food to the upperclassmen. The plebe in the "hot seat," which is located next to the squad leader, must ensure that the upperclassman has ample food and drink before the plebes are allowed to begin. Plebes must take only one bite, then return their hands to their laps. They must be ready to answer questions and to recite their rates at any time during the meal after no more than "three chews and a swallow."

Some plebes find eating under these circumstances difficult, but soon they become accustomed to it. Squad leaders make sure that everyone gets uninterrupted time for eating.

"Plebe Summer is a balance between personal initiative and following orders. Along the way you'll meet upperclassmen you'd rather forget and classmates you'll never forget. Teamwork is stressed here—no one makes it through Plebe Summer alone."

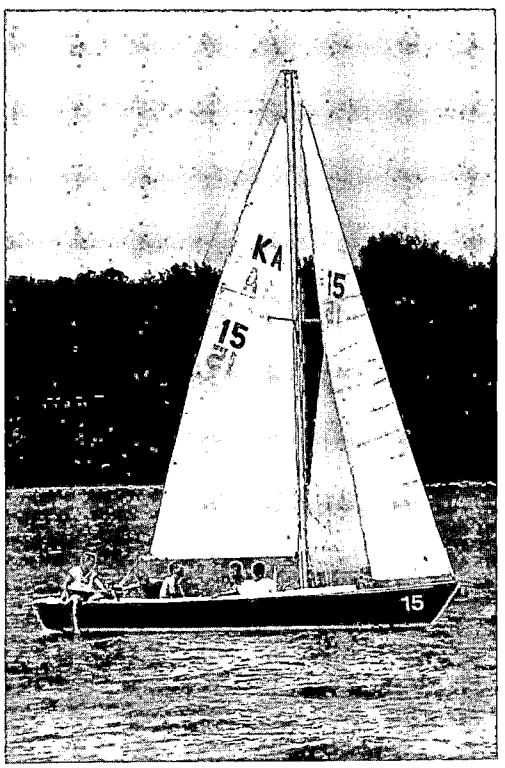
"It's no longer enough to try your very best. You must get the job done. The word here is 'do.' "

P-100

Setting Sail and More

Professional training, in areas such as sailing, marksmanship, and signals, is an enjoyable part of the summer for the plebes. They learn basic sailing in the Academy's 24-foot Rainbow-class knockabouts. Then they sail Laser dinghies and 44-foot yawls.

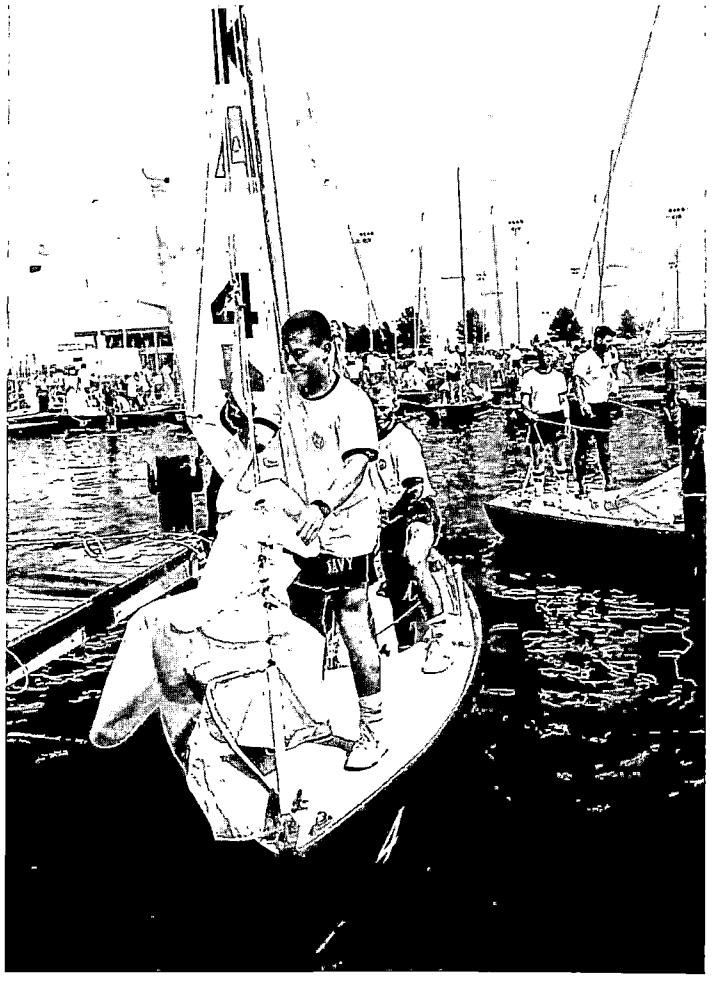
The program includes instruction in water safety, boat handling, sailing techniques, crew work and seamanship. Those who enjoy sailing can look forward to competing later on a sailing team or volunteering for the Command/Seamanship Training Squadron, a three-week summer sailing cruise for first- and third-class midshipmen.



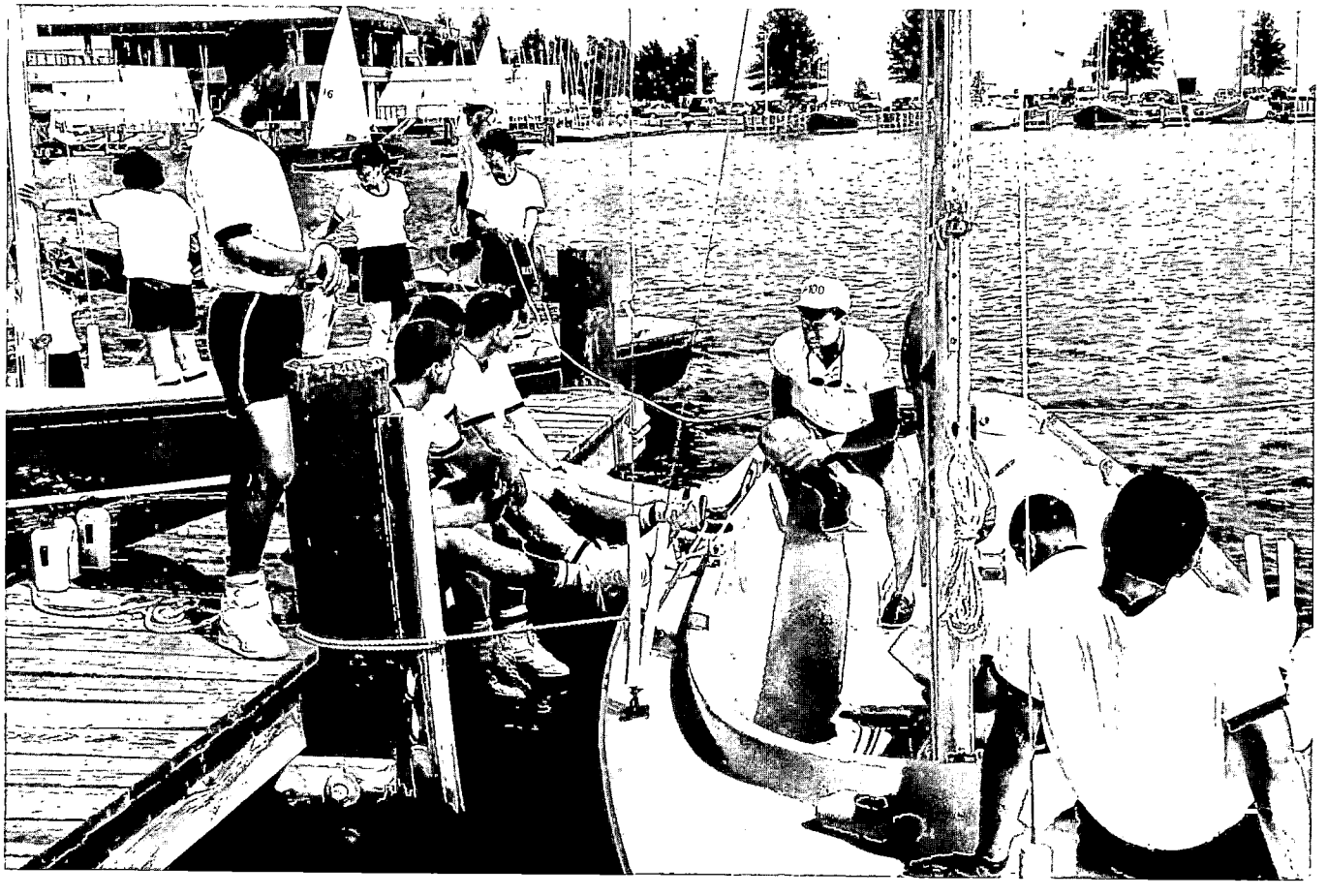
Plebes also are introduced to small arms during marksmanship training at the Naval Station pistol range. There, under the close supervision of upperclass midshipmen and Marines, they learn weapons safety, sight alignment and trigger control before shooting to qualify for ribbons as marksmen, sharpshooters or expert shots.

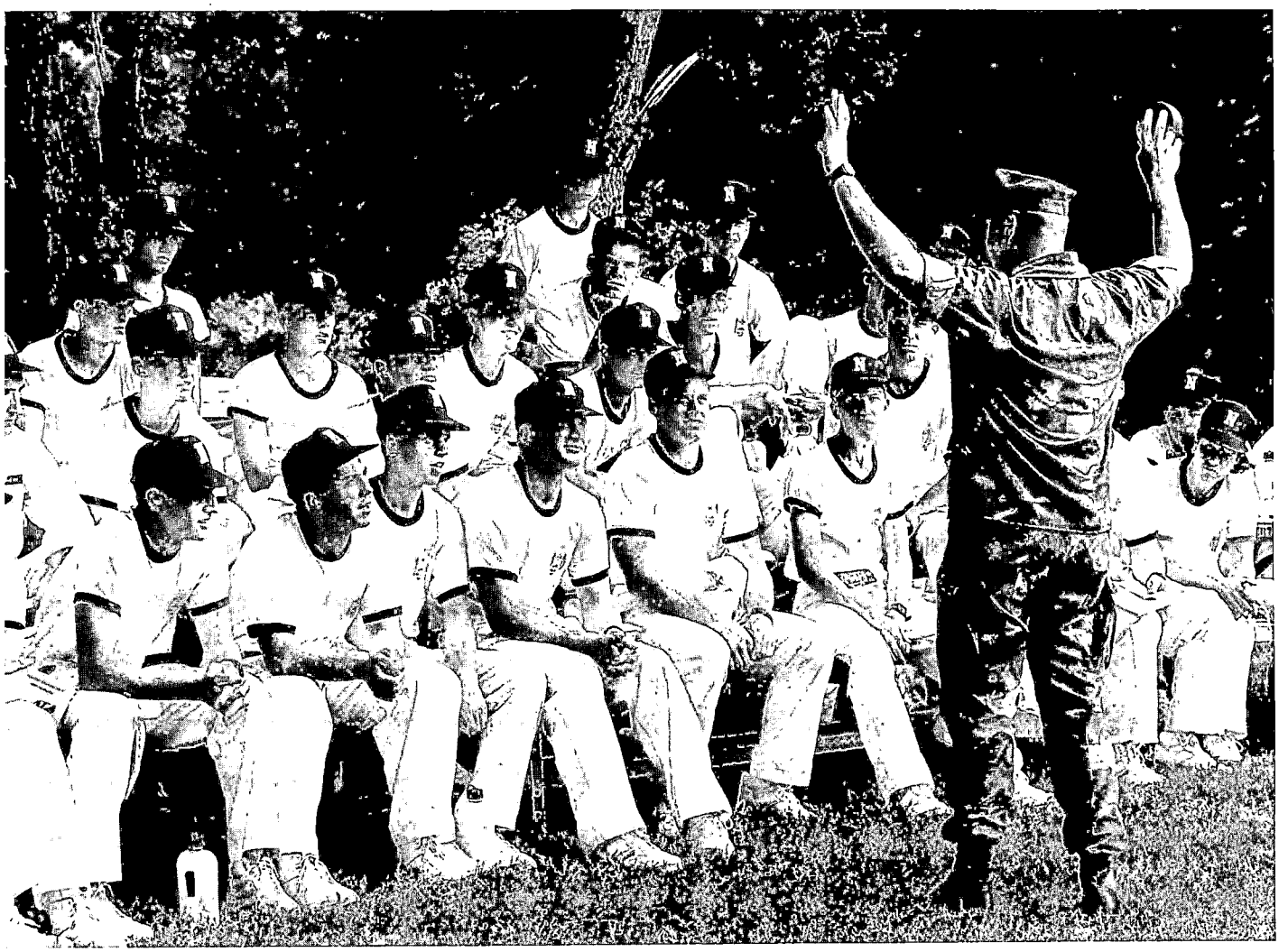
For signals training, enlisted personnel from the fleet introduce plebes to this effective, age-old form of communications still used today in the Navy. Plebes memorize the different flags and their meanings, and learn Morse code. High marks on subsequent tests of their knowledge of signals and Morse code can earn color points for the platoon.

Plebes also are trained during the summer in shipboard damage control techniques. They get hands-on training putting out fires and stopping leaks in pipes and bulkheads under realistic (and wet) circumstances. Proficiency in these basic skills will be tested often during shipboard exercises later, during summer cruises, and after they graduate and take their places as junior officers in the fleet.



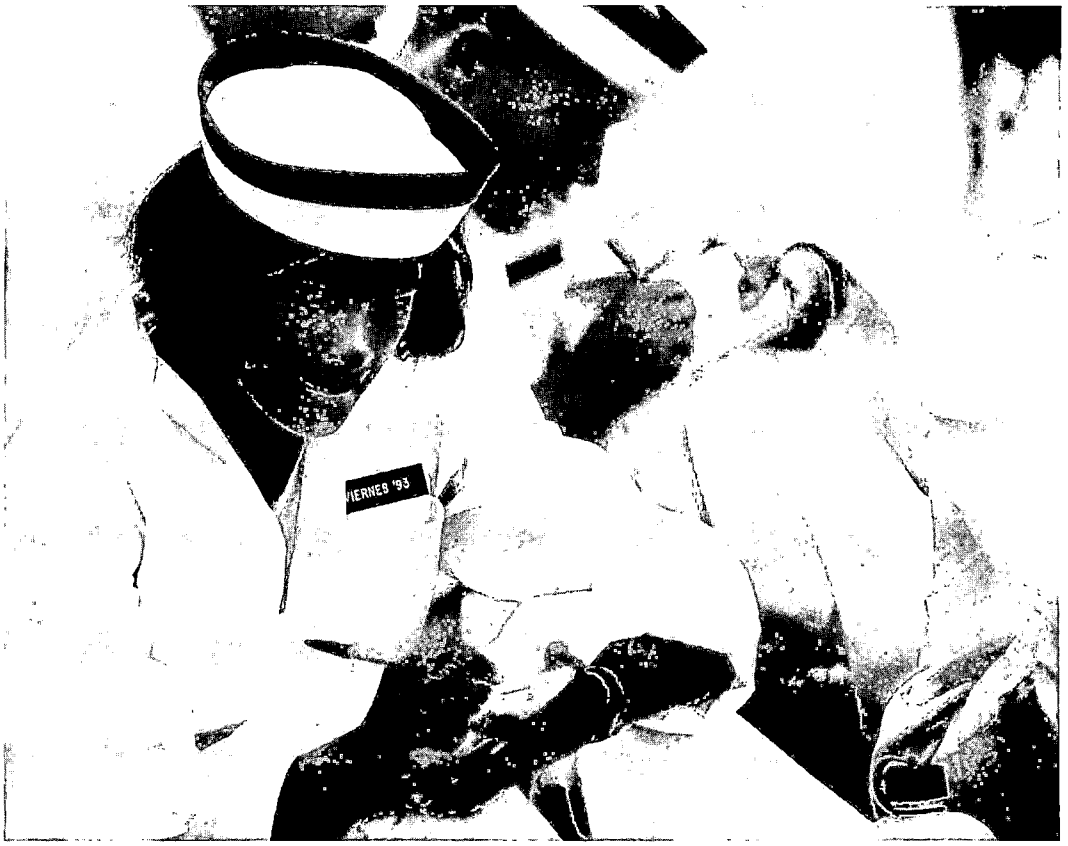
"I've never been challenged more mentally, physically or morally in my life. It's an adventure just to wake up and think of what you're going to do today."

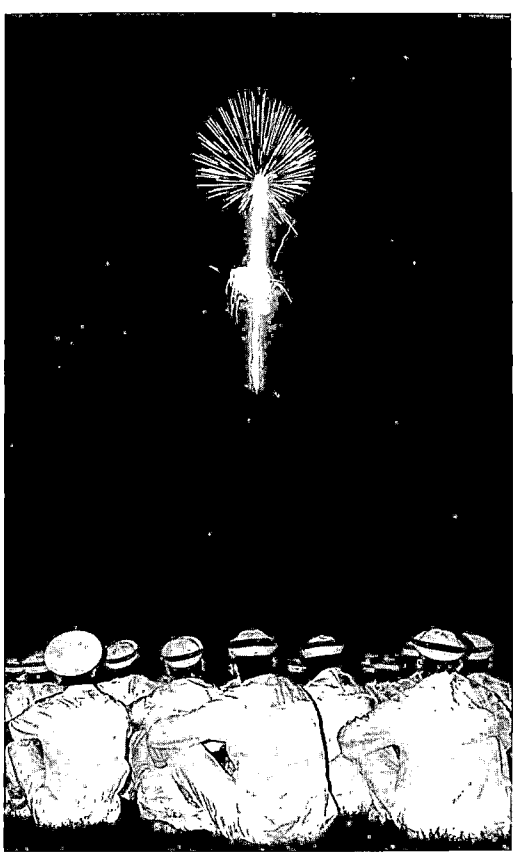




COACH

Taking a Break



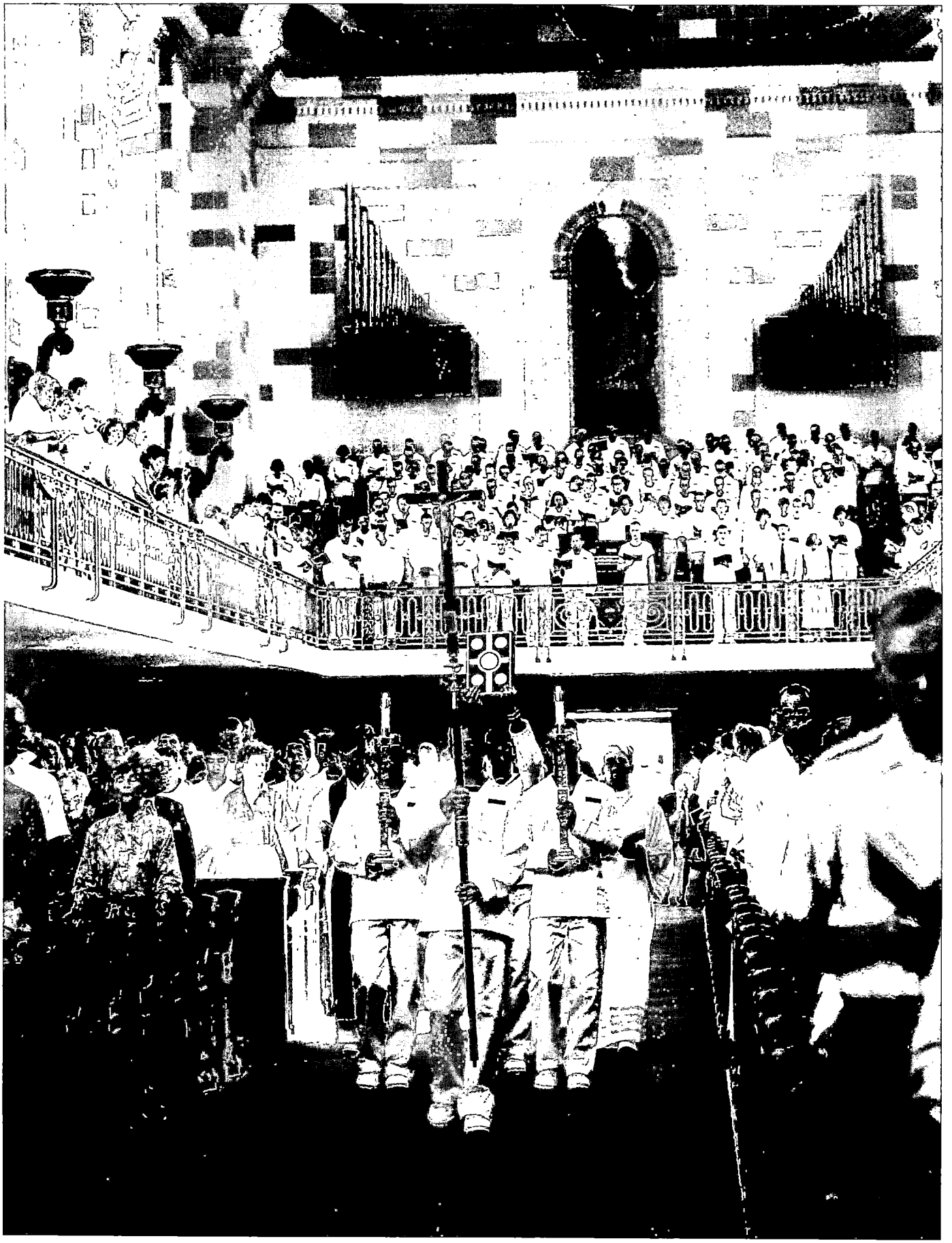


During Plebe Summer, specific periods of the day are designated as "personal time" for plebes -- opportunities to meet with friends, engage in sports activities, sing in the choir, attend religious services, shop in the Midshipmen Store, make a telephone call or write home.

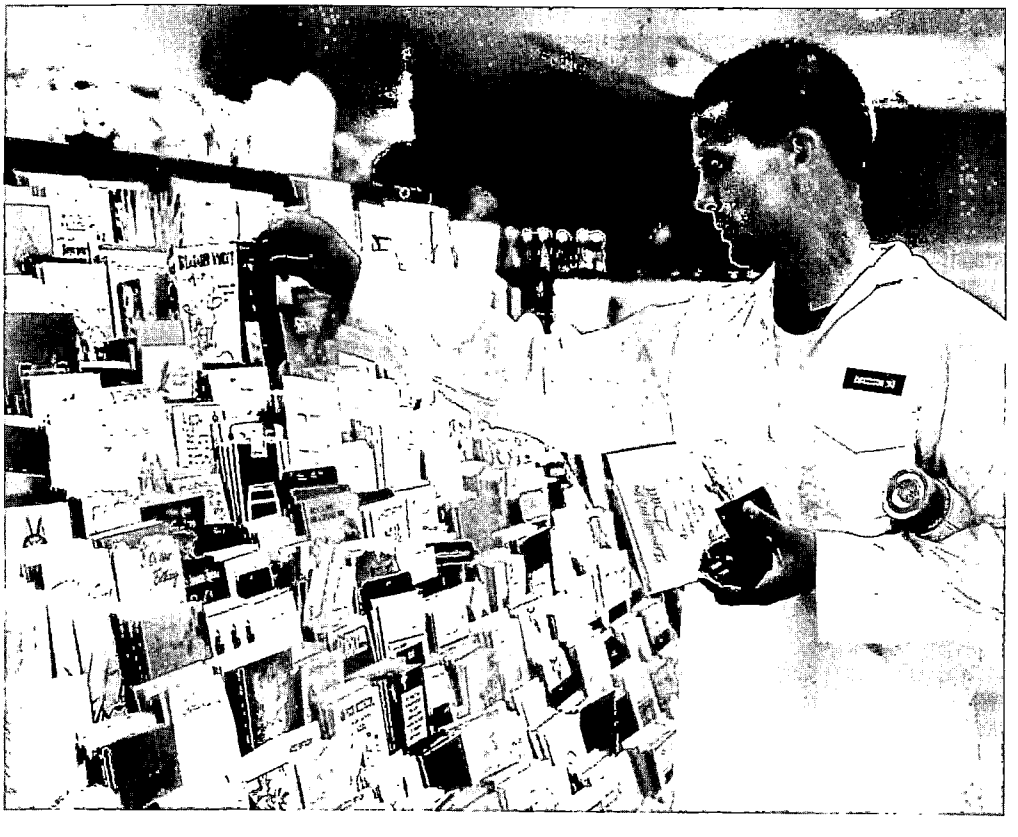
Plebes first meet their classmates outside Halsey Field House during I-Day. While there is little chance for mingling during this busy day, after a while they come to know their fellow plebes as shipmates and friends. Plebes realize early on that they must work as a team. Roommates work together preparing their spaces and themselves for inspection, and they help each other study. Plebes must learn the first names and home towns of all classmates in their platoon. This requirement encourages loyalty and a kinship among the plebes. The Class of 1993 will become an extended family, with the kind of close relationships that last a lifetime.

From the first day of Plebe Summer until the day of commissioning, the Academy's staff of chaplains ministers to the needs of the brigade. Plebes are encouraged to attend Protestant, Catholic, or Jewish services, in both traditional or contemporary form, in the Naval Academy Chapel.

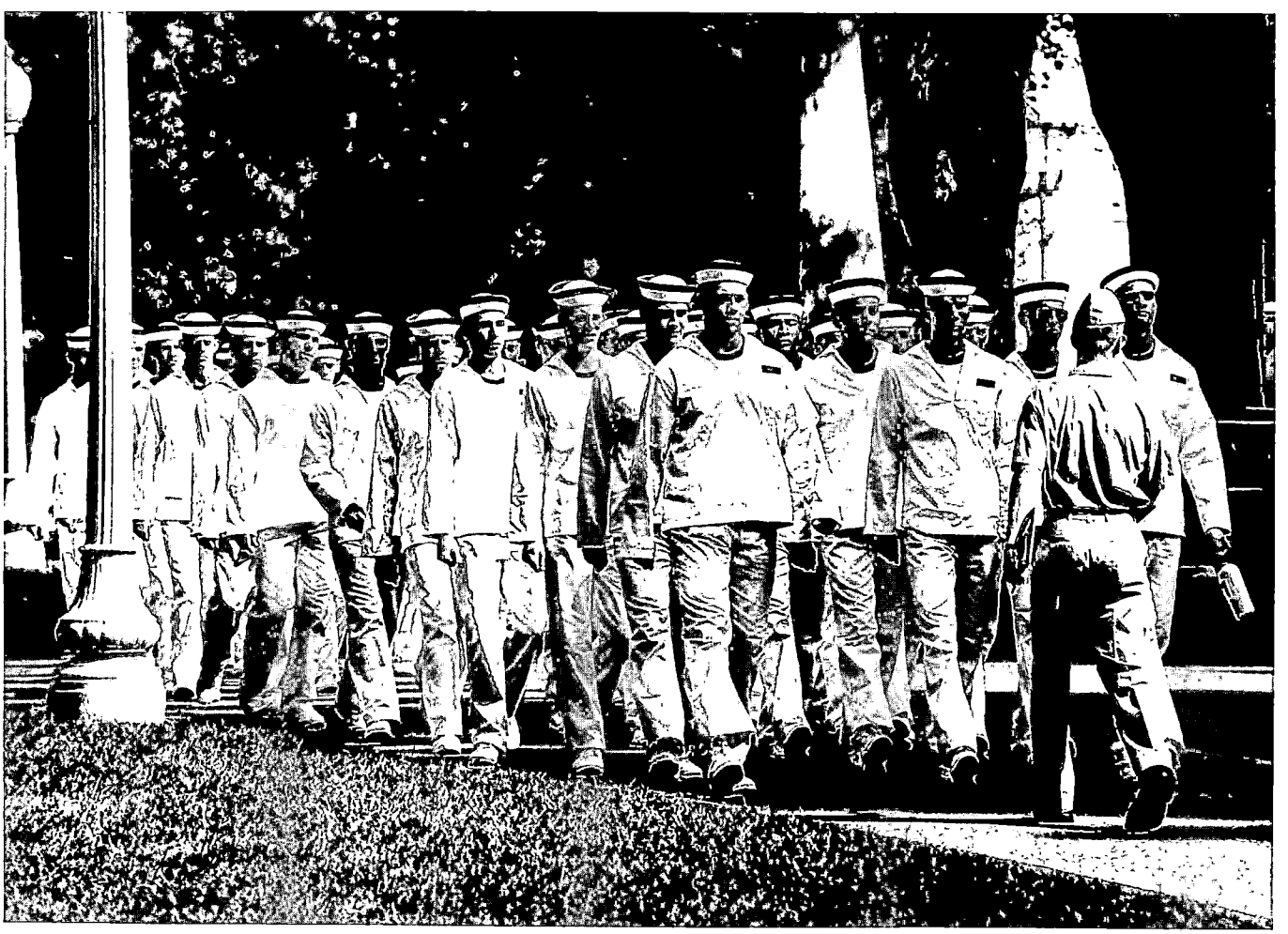
While attendance at these services is optional, midshipmen are reminded that their personal beliefs will often be tested as naval officers. In times of stress, their subordinates will look to them for spiritual as well as professional guidance.



"You gain a great appreciation for common comforts, simply because they are not at all common here."



Leading the Way

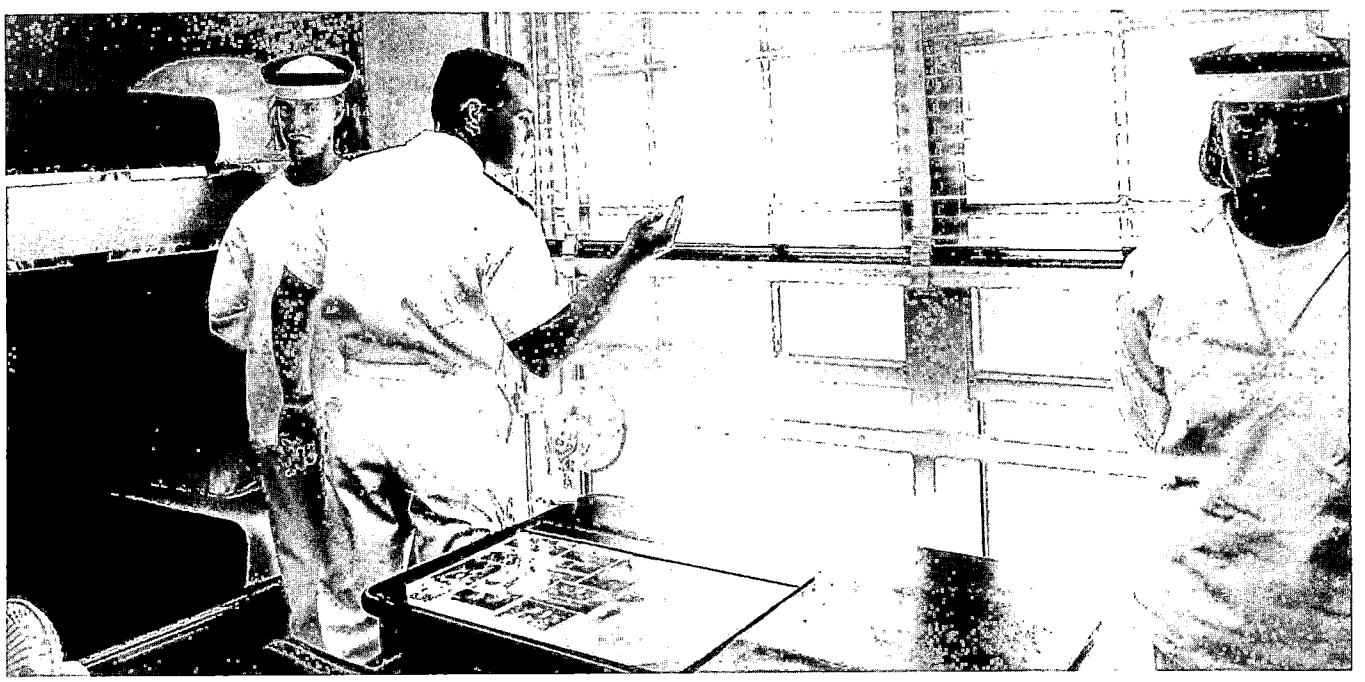


It's to the squad leader that the new plebe looks for guidance, instruction, and inspiration. Many plebes take for granted the self-confident, squared-away midshipman squad leader who always seems to know just what to do, and how and when. But the first and second class midshipmen know that leadership by example isn't easy.

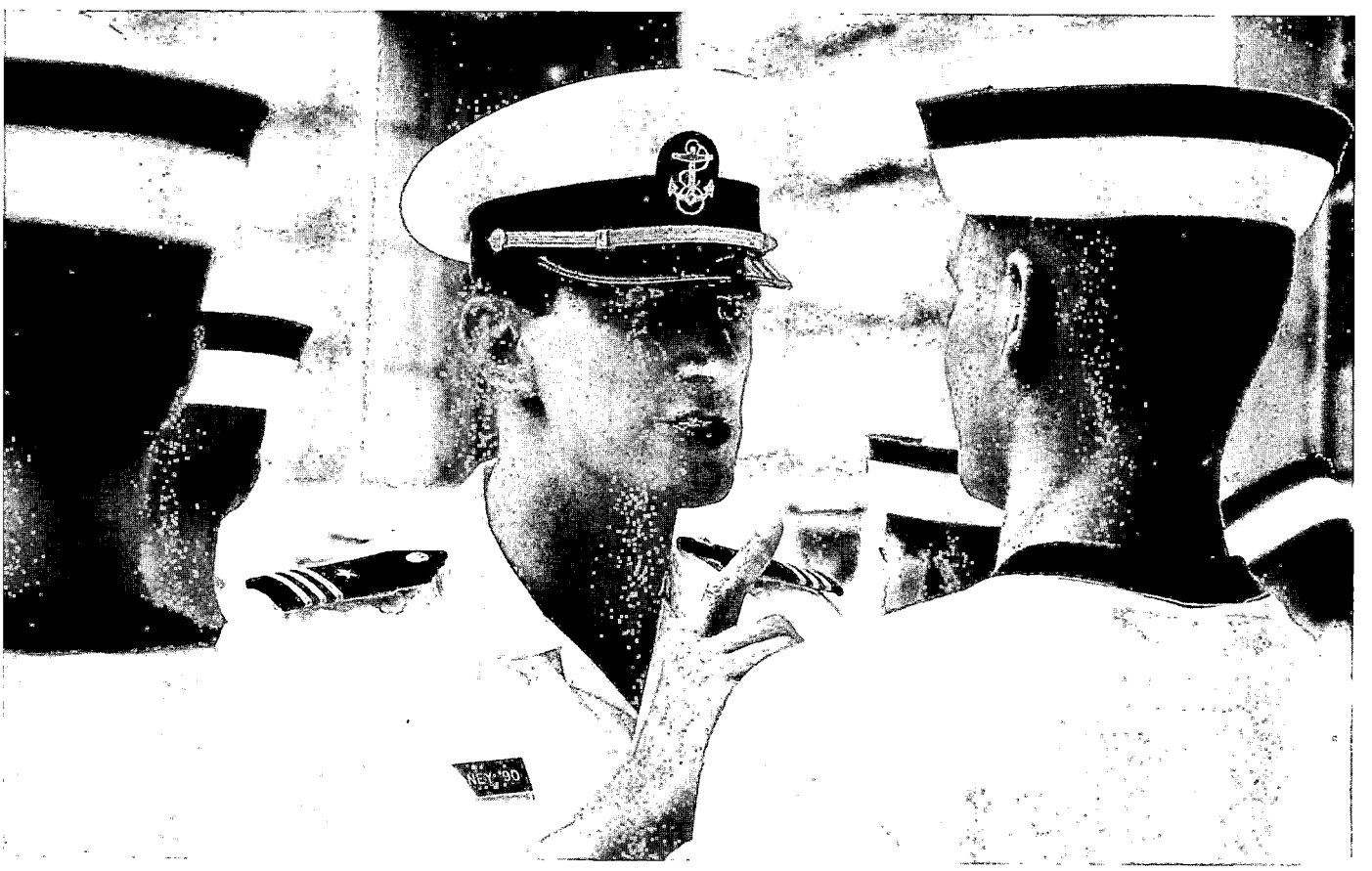
Most have wanted to be squad leaders since they were plebes, and to reach this goal they have completed extensive training. They cannot expect their plebes to look sharp in their uniforms unless they themselves set a perfect example. And if the plebes must know the menu, officers of the watch, and the time of the next evolution, then the squad leaders must know their plebe "rates" even better. As the persons in authority who are closest to the plebes during their first formative weeks as midshipmen, the squad leaders have an important responsibility.

For many of the first and second class midshipmen, the three weeks as Plebe Summer squad leaders are the most professionally challenging weeks of their Naval Academy career. For years they have watched and critiqued the leadership styles of other midshipmen and officers. Plebe Summer's experience gives the squad leaders the chance to try the leadership techniques they have learned. And if they make a mistake, they experience one of the toughest tasks in leadership: admitting a mistake, learning from it and moving on.

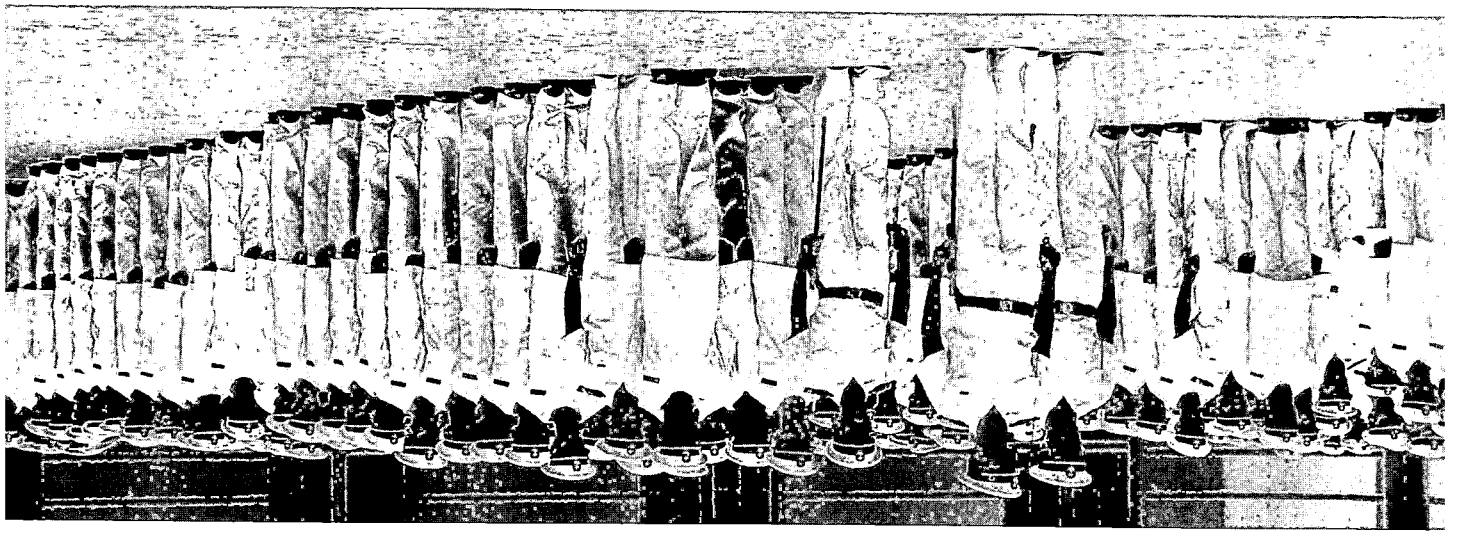
In some ways, the squad leader's second Plebe Summer is harder than the first, but the leadership opportunity is worth the time and effort required. And while the plebes do not always appreciate their squad leaders or understand their methods right away, they rarely will forget those upperclassmen who helped turn civilians into midshipmen during Plebe Summer.



"I'm not sure which was more difficult, Plebe Summer when I was a plebe or Plebe Summer when I was a firstie."



"This summer I've learned that being negative and yelling all the time is easy, but leading with a positive response and performance is a difficult and not completely innate ability."



DOWNS '93

Welcoming Parents

"Parents' Weekend was a strange experience. My parents were so excited about seeing me after seven weeks that they took a whole roll of film -- of the wrong plebe."

Parents' Weekend offers the opportunity for parents to meet with their sons and daughters after the first five intensive weeks of Plebe Summer. During this three-day weekend, parents can sail with the midshipmen, watch a dress parade and sports exhibitions, dine in King Hall and meet with faculty and staff members to get an inside look at life at the Naval Academy. For the plebes, Parents' Weekend is a welcome break, as well as a proud time to show off new uniforms, skills, knowledge and friends.

This year, Parents' Weekend begins Friday, August 11. Parents have the first opportunity to visit with midshipmen following the noon formation. There are signs along Stribling Walk to help parents and plebes reunite. Many parents won't recognize their sons or daughters right away. In just over a month's time as plebes, they've changed: they stand taller and straighter, they often say "sir" and "ma'am," and they use Navy slang, acronyms, and abbreviations with abandon.

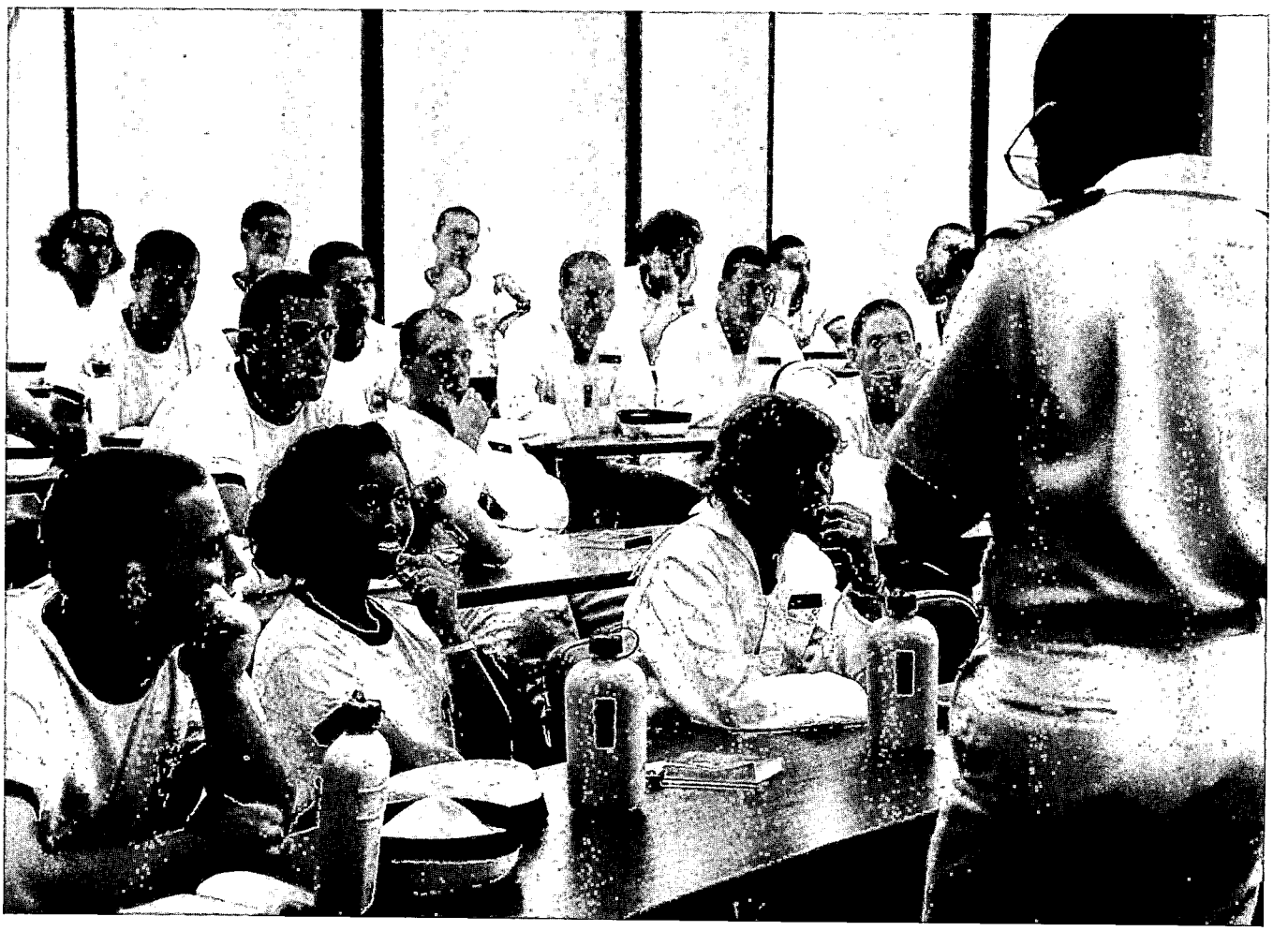
For parents, the dress parade on Saturday morning is one of the highlights of the visit. The entire Class of 1993 participates. Members of the Class of 1990 lead the military units in the parade. Later in the day, there are tours available of the Academy's engineering and navigation departments, sailing in the Chesapeake Bay, and ships open for visiting.

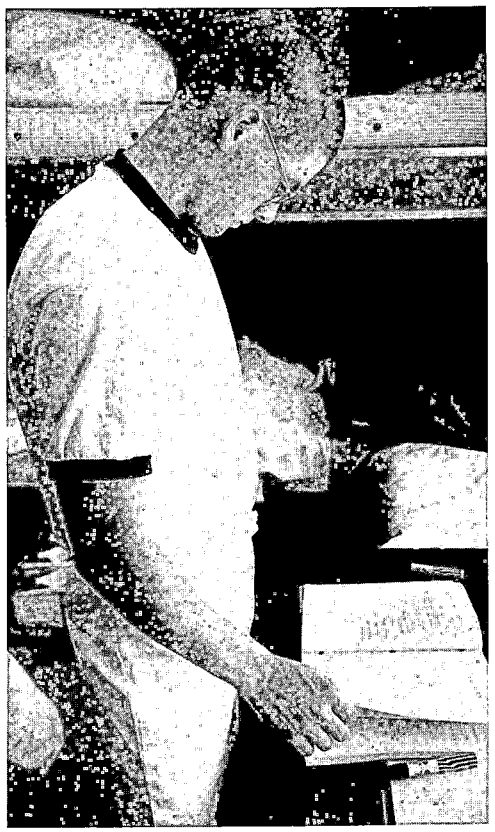
Saturday evening is the parents' forum and reception held at Radford Terrace. The Dean of Admissions, Superintendent, Academic Dean, Director of Athletics, and Commandant of Midshipmen address the assembly. After these remarks, senior Academy officials, members of the faculty, the Candidate Guidance Office and Admissions staff, and the commissioned battalion and company officers for the 1989-90 academic year meet with parents over refreshments to discuss the Academy's programs and facilities.

The forum and reception are planned primarily for parents and adult guests. A social mixer and dance in Dahlgren Hall is scheduled for midshipmen and their younger relatives and friends. This opportunity to relax and socialize is one of the highlights of the weekend for plebes. They also enjoy chances to leave the Yard during Parent's Weekend and to let their hair down -- figuratively, of course.

"Parents' Weekend is tremendous—you know, you just feel proud of yourself, what you've been through, and you want to show somebody."

Looking Ahead





Upperclassmen return from at-sea training, leave and other summer activities in late August. The Fourth Class Regiment is dissolved and Plebe Summer is over, but plebe indoctrination continues, and the academic challenge begins.

During the academic year, the entire brigade is organized into two regiments. In each regiment are three battalions and in each battalion are six companies. The plebes of each of the 36 platoons from Plebe Summer join their respective academic year companies numbered one through 36.

The demanding daily schedule during the academic year includes six class periods, special instruction for plebes and a three-hour study period, in addition to inspections, formations and drills, parades, varsity and intramural athletics.

In their first academic year, plebes are placed in a program of study at a level suited to ability and academic background. Plebes study leadership, naval science fundamentals and basic naval engineering. These courses lay the foundation for the core curriculum required of all midshipmen. First-year courses also provide a sound basis for pursuing a major field of study chosen toward the end of plebe year. Majors are offered in 18 subject areas -- eight in engineering, six in sciences and four in humanities and social sciences.

Given the small size of classes, plebes quickly get to know many members of the Naval Academy faculty. This is an integrated group of about 600 civilians and military officers. The officers, rotated at intervals of two to three years, bring fresh ideas and experiences from operational assignments. The civilians, nearly all PhDs, provide a core of professional scholarship and teaching experience as well as continuity in the educational program.

The faculty is divided into five academic divisions, to which plebes are introduced during their first academic year.

Division of Professional Development

Under the Commandant of Midshipmen, the Director of Professional Development coordinates a wide range of instruction dealing with the professional development and training of midshipmen. The Division of Professional Development encompasses the departments of leadership and law, seamanship and navigation, and professional programs. The curriculum includes both academic courses and professional instruction, all designed to give midshipmen the skills and knowledge required for commissioning and a career in the naval service.

Academic courses present the fundamental techniques of naval leadership, military law and navigation, in addition to the more advanced elements of naval aviation, surface and submarine warfare operations. Professional courses include practical drills in addition to classroom instruction. Drills conducted aboard the academy's yard patrol (YP) and sailing craft are augmented by at-sea training with fleet and Marine units during the summer.

The division also plays a role in educating midshipmen on career opportunities following graduation. Through service selection information and ship visit programs, midshipmen learn about Navy and Marine Corps operations, enabling them to make a service selection into the professional community best suited to their abilities and interests. The Department of Professional Programs administers service selection, as well as summer cruises.

Professional extracurricular activities (ECAs) under the purview of the division include the Midshipman Aviation Training Squadron (VTNA), Scuba Club and Military Parachuting. A fleet Navy Tactical Wargaming system (NAVTAG) offers midshipmen experience in naval tactics. NAVTAG is part of formal summer training and academic year company competition.

Leadership training is the foundation for successful service in the fleet. To enhance formal classroom preparation and enrich the leadership opportunity for midshipmen, special leadership events are conducted under the aegis of the Department of Leadership and Law. These include an annual formal Mess Night for the second class which is attended by numerous distinguished naval leaders, and the yearly Leaders' Forum, a convocation of high ranking student leaders from each service academy designed to assist them in effectively channeling their leadership abilities. Throughout the leadership curriculum, in and out of the classroom, training also contributes to the rounding out of future officers by emphasizing the social and professional points of military etiquette.

Division of Engineering and Weapons

The mission of the Division of Engineering and Weapons is to provide midshipmen with an understanding of basic engineering concepts, to teach them to approach problems in an orderly and analytical manner, and to help them develop into officers capable of using this knowledge soundly throughout their careers. Professional applications of engineering, stressed during summer at-sea training with the fleet, complement classroom and laboratory work during the academic year at the Academy.

The Division of Engineering and Weapons includes five departments -- aerospace engineering, electrical engineering, mechanical engineering, naval systems engineering, and weapons and systems engineering. Seven of the eight engineering majors are accredited by the Accreditation Board in Engineering and Technology as providing undergraduate preparation for professional engineers.

Aerospace Engineering Department. The aerospace engineering major is concerned with the study of propulsion systems, structural analysis and design, aerodynamics and space mechanics, and vehicle performance, stability and control.

Aerospace engineering is directly involved in missile performance and design, vertical and short takeoff and landing (VSTOL) aircraft, helicopters, deep submergence vehicles, advanced marine vehicles (hydrofoils and surface effect ships) and advanced diving equipment, high-performance military aircraft, commercial transports and space vehicles, both manned and unmanned.

To help give a solid background in these areas, the Naval Academy's aerospace program has an elective flight-test course, which utilizes a light aircraft as an inflight laboratory, and an aerospace design course in which midshipmen design a vehicle using knowledge gained in previous studies.

Electrical Engineering Department. The electrical engineering program is concerned with basic physical principles and mathematical tools. The officer with a solid background in these areas can readily keep abreast of developing electronic technology, and can aid the Navy in the design, tactical evaluation and management of the electronic devices of the future. Electrical engineering majors design and build such electronic devices as digital filters, stereo systems, light organs, and radio transmitters and receivers.

Mechanical Engineering Department. Mechanical engineering is concerned with the design of systems that convert energy to useful mechanical forms. Scarcely a field of endeavor exists that does not require the services of mechanical engineers. The mechanical engineering major teaches midshipmen the fundamental engineering sciences of mechanics, thermodynamics, materials science, fluid flow, heat transfer, electricity, electronics and mechanical systems design.

Naval Systems Engineering Department. To operate effectively in the total ocean environment, the Navy has surface ships, submarines, deep submergence vehicles and advanced diving equipment. The essential ingredient for the successful operation of all of these vessels and equipment is man. Programs offered by the Naval Systems Engineering Department are designed to prepare midshipmen as future naval officers to obtain optimum performance from these hardware systems. The department offers majors in marine engineering, naval architecture and ocean engineering. These are all interdisciplinary fields involving the application of engineering principles in the ocean environment.

Weapons and Systems Engineering Department. The goal of the systems engineering major is to develop an overall understanding of the basic problems involved in the analysis and design of complete engineering systems. The program is designed to give midshipmen the broad technological background necessary for effective utilization of the multitude of complex systems found in our armed forces.

The major is interdisciplinary, encompassing the study of automatic control systems, digital technology, electronics, and hydraulics.

Division of English and History

"Every night when you go to bed, you're glad you made it. You have to take it one day at a time ... keep your chin up, keep smiling. Because someday you won't be a plebe anymore."

The Division of English and History, offers two of the Academy's four humanities majors.

The English Department sponsors courses in British and American literature as well as the literature of ancient civilizations and many of today's major cultures. The department's objectives are to improve writing skills and sharpen the reasoning and reading abilities of midshipmen through the study of literature.

The History Department offers midshipmen a better understanding of the modern world through a careful analysis of the historical evolution of civilizations and societies. The critical skills and knowledge acquired in learning the legacy of the past enhance students' comprehension of the present and enable them to better anticipate the future. All midshipmen are required to take history courses examining the development of Western civilization, Western ideas and institutions from 1776 to the present, and the development and achievements of the U.S. naval service.

The Division of English and History also sponsors a number of extracurricular activities that are open to midshipmen of all classes. Among these are the Debate Team; the History Club; the Masqueraders theater group; and the Academy's Cultural Affairs Program. The latter program, created to enrich life at the Academy and to stimulate a lively interest in the performing arts, offers opportunities for midshipmen to attend the finest professional productions of dramas, operas, symphonies, and ballets in nearby Washington and Baltimore.

Division of Mathematics and Science

The mission of the Division of Mathematics and Science is to present concepts and theories, together with appropriate applications, of the mathematical, physical, life, and earth sciences. A study of fundamentals is stressed throughout the curriculum. Majors are offered in computer science, chemistry, mathematics, oceanography, physics and general science.

The division includes five departments -- computer science, chemistry, mathematics, oceanography and physics.

The Computer Science Department offers a computer science major. Midshipmen gain an in-depth understanding of computer technology oriented toward naval applications of computers. All plebes take a one-semester course using the Pascal language.

The Chemistry Department teaches the fundamentals of chemistry, particularly valuable for naval officers associated with sub-specialties such as oceanspace research, life sciences, and support systems, electrochemistry, corrosion, propellants, and many others. Each midshipman is required to take two

semesters of chemistry in the plebe year.

The Mathematics Department provides the foundation for the scientific-technical programs as well as for the basic science-engineering professional courses. All midshipmen are required to take three semesters of calculus and one semester of differential equations. The department also offers a major with three possible areas of concentration: mathematics, operations analysis and computer science.

The Oceanography Department supports the major in oceanography with a host of modern facilities. These include an 85-foot oceanographic research vessel; a pier-side field laboratory on the Severn River; and a weather station and radiosonde system for study of the atmosphere. The department has a remote computer terminal tie-in to the world-wide weather data base located at Carswell Air Force Base, Texas; an on-line facsimile system to receive current weather charts from the National Oceanic and Atmospheric Administration; and a facsimile system to receive GEOS (Geostationary Operational Environmental Satellite) pictures every 30 minutes.

The Physics Department presents fundamental physical concepts and principles, emphasizing their general usefulness, and laying a strong foundation for further work in a broad range of technical fields. Some of the topics treated in the sequence of courses are the origin, propagation and reception of waves of all kinds; field concepts; theory of relativity; basic theory of quantum mechanics; and statistical mechanics.

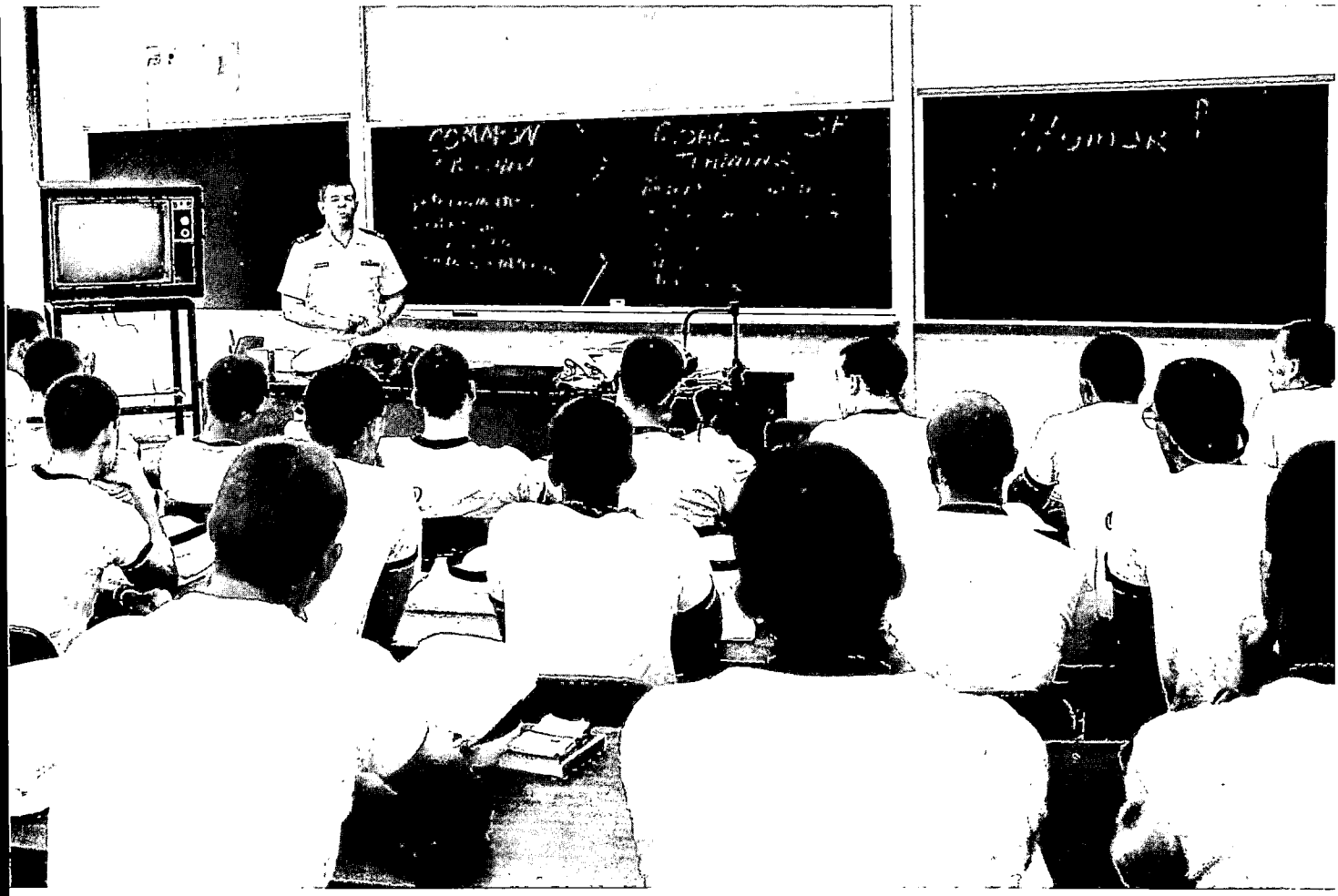
Division of U.S. and International Studies

The mission of the Division of U.S. and International Studies is to give midshipmen an appreciation of the complexities and dynamics of international relations. The division has three departments.

The Political Science Department offers courses and a major in political science designed to teach prospective naval officers about the U.S. political system and the international environment.

The Economics Department course offerings acquaint midshipmen with the basic principles of resource allocation and income distribution in the context of a market economy. The major in economics emphasizes rigorous analysis of problems, policies and decisions relating to individuals, business firms, and national and international economies.

The Language Studies Department offers courses and minors in six languages: Chinese, Japanese, French, German, Russian and Spanish. Midshipmen majoring in political science, economics, history or English take a two-year sequence of these languages, with more advanced courses available on an optional basis. Intermediate and advanced courses are open to midshipmen in other academic majors as electives. The spoken language and cultural understanding are emphasized. The department offers a fully equipped language laboratory, an international satellite facility for receiving television from the Soviet Union, Europe and Latin America, and the Cox Fund Summer Study Abroad programs.



Alumni Association

The United States Naval Academy Alumni Association is a non-profit, independent, self-supporting corporation of Naval Academy alumni, organized for educational and charitable purposes, and dedicated to serve and support the United States, the naval service, and the Naval Academy.

Alumni House, formerly Ogle Hall of pre-Revolutionary War fame, is located two blocks outside Gate 3 (Maryland Avenue) of the Naval Academy on the corner of King George Street and College Avenue. Visitors are welcome.

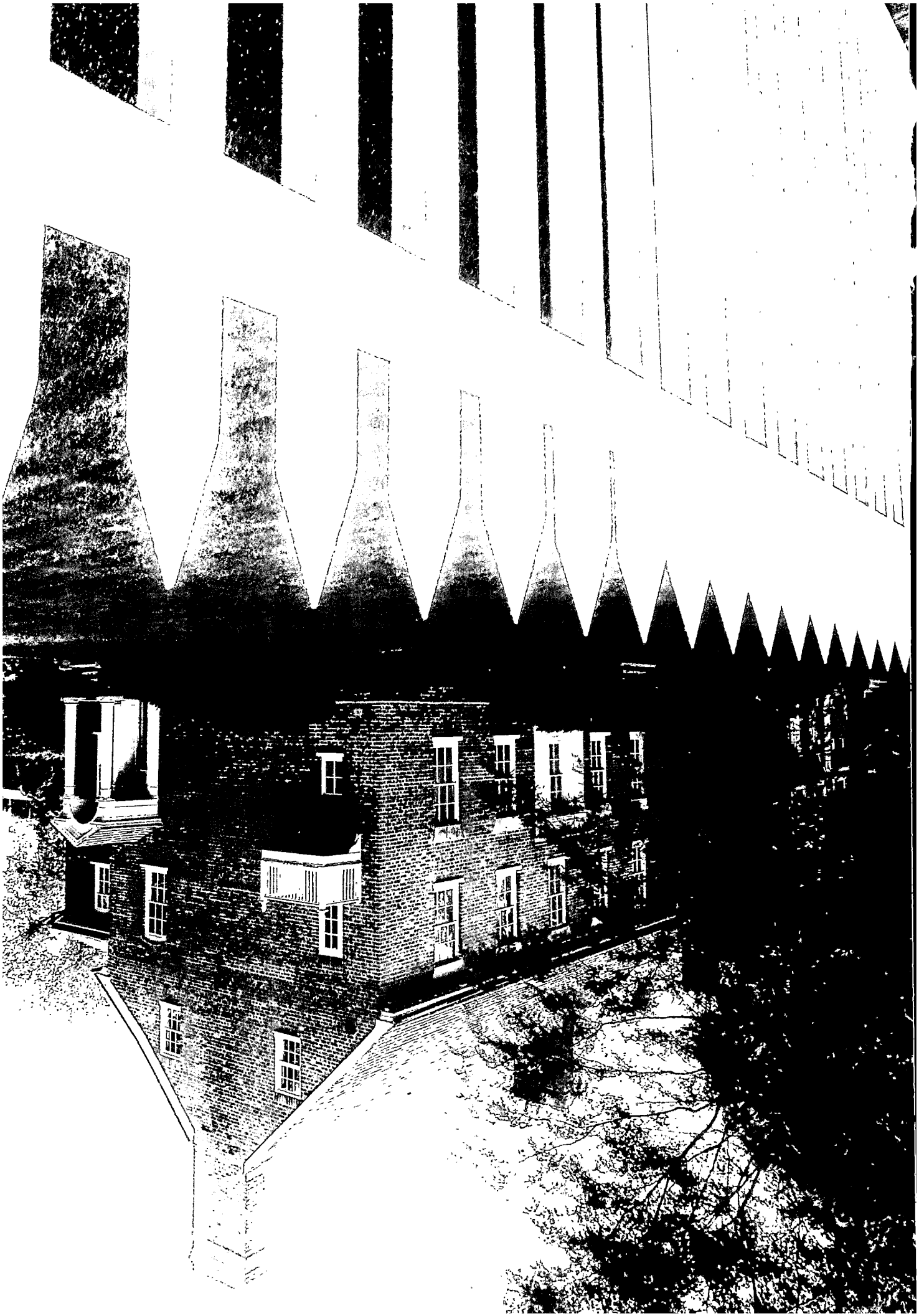
Midshipmen, by virtue of being sworn in and entered on the Naval Academy's rolls, are considered alumni and have the opportunity to join as Life Members of the Alumni Association upon graduation.

A strong, growing membership body gives the Alumni Association the opportunity to provide aid and support to the Naval Academy and the brigade for programs not covered by government appropriated funds. This is done through various avenues. The Superintendent, through a special committee, sets the priority for use of private funds for the maximum benefit of the brigade. The Alumni Association then supports these programs to the maximum extent possible through an annual fund drive and capital campaigns. From academics to athletics, from books to buildings, virtually every area of activity at the Academy is assisted in this manner. Parents also help support this effort by participating in the annual fund drive. In fact, the publication of *this* book is made possible by parents' contributions through the Alumni Association.

The Superintendent has asked the Alumni Association to sponsor and assist the Parents Clubs throughout the country. Currently there are 48 organized clubs which have scheduled meetings throughout the year to discuss current and future events here at the academy.

Communication is the key to success in any organization. The official alumni magazine, *Shipmate*, is published ten times a year and sent to all Alumni Association members. The class columns comprise the majority of the publication and thus help classmates stay current with each other.

The United States Naval Academy Alumni Association is a dynamic and growing organization with more than 30,000 members. With the arrival of more than 1400 plebes this summer, the Academy alumni family continues to grow.



UNITED STATES NAVAL ACADEMY ALUMNI ASSOCIATION
ANNAPOLIS, MARYLAND 21402-5028

UNITED STATES NAVAL ACADEMY

ANNAPOLIS, MARYLAND

Profile

The school: Founded as the Naval School in 1845, the United States Naval Academy today is a four-year service academy which prepares midshipmen morally, mentally and physically to be professional officers in the naval service.

Location: The academy is set on 338 acres between the south bank of the Severn River and historic downtown Annapolis, the state capital of Maryland. Annapolis is 33 miles east of Washington, DC, and 30 miles southeast of Baltimore.

Campus: The Yard, as the campus is called, features tree-lined brick walks, French Renaissance and contemporary architecture and scenic vistas of the Chesapeake Bay. The Bancroft Hall dormitory complex, The Cathedral of the Navy, and other 80-year-old buildings make the academy a National Historic Site. New facilities such as the 577,000-volume Nimitz Library, Rickover Hall engineering complex, and Hendrix Oceanography Laboratory give the academy ultra-modern educational resources.

Students: About 4,500 men and women represent every state in the U.S. and several foreign countries.

Faculty: The 600-member Naval Academy faculty is an integrated group of military and civilian instructors in approximately equal numbers. The student-faculty ratio is 10:1, with class sizes ranging from 10 to 27 students.

Academics: In addition to a core curriculum of academic and professional courses, majors are offered in 18 subject areas: eight in engineering, six in science, mathematics and computer science; and four in the humanities and social sciences.

Professional training: Subjects such as small arms, drill, seamanship and navigation, tactics, naval engineering, naval weapons, leadership and military law are studied during the four-year program. In addition, midshipmen train at naval bases and in ships of the fleet during part of each summer.

Athletics: Midshipmen can choose from 23 men's and 10 women's intercollegiate varsity sports, 23 intramural sports and 12 club sports.

Extracurricular activities: More than 70 extracurricular activities are offered in areas ranging from music and drama to parachuting and scuba diving.

Graduation: Bachelor of science degrees specifying a major field are awarded to midshipmen upon graduation in May. They are commissioned as ensigns in the U.S. Navy or second lieutenants in the U.S. Marine Corps and begin at least five years of exciting and rewarding service as naval officers.

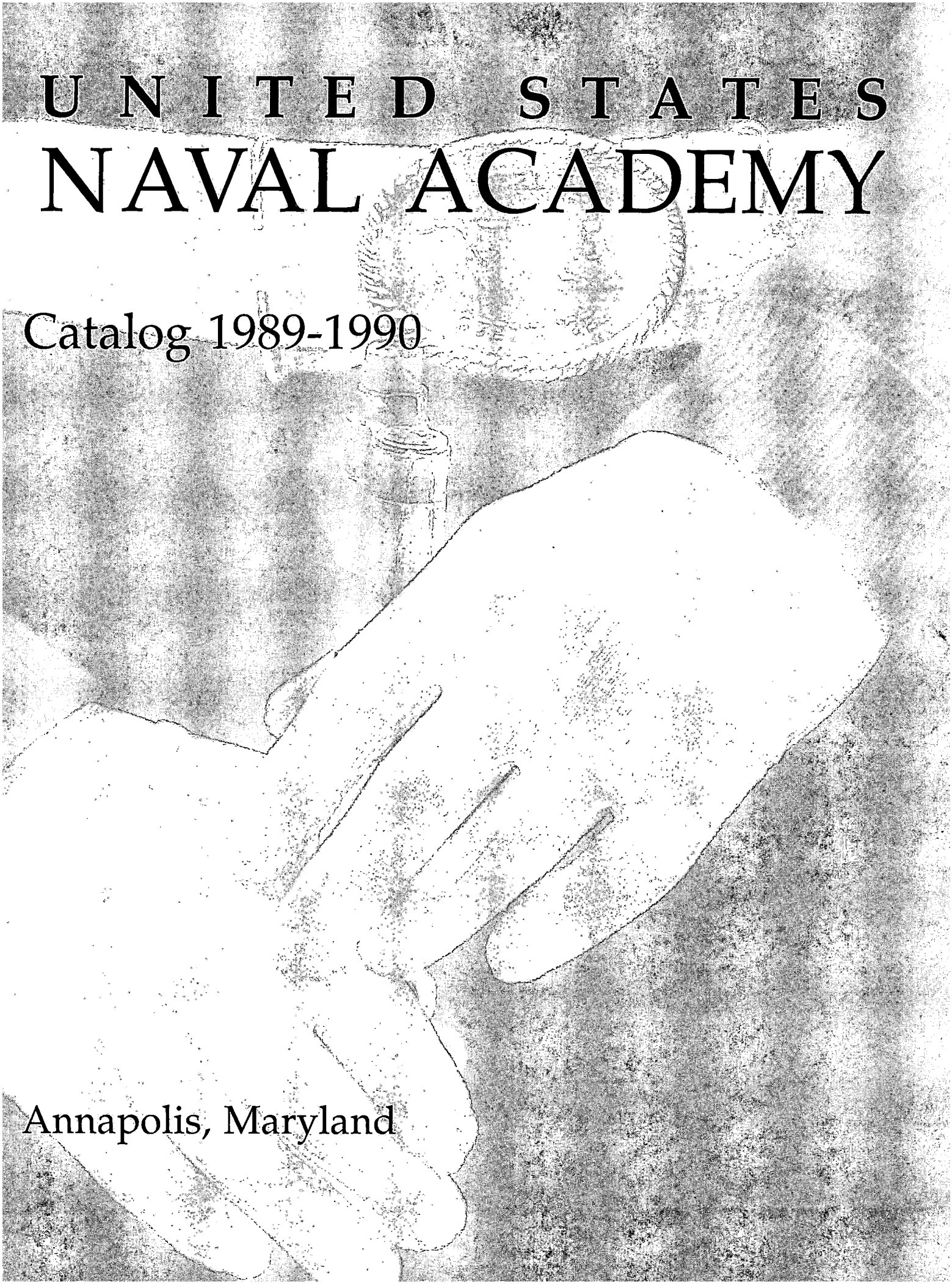
For more information, call the Candidate Guidance Office toll free:

1-800-638-9156

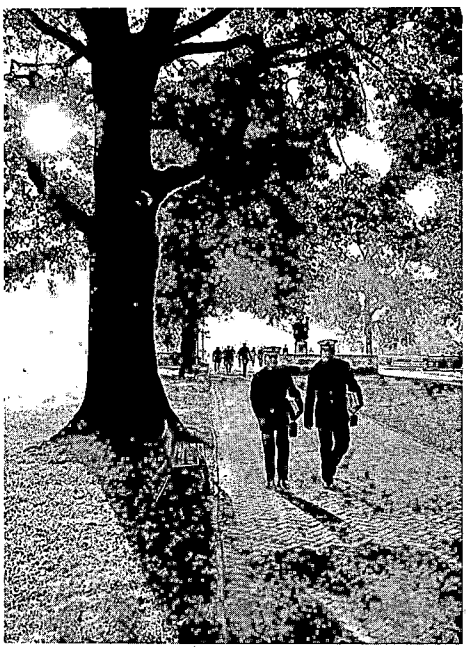
or write:
Candidate Guidance Office
United States Naval Academy
Annapolis, MD 21402-5018

UNITED STATES NAVAL ACADEMY

Catalog 1989-1990



Annapolis, Maryland



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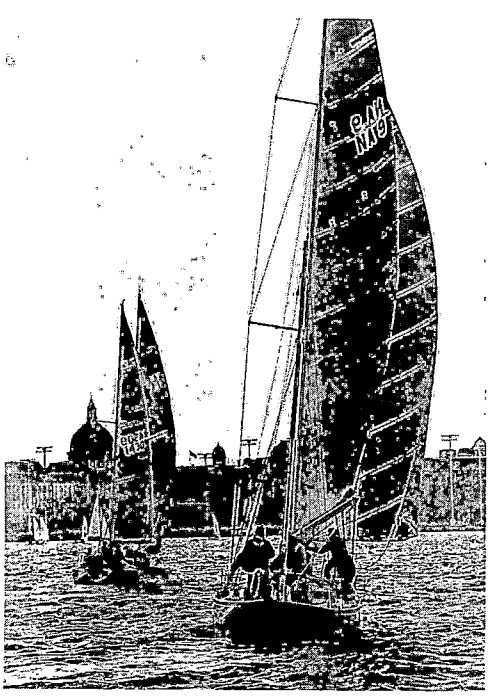
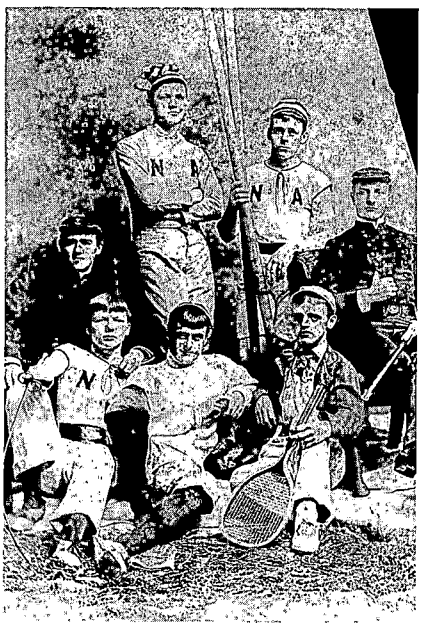


Chapter 1



Introduction

United States Naval Academy

As the undergraduate college of the Navy, the Naval Academy prepares young men and women to become professional officers in the U.S. Navy and Marine Corps. Naval Academy students are midshipmen on active duty in the U.S. Navy. They attend the academy for four years, graduating with bachelor of science degrees and commissions as ensigns in the Navy or second lieutenants in the Marine Corps. Naval Academy graduates serve at least five years as naval officers.

Around the Yard

The scenic Naval Academy campus, known as the Yard, is located in historic Annapolis, Maryland, where the Severn River flows into the Chesapeake Bay. With its combination of early 20th century and modern buildings, the Naval Academy is a blend of tradition and state-of-the-art technology that typifies today's Navy and Marine Corps. Throughout the Yard, tree-shaded monuments commemorate the bravery and heroism that are an important part of the academy's heritage. Buildings and walkways are named for Naval Academy graduates who have contributed to naval history and their nation.

Rear Admiral Virgil L. Hill Jr. graduated with distinction from the Naval Academy in 1961. As a career submarine officer, he served in numerous nuclear powered submarines and commanded USS Hammerhead for four years. He also taught at Naval Nuclear Power School; served in the Office of Naval Intelligence; commanded Submarine Development Group Twelve in New London, CT, and directed the Attack Submarine Division in the Office of the Chief of Naval Operations. He commanded Submarine Group Five in San Diego, CA, before reporting as the 53rd superintendent of the United States Naval Academy on August 18, 1988.

"The young men and women who come to this magnificent institution are the best and brightest that this nation has to offer. We take great pride in our program to prepare them to be commissioned officers in the U.S. Navy and Marine Corps. It is our singularity of purpose that sets us apart from other colleges and universities. We concentrate our considerable resources in developing our midshipmen morally, mentally and physically. They receive the finest possible education to prepare them to serve their country.

At the United States Naval Academy, you become part of a extremely proud tradition of excellence that has existed for five generations. We provide the finest educational facilities, the most up-to-date and modern labs and equipment, outstanding recreational programs and athletic facilities that are unmatched anywhere. This is fundamental to our commitment to excellence. The superb qualifications and dedication of our faculty and staff are further evidence of that commitment. You will be challenged, yet have the opportunity to perform to your full potential.

This nation entrusts to us its one and greatest national treasure, the best of its youth...literally, the future. I am proud to report that the United States Naval Academy is equal to the challenge."

The Naval Academy also is the final resting place of Revolutionary War naval hero John Paul Jones whose words, "I have not yet begun to fight," have inspired generations of U.S. naval officers. His crypt is located beneath the academy chapel, also known as the Cathedral of the Navy. A National Historic Site, the Naval Academy hosts about one million tourists every year from all over the United States and the world. They come to enjoy the natural beauty of the Yard, to recall some of this country's naval history, and to thrill at the traditions carried on in midshipmen parades and military formations.

Tourists and midshipmen also appreciate that downtown Annapolis lies right outside the gates of the academy. With its colonial charm and busy waterfront, Maryland's state capital provides a pleasant, diverse setting for one of America's premier colleges, the United States Naval Academy.

History

The academy started as the Naval School in 1845, founded by Secretary of the Navy George Bancroft on 10 acres of old Fort Severn in Annapolis. Since then, the development of the Naval Academy has reflected the history of

the United States. As our country has changed culturally and technologically, so has the Naval Academy. In just a few decades, the Navy has moved from a fleet of sail and steam-powered ships to a high-tech fleet with nuclear-powered submarines and surface ships and supersonic aircraft. The academy has changed, too, giving midshipmen the up-to-date academic and professional training they need to be effective naval officers in their assignments after graduation.

In 1850, the Naval School became the United States Naval Academy. A new curriculum went into effect requiring midshipmen to study at the academy for four years and to train aboard ship each summer. That format is the basis of a far more advanced and sophisticated curriculum at the Naval Academy today. As the U.S. Navy grew over the years, the academy expanded. The campus of 10 acres increased to 338. The original student body of 60 midshipmen grew to a brigade size of 4,500 midshipmen. Modern granite buildings replaced the old wooden structures of Fort Severn and the Naval School.

Congress authorized the Naval Academy to begin awarding bachelor of science degrees in 1933. The academy later replaced a fixed curriculum taken by all midshipmen with the present core curriculum plus 18 major fields of study; a wide variety of elective courses; and advanced study and research opportunities.

The Naval Academy first accepted women as midshipmen in 1976 after Congress authorized the admission of women to all of the service academies. Approximately 125 women now enter with each plebe -- or freshman -- class, and they pursue the same academic and professional training as do their male classmates.

Mission

The Naval Academy has a unique clarity of purpose, expressed in our official mission: "To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government." This puts everyone -- faculty, staff and midshipmen -- on the same wavelength. It also encourages a sense of spirit and pride found at few other schools.

Program

The moral, mental and physical elements of our program are equally important, all contributing to the qualities of an outstanding naval officer.

Academics

Every midshipman's academic program begins with a core curriculum which includes courses in engineering, science, mathematics and the humanities. This is designed to give you a broad-based education which will qualify you for practically any career field in the Navy or Marine Corps. At the same time, our majors program gives you the opportunity to develop your particular area of academic interest.

Midshipman First Class James Clautice is chairman of the Naval Academy Honor Committee. The 21-year-old from Alexandria, VA, believes that midshipmen can, and should, live by the letter and spirit of the academy's Honor Concept. It is his job to recommend to the commandant of midshipmen whether a midshipman found guilty of violating the Honor Concept should be permitted to continue at the academy.

"I got involved in the Honor Committee during my plebe year, first as the representative of my squad, and then as the representative of my class. When I was a lot younger, I got into a fair amount of trouble, and it affected me in a big way. It was at that point, I think, that I first realized how important honor is.

"Midshipmen come from so many different backgrounds, and have so many different values, and we don't think everyone is made suddenly honorable just by coming to the academy. When I ask a group of midshipmen if any of them cheated in high school or lied to their parents, most say yes. But at the academy, they just don't cheat. We sit next to each other during exams, and the professors leave the room because they trust us, too.

"Educating midshipmen about the Honor Concept is the most important part of our job because ignorance is no defense of an honor violation. After plebes attend a series of ten lectures and movies, they begin to get the idea of how important honor and integrity are.

"We concentrate on honor in the military, but we want to give people a way to deal with the whole world, not just the Naval Academy. We want midshipmen to live honor."

For especially capable and highly motivated students, we offer challenging honors programs and opportunities to start work on postgraduate degrees while still at the academy.

Professional and leadership training

We don't just tell you about life in the Navy and Marine Corps. Over four years at the Naval Academy, the life and customs of the naval service become second nature. First, you learn to take orders from practically everyone. But, before long, you acquire the responsibility for making decisions that can affect hundreds of other midshipmen. Your professional classroom studies are backed by many hours of practical experience in leadership and naval operations, including assignments with Navy and Marine Corps units during summer months.

Moral education

Honor and integrity have a long tradition in the Navy. When expensive equipment and priceless human lives are at stake, there is no room for mistrust among officers. Honor is not something you only read about at the academy. Our Honor Concept clearly states that "A midshipman will not lie, cheat or steal." Midshipmen are bound to live by that concept. In the classroom, on the athletic field and in professional training, you are expected to consider the consequences of your actions and to be accountable for your decisions.

Physical training

We teach the importance of being physically fit and prepared for stress because the duties of Navy and Marine Corps officers often require long, strenuous hours in difficult situations. The physical requirements of Plebe Summer training, four years of physical education and year-round athletics also develop pride, teamwork and leadership.

Profile of Midshipmen

It takes a special kind of young man or woman to handle the Naval Academy's demanding program, but that doesn't mean all midshipmen are alike. Midshipmen come from all 50 states, U.S. territories and several foreign countries. They have roots in cities, suburbs, farms and ranches, small towns and military bases. They have talents and hobbies of every kind and personalities that fit every description. And, they represent the diverse ethnic and cultural heritages that, together, make the United States a great nation. Some characteristics seem to be common among Naval Academy midshipmen, however. The charts on these pages show you that midshipmen are good students, leaders in their high schools and communities, and interested in athletics. But other common qualities of midshipmen don't show up in statistics. The young men and women who choose the Naval Academy are looking for more than a college degree. They like the idea of being challenged mentally, physically and personally. They are people who don't want to settle for the ordinary, the routine or the easy.

Midshipmen are also patriots. They want to serve their country in a meaningful way -- in a profession that helped win this nation's independence more than 200 years ago. Finally, midshipmen are young people who look to the future. They see the opportunities available at the Naval Academy, as well as the exciting possibilities open to them in the Navy and Marine Corps after graduation.

The Class of 1992

Applicants and Nominees

Applicants (includes nominees)	15,730
Number of applicants with an official nomination	6,539
Nominees qualified scholastically, medically and in physical aptitude	2,528
Offers of admission	1,640
Admitted	1,350

College Board Scores

Scholastic Aptitude Test (SAT)

	Verbal	Math
Average scores	588	667

School Honors and Activities

	Percent
Student body/council/government president or vice president	10
Class president or vice president	12
School club president or vice president	29
School publication staff member	26
National Honor Society member	62
Varsity athlete	86
Varsity letter winner	80
Dramatics or debating participant	62
Leader of musical group	8
Eagle Scout	8
Boys/Girls State or Nation representative	19
ROTC, NROTC, AFROTC cadet	6
Sea Cadet	1

Rank in High School Class

First fifth	83%
Second fifth	12%
Third fifth	4%
Fourth fifth	1%

Minorities and Women

The Class of 1992 included a total of 210 minority midshipmen with ethnic backgrounds as follows: Black (69), Asian/Pacific Islander (37), Filipino (12), Hispanic (84), and Indian/Native American (8). Admitted with the Class of 1992 were 147 women.

Geographic Origin

Midshipmen entered from every state in the nation. The class also includes 12 international students, one each from Canada, Egypt, Korea, Pakistan, Panama, Philippines, Senegal and Singapore; and two each from Chile and Honduras.

Previous College and Prep School

A total of 28 percent (383) of those admitted have post-high school education: 15 percent (196) at the Naval Academy Preparatory School, 7 percent (90) at private preparatory schools and 7 percent (97) at colleges and universities.

Sons and Daughters of Alumni

The class included 62 sons and 7 daughters of Naval Academy alumni, totalling 4 percent of the class.

Geographic Distribution of Midshipmen

Fifty States and the District of Columbia

Alabama	42
Alaska	4
Arizona	76
Arkansas	26
California	580
Colorado	70
Connecticut	73
Delaware	19
District of Columbia	15
Florida	236
Georgia	105
Hawaii	18
Idaho	17
Iowa	48
Illinois	141
Indiana	72
Kansas	31
Kentucky	39
Louisiana	30
Maine	18
Maryland	317
Massachusetts	112
Michigan	121
Minnesota	158
Mississippi	20
Missouri	47
Montana	23
Nebraska	25
New Hampshire	17
New Jersey	217
New Mexico	25
Nevada	23
New York	353
North Carolina	81
North Dakota	16
Ohio	171
Oklahoma	32
Oregon	39
Pennsylvania	344
Rhode Island	21
South Carolina	47
South Dakota	8
Tennessee	51
Texas	206
Utah	24
Vermont	33
Virginia	328
Washington	83
West Virginia	36
Wisconsin	65
Wyoming	13

U.S. Territories

Guam	4
Puerto Rico	15
Virgin Islands	2

Foreign Countries

The brigade includes 13 midshipmen from 8 foreign nations.

A Scituate, MA, native, Fourth Class Midshipman Hilary Gilligan wants to be a part of the space program after she graduates. She visited the academy for a weekend during her senior year in high school and read everything she could to prepare herself mentally for the rigors of Plebe Summer.

"For me, the biggest shock of Plebe Summer was having to say 'no excuse, sir,' even if I had the best excuse in the world. For instance, in the morning after the physical education program (PEP), there were just five minutes for three of us to use one shower, dress, shine and straighten our name tags and edge-dress our shoes. So sometimes our shoes weren't finished or our name tags were crooked, and we just had to say, 'no excuse, sir.'

"You never had a chance to relax during Plebe Summer -- ever. You had to rush from one event to another, from swimming to sailing, to a lecture, to lunch. You didn't have any personal time until just before bed, and then for only about ten minutes.

"The best thing about the summer, though, was how we all pulled together. The upperclassmen really stressed helping out our classmates, and I think that is why we learned so much. PEP, especially, was difficult, and the women were expected to do just what the men did. It was hard, but everyone cheered me on if I fell behind, and there was always a helping hand."

Our Commitment

Setting apart the Naval Academy from almost every other college and university in the country is our commitment to the total development of our students. Some other colleges offer more majors in academics. Some put more emphasis on intercollegiate athletics. But nowhere else do you have a better opportunity to grow intellectually, personally and physically than at the Naval Academy. If you've chosen to enter the Naval Academy, we believe you can complete this tough, four-year program. In fact, we are committed to the principle of helping every midshipman succeed. We back up that commitment with . . .

•small class size. Most classes have no more than 25 students. When you are an upperclassman, some courses in your major may have only five to 10 other students.

•student to faculty ratio of 10 to 1. Faculty members get to know you personally in and out of the classroom. They also are available to help with extra instruction or special projects until 11 p.m. every weeknight. It's not unusual to find professors and midshipmen burning the late-night oil together in an academy research lab or at a computer terminal.

•protected study time. Evening study period is reserved from 8 p.m. to midnight Sunday through Friday to help all midshipmen keep up with their courses. Additionally, Nimitz Library, computer labs and other facilities are open for midshipmen use all day and evening, seven days a week.

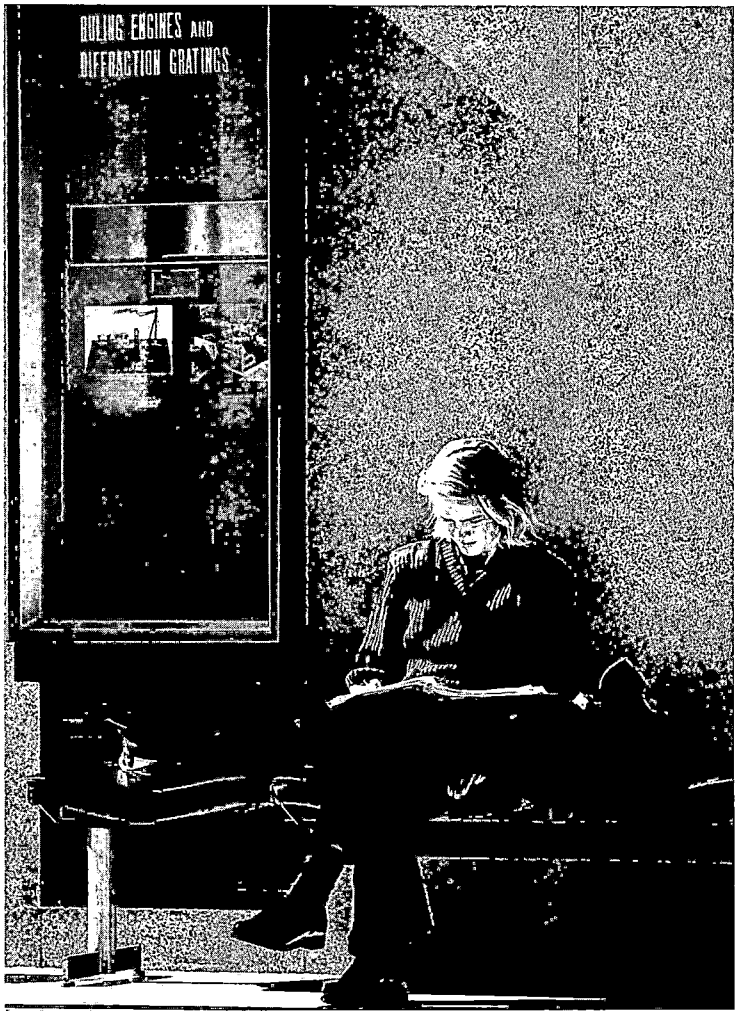
•academic advising. To help you plan your curriculum, you get group and individual counseling as well as an academic adviser early in plebe year. A permanent faculty adviser is assigned when you select your major.

•leadership and counseling. Your company officer and senior midshipmen also guide, monitor and evaluate your progress in academics, as well as military performance and conduct. They also are ready to help in the event of problems, as are the academy's staff of chaplains and professional counselors.

•a sponsor program. Hundreds of families in the Annapolis area sponsor newly-arrived midshipmen, offering a home away from home and a place to relax off-campus. More than enough families volunteer to give every midshipman a local sponsor. These contacts often grow into deep friendships that last a lifetime.

Your Commitment

Becoming a midshipman at the Naval Academy is a big step. It's not like starting your freshman year at a civilian college. You make a commitment to live a military lifestyle. You take an oath of office, promising to be loyal to your country and to defend it if necessary. You agree to be honorable in everything you do and say. You're also expected to work harder than you've ever worked before and to push yourself beyond your old limits. This is how we prepare you for the challenging responsibilities of a naval officer and the opportunities of a lifetime in the Navy and Marine Corps.

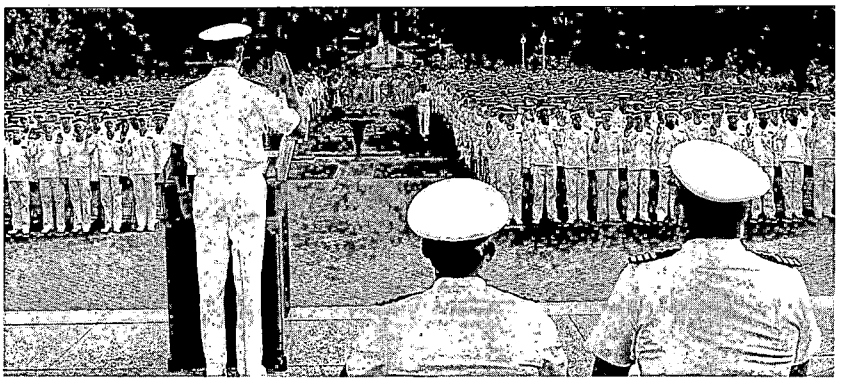


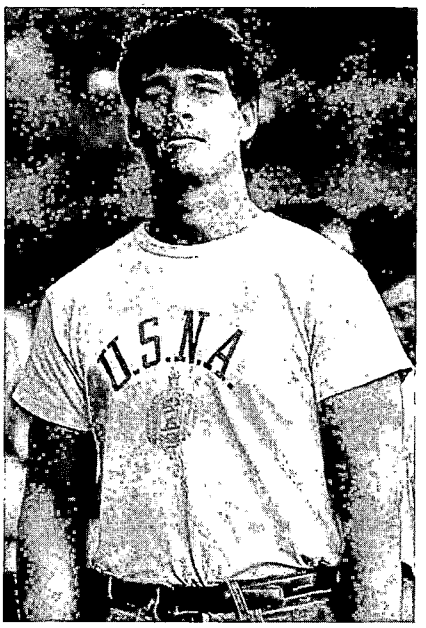
Richard and Russell MacCormack, twins from Los Angeles, CA, were getting ready to attend college in 1984 when they both decided to do something radically different and enlisted in the Navy. After a year in the fleet, both were accepted to the Naval Academy Preparatory School and are now second-class midshipmen at the academy. Both count themselves lucky to have the chance to attend the Naval Academy.

"You have to focus on the opportunities here -- not on negative things. If you focus on the opportunities, you will get through here with a lot better attitude, and you'll learn more and have more self confidence. You just look at it like, 'Hey I've got a great opportunity here and I might as well use it to my benefit.' You can put up with a little hassle, like some of the things you have to do during Plebe Summer. Everything worth anything is a little hard. Live day to day here. Don't think three months down the road. There will be some things you will have to do that you may not like, but you know it's going to benefit you down the road," said Russell.

"Some people think it's tough here. Some people don't want to stay past Plebe Summer because they think they won't make it. You have to realize that because you are here, there are 16 other people who didn't get accepted. They would love to be in your place. You have to commit yourself to stay, to feel an obligation to the people who chose you to come here, and to do the best you can. A lot of people think it's an achievement just to get accepted but, if you're out for the true achievement of the academy, it's to complete the four-year program," Richard asserted.

Chapter 2





Admissions

Competition to become a midshipman is keen, but if you have prepared yourself for a challenging, multi-dimensional four-year program and want to serve with distinction as a leader in the Navy or Marine Corps, you should apply.

Applying to enter the Naval Academy is like applying to civilian colleges in some ways, but it's different in other respects. Besides reviewing your academic record, our admissions board will evaluate your medical and dental health, physical fitness, leadership potential and motivation to be a midshipman and an officer in the naval service. You must be recommended by past teachers; interviewed by an academy representative; and nominated by a U.S. congressman or other nomination source. Do not let the nomination requirement scare you. It is not necessary to know a member of Congress personally to gain a nomination. We'll help you through the nomination process starting on page 16.

We try to ensure that the best qualified candidates from around the United States are selected for admission and that those who are selected have the potential to complete the four-year program. All candidates have an equal opportunity, and eligible men and women are strongly encouraged to apply. The number of minority group members in recent years has risen to about 16 percent of each class entering the academy. Women make up about 10 percent of each new class.

Naval Academy Dean of Admissions John Renard has a long association with the Naval Academy. He graduated from the academy with the Class of 1955 and returned to Annapolis later in his Navy career to serve as a battalion officer and then as executive assistant to the superintendent. As a retired Navy captain, he became dean of admissions in May 1985.

"The Naval Academy is unique in that we attempt to select and admit young men and women for a career, not just a college.

"Members of the admissions board spend countless hours reviewing candidates. This is a tough job because most of the candidates applying for the Naval Academy are achievers: highly motivated, well-rounded students who excel not only academically, but also in athletics and in extracurricular activities.

"I personally believe that all of the candidates we accept can successfully complete the program if they maintain their desire and motivation. In fact, for the last nine years, we have averaged a graduation rate of 76 percent. I think this is attributable to the combination of our taking great care to match candidates to our program, and then helping them succeed while they are here."

Eligibility Requirements for Applying to the U.S. Naval Academy

You must be:

- at least 17 years old and not yet 22 years old on July 1 of the year of admission.
- unmarried, not pregnant and have no legal obligation to support a child, children or other individual.
- a United States citizen (except for the limited quotas of international midshipmen specifically authorized by Congress).
- of good moral character.

Other Qualifications Necessary for Admission

You must:

- be found scholastically qualified by the admissions board.
- be medically qualified.
- pass the Naval Academy's Physical Aptitude Examination.
- receive an official nomination from one of many sources available (see pages 16-21.)

How to Become Competitive for Admission

To improve your chances of qualifying scholastically, you should take the following academic courses in high school, as a minimum:

- mathematics -- four years (through trigonometry).
- science -- at least one year of chemistry and one year of physics.
- English -- four years.
- modern foreign language -- at least two years.
- European or world history -- one year.
- introductory computer and typing courses are recommended because all midshipmen are required to use personal computers in most of the academy's courses.

To demonstrate your ability to meet the physical and time demands of four years at the Naval Academy, you should take part in athletic and non-athletic extracurricular activities. Since every midshipman is involved in physical exercise every day at the academy, it is important that you get in good physical condition while still in high school. Plebe Summer is not the time to try to whip yourself into shape. Since we are also interested in your leadership potential, as well as your ability to manage your time, we will look at your non-athletic activities and record of part-time employment or military service to evaluate your versatility and ability to accept responsibility. And by all means, stay away from illegal drugs and abuse of alcohol.

Steps Toward Gaining Admission

1. You should apply for admission between April 1 of your junior year in high school and February 28 of your senior year in high school. Since many congressmen and senators begin processing nomination requests during the summer and fall, the earlier you apply the better. You can also apply from college or the military service if you meet age requirements. In all cases, ask for information and a Precandidate Questionnaire by calling the Candidate Guidance Office toll-free at 1-800-638-9156 or writing to:

Candidate Guidance Office
United States Naval Academy
Annapolis, MD 21402-5018

2. Fill out and return the Precandidate Questionnaire to the academy. Based on the information in the questionnaire, particularly scholastic achievement, the Candidate Guidance Office will advise you whether your record is strong enough to be competitive for admission. If so, you will be identified as an official candidate.

3. Apply for a nomination at the same time the Precandidate Questionnaire is submitted. (See pages 16-21).

4. Take the SAT or ACT college admission tests. For admission purposes, the academy averages all SAT or ACT scores of tests taken after December of your junior year in high school. See the SAT and ACT schedules below.

5. If you're named a candidate, you will receive a complete candidate application packet as early as September of your senior year of high school. You should complete the enclosed forms and return them to the academy as soon as possible. As soon as all your candidate packet forms are received by the academy, the admissions board reviews your application to determine your scholastic qualification.

6. Take the Physical Aptitude Examination. (See page 16).

7. Take the Qualifying Medical Examination (See pages 16 and 152).

8. Interview with a Naval Academy Information (Blue and Gold) Officer in your area. (See pages 28-31 for a listing of Blue and Gold Officers.)

9. If you have any questions about your candidacy at any point during the admissions process, call our Candidate Guidance Office toll-free at 1-800-638-9156.

Schedule of Test Dates 1989-90 *Check dates with your high school counselor*

American College Testing (ACT)

Test Date:	*Registration Deadline Date:*
June 10, 1989	May 12, 1989
October 28, 1989	September 29, 1989
December 9, 1989	November 10, 1989
February 10, 1990*	January 12, 1990

**Last ACT which may be taken for Naval Academy Class of 1994.*
Note: The College Code Number to be used to forward your ACT test scores to the Naval Academy is 1742.

College Board Scholastic Aptitude Test (SAT)

Test Date:	*Registration Deadline Date:*
June 3, 1989	April 28, 1989
October 14, 1989*	September 22, 1989
November 4, 1989	September 29, 1989
December 2, 1989	October 27, 1989
January 27, 1990**	December 22, 1989

**Not offered in all states*
***Last SAT which may be taken for the Naval Academy Class of 1994.*
Note: The College Code Number to be used to forward your SAT test scores to the Naval Academy is 5809.

Physical Aptitude Examination

All candidates must pass a standard Physical Aptitude Examination (PAE) to qualify for admission to the academy. The PAE tests your coordination, strength, speed and agility, pull-ups (men), flexed arm hang (women), standing long jump, kneeling basketball throw and 300-yard shuttle run. If you are physically fit, the PAE should present no problem. Since competition for admission to the academy is stiff, and since we use PAE scores to evaluate all candidates, you will want to do your best rather than just the minimum.

The candidate admissions packet gives you details of the PAE, which can be supervised by a teacher or school official with a degree in physical education or by a commissioned military officer on active duty.

Medical Exam and Physical Considerations

Because the Naval Academy's program is physically demanding and naval officers must meet certain medical standards, we require all candidates for admission to pass a thorough medical exam. These exams are scheduled for candidates through the Department of Defense Medical Examination Review Board.

Generally speaking, healthy candidates with normal vision have little difficulty passing the exam. However, the exam sometimes identifies characteristics or problems that could be aggravated by the academy's rigorous routine or that would prevent military service after graduation. Some specific medical considerations are discussed in Appendix A.

Obtaining a Nomination

All applicants must have a nomination from an official source in order to be considered for appointment to the Naval Academy. There are many sources of nomination. Applicants should apply to all sources for which they are eligible after April of their junior year in high school. This normally includes a U.S. representative, two U.S. senators, and the vice president of the United States. See the sample letters on pages 20 and 21.

You should apply for a congressional nomination during the spring of your junior year in high school, or as soon thereafter as possible. This is because many members of Congress evaluate candidates during the summer months and make their decisions in early fall, though the academy accepts nominations until January 31. Applicants for military service-connected

nominations (as described in following paragraphs) should apply directly to the Naval Academy for a nomination after July 1 of the year prior to admission. Most candidates will be notified of their nomination status by the end of February of their senior year (or the year of admission).

Nomination sources include:

U.S. senators, representatives, the delegate to Congress from the District of Columbia, the resident commissioner of Puerto Rico.

Each member of Congress can have five constituents attending the Naval Academy at any one time. When a constituent leaves the academy, a vacancy is created. Congressmen may use any one of these methods for nominating candidates:

- nominate 10 candidates for each vacancy, permitting the Naval Academy to evaluate and rank them for admission.

- designate one principal nominee and nine other applicants as alternates, ranked in order of preference.

- nominate one principal nominee and nine other applicants as competitors, permitting the Naval Academy to rank the competitors for admission.

In each of these methods, the most fully qualified candidate on each list is offered an appointment to the Naval Academy. The other nominees also are considered carefully and many are selected by the Naval Academy for admission as qualified alternates.

Application dates: spring of your junior year (or spring of the year prior to desired admission), or as soon thereafter as possible.

Apply to: both of your U.S. senators and to the representative from your home congressional district. It's not necessary to know the official personally. See page 20 for sample letter.

The President

An unlimited number of presidential nominations are available for eligible candidates, and 100 candidates are appointed from these nominations each year. These competitive appointments are limited by law to children of career officer and enlisted personnel of the armed forces, including the Coast Guard. The parent either must have served continuously on active duty for at least eight years and still be serving, or be retired from active duty with pay. Adopted children are eligible if adopted prior to age 15.

Application dates: between July 1 and February 15 of the year prior to admission.

Apply to: Superintendent, United States Naval Academy, Annapolis, MD 21402-5019, Attn: Nominations and Appointments Office. Students must apply directly to the academy for this nomination by requesting a nomination application. See page 21 for sample letter. Be sure to submit proper documentation to support your eligibility.

The Vice President

At any one time, five midshipmen may attend the academy based on a vice presidential nomination. Competition for nominations is very keen. Application deadline: November 1 of the year prior to induction as a midshipman.

Apply to: Office of the Vice President, Washington, DC 20501. Send only your letter of application directly to the vice president's office. Transcripts and other supporting material should be sent to the Admissions Office, United States Naval Academy, Annapolis, MD 21402-5017, Attn: Vice Presidential Applicant. See page 20 for sample letter.

Regular Navy and Marine Corps

Eighty-five appointments annually are available to active duty Navy and Marine Corps enlisted personnel who have completed at least one year of service from Active Duty Base Date to July 1 of the year of desired admission. For more information, see your command's career counselor. Application deadline: February 15; see OPNAVINST 1531.4E or Marine Corps Order 1530.11E.

Apply to: the Naval Academy via your commanding officer.

Navy and Marine Corps Reserve

Eighty-five appointments annually are open to Navy and Marine Corps reserve enlisted personnel who are on active duty or are assigned to a drilling unit, and who have served as a reservist at least one year from Pay Entry Base Date to July 1 of the year of admission. Application deadline: February 15; see OPNAVINST 1531.4E or Marine Corps Order 1530.11E.

Apply to: the Naval Academy via your commanding officer.

Naval Reserve Officers Training Corps (NROTC, NJROTC, MCJROTC)

Ten appointments annually are available through nominations from these programs.

Apply to: your senior military instructor or professor of naval science.

Honor naval and military schools

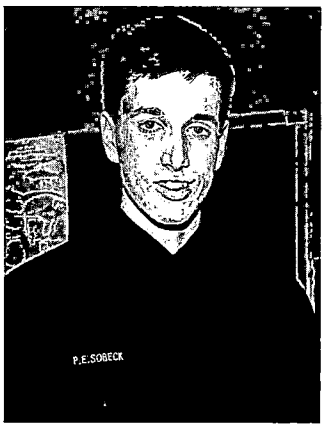
Ten nominations are available annually through each of the headmasters of approved honor preparatory schools. Nominees compete for a total of ten appointments available in this category.

Apply to: your headmaster.

The governor of Puerto Rico, the administrator of the Panama Canal Commission, and the delegates to Congress from Guam, the Virgin Islands and American Samoa

Puerto Rico, the Panama Canal Zone and Samoa may each have one midshipman attending the Naval Academy with this type of nomination. Guam and the Virgin Islands each may have two at the academy. Ten

Third Class Midshipman Phillip Sobeck served two years as a machinist's mate on USS Mount Whitney before being accepted to the Naval Academy Preparatory School (NAPS). The Columbia, SC, native came to the Naval Academy as a 21-year-old plebe -- older than most of the other plebes and even some of the squad leaders who were taking him through the rigorous seven-week training period.



"Dealing with the difference in age between me and the other plebes was a big adjustment. It took a while to get used to the fact that there are people here younger than me doing the same thing -- sometimes better than I could do it. My advice to anyone coming to the Naval Academy from the fleet would be this: Don't fool yourself. Just because you are a top-notch enlisted person and get a chance to come here doesn't mean it will be easy for you. You might be older or have more experience, but you'll really have to push yourself to succeed. Here you are at the best place the Navy has to offer, and you are starting out on the bottom.

"I think my previous Navy experience really helped me a lot during Plebe Summer. I guess I was sort of an authority figure for them, because now my classmates call me 'Grandfather.'

"One thing I've learned at NAPS and the Naval Academy is that leadership is a team effort. When I was enlisted in the Navy, I saw some people who really didn't care --who would step on anybody on their way up or who didn't want to work with other people. But here you need to work together to get through. I've learned that when you are leading people, you have to work as a team to get the job done."

nominations are permitted for each vacancy. Residency is required for consideration.

Apply to: the appropriate official.

Children of deceased or disabled veterans and children of prisoners of war or servicemen missing in action

Up to 65 midshipmen may attend the academy at one time based on nominations as children of military personnel who were killed in action; died from wounds, injuries or disease while on active duty; sustained 100 percent disability from such wounds, injuries or disease, as certified by the Veterans Administration; or who are currently prisoners of war (POW) or missing in action (MIA). The children of civilians in POW or MIA status also are eligible. Adopted children are eligible if adopted prior to age 15. Apply to: Superintendent, United States Naval Academy, Annapolis, MD 21402-5019, Attn: Nominations and Appointments Office.

Children of Medal of Honor Winners

Candidates in this special category who are qualified for admission are automatically appointed. There is no limit to the number of midshipmen who may be at the academy with this source of nomination.

Apply to: Superintendent, United States Naval Academy, Annapolis, MD 21402-5019, Attn: Nominations and Appointments Office.

Requesting a Congressional or Vice Presidential Nomination *(sample letter)*

The Vice President
The White House
Washington, DC 20501

The Honorable_____
House of Representatives
Washington, DC 20515

The Honorable_____
United States Senate
Washington, DC 20510

Dear Mr. Vice President or Senator_____ *(Senate)* or Mr. _____ *(House of Representatives)*:

It is my desire to attend the United States Naval Academy. I respectfully request that I be considered as one of your nominees for the class entering in July 19_____.

The following personal data are provided for your information:

Full name:_____
(Print as recorded on birth certificate)

Name of parents:_____

Address: *(Use zip code and provide phone number)*

Permanent_____ Mailing_____

_____ _____

_____ _____

Telephone_____ Telephone_____

Date of birth:_____ Place of birth:_____

Social Security number:_____

High school attended:_____
(Name and address)

Date of high school graduation: _____ Sex:_____

My approximate standing is_____ in a class of_____

I have/have not sent a Precandidate Questionnaire to the Naval Academy.

I have requested my high school transcript of work completed to date to be forwarded to your office as soon as possible. I have also listed on the reverse side the results of any ACT or College Board test scores that I have taken.

I have been active in high school extracurricular activities as indicated on the reverse side. I should greatly appreciate your consideration of my request for one of your nominations.

Sincerely yours,
(Signature)

Notes: Do not forward transcripts/supporting letters to the vice president's office. Forward to the Admissions Office, United States Naval Academy, marked "Vice Presidential Applicant."

Prospective candidates should apply to their U.S. representative and to both of their U.S. senators.

If you have not already completed and submitted a Precandidate Questionnaire, one should be requested by writing the Candidate Guidance Office, United States Naval Academy, Annapolis, MD 21402-5018, or by calling toll free 1-800-638-9156 at the same time that applications for congressional nominations are submitted.

Requesting a Presidential Nomination *(sample letter)*

(This application should be submitted after July 1 of the year preceeding desired year of entry and before February 15 of the year of entry.)

To: Nominations and Appointments Officer, United States Naval Academy, Annapolis, MD 21402-5018.

Dear Sir: Date:_____

I request a presidential nomination to the United States Naval Academy for the class which will enter in July 19____ and submit the following data:

Name:_____
(Give full name as shown on birth certificate or, if changed, attach copy of court order.)
Address: *(Use zip code and provide phone number)*

Permanent_____ Mailing_____
_____ _____
Phone_____ Phone_____
Date of birth:_____
Social Security number *(must be filled in):*_____
Name and address of high school/college:_____
Month/year of graduation: _____ Sex:_____
Ethnic origin:_____*Black, Oriental, Hispanic, native American (American Indian and native Alaskan), Puerto Rican, Caucasian, etc.*
Congressional district & state: _____
Applying to Congressmen *(names)* :_____

Highest scores: PSAT V_____, M_____; SAT V_____, M_____;
ACT E_____, M_____

Uncorrected vision: Right 20/___, Left 20/___, Corrected R 20/____, L 20/___

If member of military, check here___. List rank, serial number, component, branch of service, and organizational address on reverse side of this form.

Information concerning parents' military service:
Name of parent/s:_____
(Parent's rank, serial number, component, and branch of service; if parent is retired with pay please indicate)

Sincerely yours,
(Signature)

Note: In establishing your eligibility for a presidential nomination, you should determine which of the following three service-connected categories applies to your parent, and forward supporting documents and information to the Naval Academy along with your letter of application for a nomination. If you have not already completed and submitted a Precandidate Questionnaire, one should be requested from the Candidate Guidance Office, United States Naval Academy, Annapolis, MD 21402-5018, at the time you apply for a presidential nomination.

- **Active duty officer: attach statement of service prepared by personnel officer specifying all periods of active duty.**
- **Active duty enlisted: attach statement prepared by personnel officer specifying all periods of active duty and listing dates of enlistment and dates of expiration of enlistment.**
- **Retired or deceased: furnish data and copy of retirement order or casualty report. If appropriate, include brief statement concerning the date, place and cause of death or details of disability together with the Veterans Administration claim number. If eligible, applicant will be given a nomination in the children of deceased or disabled veterans category.**

Selection for Appointment

If the academy's admissions board considers you qualified scholastically, physically and medically and you've obtained a nomination, you enter the final stage of our admissions process. About 2,400 of each year's more than 15,000 applicants reach this stage. Of that number, around 1,600 of the best qualified are offered appointments. About 1,325 accept and enter to become midshipmen with each class.

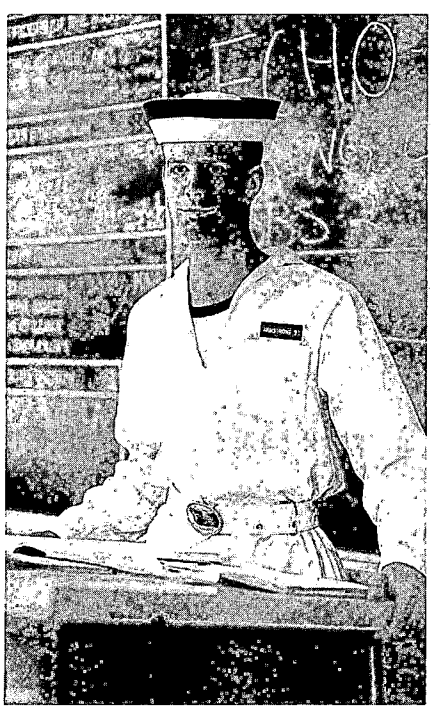
Offers of appointment are made beginning in October and continue through the following spring. Nearly all appointments are offered by May 1. Candidates not offered an appointment by then probably will not be selected for the class to enter in early July.

All candidates offered an appointment to the Naval Academy are encouraged to visit the academy in mid-May for a full day of orientation briefings and tours. This visit is not mandatory and will not affect your appointment status.

Naval Service Obligation

When you are offered an appointment, we send you several important documents and forms to consider and complete. One of the most important for United States citizens is the Agreement to Serve. This agreement, required by U.S. law (Title 10, U.S. Code, Sections 6959 and 2005) and other directives, outlines your service obligation and is signed on Induction Day in July at the Naval Academy. It requires the consent of parents or guardian if you are a minor. In signing the Agreement to Serve, you state that you will:

- complete the four-year course of instruction at the Naval Academy.



- accept an appointment and serve on active duty as a commissioned officer of the Regular Navy or Marine Corps for at least five years immediately after graduation.

- accept an appointment as a commissioned officer in the reserve component of the Navy or Marine Corps and remain therein until the eighth anniversary of graduation from the Naval Academy if an appointment as a commissioned officer in the regular component is not tendered at graduation or if you resign as a commissioned officer of the regular component before the eighth anniversary.

- serve in an appropriate enlisted grade on active duty for not more than four years if you do not fulfill the paragraphs agreed to above.

- reimburse the United States for the cost of education received at the Naval Academy if you voluntarily, or through misconduct, fail to complete a period of active duty specified above.

Oath of Office

The appointment information also includes a copy of the Oath of Office which must be signed and agreed to orally by U.S. midshipmen on Induction Day:

"I,_____, having been appointed a midshipman in the United States Navy, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter, so help me God."

Resignations and Separations

If you enter the Naval Academy directly from civilian life, you assume a five-year military obligation according to the Agreement to Serve. Midshipmen who don't fulfill this agreement could be transferred to the Naval or Marine Corps Reserve in an enlisted status and ordered by the secretary of the Navy to serve on active duty for a period not to exceed four years, as provided by Title 10, U.S. Code, Section 6959. However, in practice, the following policies currently apply to midshipmen who enter the academy from a civilian status:

•if you are discharged, or your resignation is accepted before the first day of classes of your second-class (junior) year, you are discharged from the naval service.

•if you leave the academy after beginning the academic year as a second-class midshipman (junior) but before the start of first-class year, you are obligated to serve for two years in an enlisted status unless you are considered physically disqualified, unfit or unsuited for military service.

•if you leave the academy after the start of first-class (senior) academic year, you have a three-year obligation to serve in an enlisted status.

•if you refuse a commission upon graduation, your enlisted service obligation is four years.

If you enter the Naval Academy from the regular or reserve component of the Navy or Marine Corps, including the Naval Academy Preparatory School, the remaining period of your enlistment or obligated service is not

terminated when you accept an appointment to the academy. Therefore, if you do not fulfill the Agreement to Serve, you will return to enlisted status to complete the period of service for which enlisted or obligated, as provided by Title 10, U.S. Code, Section 516. In calculating the unexpired part of an enlistment or period of obligated service, time as a midshipman is counted as service under that enlistment or service obligation. However, if you are discharged or your resignation is accepted after beginning your second-class academic year at the Naval Academy, you incur the same obligations described above for those who enter the academy from civilian life.

In either case, if you leave the Naval Academy after the start of your second-class year or refuse a commission upon graduation and do not complete the appropriate active-duty service obligation, whether voluntarily or through misconduct, you can be required to reimburse the United States for the cost of education received at the Naval Academy. This cost is computed by the Naval Academy and includes the costs of professors' salaries, supplies and other expenses. It is comparable to the tuition at a first-rate private university. The amount to be reimbursed in a particular case varies proportionally with the period of unserved obligation, ranging up to the entire cost of education.

Costs and Financial Obligations

Before entering the Naval Academy, you must deposit $1,500 to be used as partial payment for your uniforms and supplies, including a personal computer. In cases of extreme hardship, the deposit may be reduced or waived by the academy, and then made up through deductions from pay over four years as a midshipman.

A $1,500 interest-free loan from the federal government is advanced to entering midshipmen to help defray first-year costs not covered by the deposit. This loan is repaid through monthly deductions from midshipmen pay during the four years at the academy.

If you voluntarily leave the Naval Academy before repaying these and any other obligations, you must pay the debts in full before separation. If you are separated involuntarily, you must turn in enough uniforms and equipment suitable for reissue to pay your debts. If these reclaimed items don't cover your indebtedness, you must pay the difference.

Documentation

To be admitted to the Naval Academy, on Induction Day in July you must submit documentary evidence of birth to Naval Academy officials. A certified copy of your birth certificate is the best evidence. If you are a U.S. citizen born outside of the United States, you must show proof of your citizenship in the form of a Department of State, consular or other government birth report. In any case, if the name on your evidence of birth is not identical to your current name, a court order authorizing a name change is required. You also must have a Social Security number when you apply to the Naval Academy.

Reporting for Induction Day

If you accept an appointment to the Naval Academy, you'll report for induction in early July, take the Oath of Office and begin Plebe Summer with

As an enlisted electronics technician assigned to the guided missile cruiser USS Biddle, Walter Scott was always impressed by the Naval Academy officers under whom he served. He decided to pursue both a college degree and a career as a naval officer through the Naval Academy. Since the Monaca, PA, native didn't have enough time in service for a direct nomination to the academy, he accepted an opportunity to attend the Naval Academy Preparatory School (NAPS) first. Now a second-class midshipman, Scott thinks the year at NAPS was well spent.

"NAPS definitely gave me a good preparation for the academy. At NAPS you study math, physics, chemistry, computers and English in five or six classes a day. Each class in itself is not difficult, but the combined load of all those classes can be tough. That's the thing about NAPS that prepares you best for the Naval Academy -- you learn time management and setting priorities. That's probably the hardest thing about the academy for some people.

"If you graduate from NAPS, you have the skills necessary to take you through plebe year at least. If you are coming out of the fleet, it gives you the time to brush up on your skills in mathematics and science.

"I think if you come to the Naval Academy from NAPS, you've proven you really want to be here. Some people who come straight in might not have to put forth a lot of effort to get in here, or this may have been one of many choices. But, if you've gone through NAPS, you know this is what you really want to do -- to be a Navy or Marine Corps officer. It makes you very career oriented, and this makes you successful.

"I had completed two years of college at West Virginia University and, when I made my decision to come here, I had already been accepted as a junior at Florida Atlantic University. I could have finished my schooling in just two years. Now, here it is six years later and I'm only a junior. But I never regretted my decision to come here. I want to be a good Marine Corps or Navy officer, and this is the best way to learn how."

your new classmates from around the nation. It will be one of the biggest days in your life. We will tell you what you need to bring and how to make travel arrangements to Annapolis.

Visiting the Academy

A personal visit to Annapolis can help you make a decision about attending the Naval Academy. You and your family are encouraged to tour the academy any day of the year during regular visiting hours, 8 a.m. to 5 p.m. You can take a guided tour with a commercial service in Annapolis or through the academy's own Visitors Center, which offers tours hourly from 9 a.m. to 4 p.m. every day from March 1 to Thanksgiving weekend.

Our admissions staff does not conduct guided tours, but admissions officers located in Leahy Hall are available to answer your questions from 9 a.m. to 5 p.m., Monday through Friday, and from 8 a.m. to noon on Saturday. No appointment is necessary. Once you are a candidate for admission, several special programs are available to give you a close look at midshipmen life:

Bancroft Hall Candidate Visitation Program -- This is a program for highly competitive candidates who are likely to receive appointments. It's a chance to spend one weekend with the Brigade of Midshipmen. During specific weekends between October and April, from 9 a.m. on Friday until 6:30 p.m. on

Saturday, you live with your midshipman host, attend classes, eat in King Hall and sleep in Bancroft Hall. Admissions personnel will contact qualified candidates regarding this visit opportunity.

Academy Information Day -- On two Saturdays in the spring, candidates and their parents are invited to the Naval Academy for orientation tours, briefings by the superintendent, commandant, academic dean and admissions representatives and informal discussions with individual midshipmen.

Orientation Day -- The academy offers a full-day orientation in mid-May for candidates offered appointments to the academy.

Academy Admissions Day -- For 9th, 10th and 11th graders, the academy will host an Academy Admissions Day in the fall for high school students living within 150 miles of the academy.

Alternate Routes to Admission

If you are not selected for a direct appointment to the Naval Academy, the academy's admissions board automatically considers you for selection to the Naval Academy Preparatory School or recommends you for a Naval Academy Foundation preparatory school scholarship. You do not apply directly for either preparatory program.

Naval Academy Preparatory School (NAPS)

Located in Newport, RI, NAPS offers a 10-month college preparatory course to active-duty and reserve Navy and Marine Corps enlisted men and women who are seeking Naval Academy appointments. This program is designed to strengthen the academic background of incoming candidates. Navy and Marine Corps personnel who apply but are not appointed to the Naval Academy are automatically considered for admission to NAPS. The academy also identifies a number of promising and highly motivated civilian candidates who are not successful on their first attempt at admission and offers them the opportunity to enlist in the Naval Reserve for the express purpose of attending NAPS.

U.S. Naval Academy Foundation

The U.S. Naval Academy Foundation, Inc., also helps promising candidates who are not appointed in their first try for admission. This nonprofit organization awards a limited number of scholarships for post-high school preparatory studies to enhance those candidates' qualifications for admission.

The Naval Academy's admissions board automatically recommends candidates to the foundation for sponsorship consideration. No special request is required. Candidates accepted for sponsorship by the foundation usually have submitted their applications to the Naval Academy before March 1 of their senior year in high school. A limited number of applications will be considered after that time.

Cash grants are made to the participating junior college, prep school or college selected. Parents of applicants are expected to contribute within their means.

Each entering class includes about 100 foundation scholarship candidates. Candidates who successfully complete the foundation program will normally be offered an appointment to the Naval Academy.

Other Considerations

Appointments of Women

In 1976, Congress authorized women to enter the service academies and 81 women were admitted with the Naval Academy Class of 1980. Great strides have been made since 1976 to fully integrate women into the Brigade of Midshipmen.

About 135 women will enter the Naval Academy with the Class of 1994. Admissions standards are the same as those for men, with the exception of some allowances made for the physical differences between men and women. The number of women admitted each year is based on the needs of the Navy and Marine Corps for women officers. Approximately 400 of the 4,500-member Brigade of Midshipmen are women. There are normally 9 to 12 women in each company, with three assigned to a room.

The academy offers women the same opportunities to excel it has always extended to men: a challenging academic curriculum to promote intellectual development; a physical training program to build strength, agility and endurance; and a military environment to develop discipline, military skills and leadership.

Previous Candidates

If you applied before but were not appointed to the Naval Academy, you can reapply for admission with a subsequent class. The application process is the same. We recommend you retake your SAT or ACT tests. Also, if you take college or prep school courses before reapplying, we suggest you take courses similar to those required of first-year midshipmen at the Naval Academy.

Readmission of Former Midshipmen

Former midshipmen desiring to reenter the Naval Academy must obtain a new nomination and complete the other usual admission procedures. In addition to admissions board action, the academy's academic board must agree to readmit former midshipmen. Like any other candidate, you must not be past your 26th birthday on July 1 of the year you would graduate from the academy to be eligible for consideration. Requests should be addressed to the dean of admissions not later than April 1 of the year of desired readmission.

International Students

In the interest of international and navy-to-navy relations, the secretary of the Navy can authorize students from certain countries to enroll at the Naval Academy. Up to 40 of these students may be at the academy at a given time. Further information on this program can be obtained from the Nominations and Appointments Office at the United States Naval Academy, Annapolis, MD 21402-5019, telephone 1-800-638-9156.

Naval Academy Information (Blue and Gold) Officers

The decision to attend the Naval Academy is a big one. Before you make that kind of commitment, you'll want answers to many questions about the academy and the naval service. We want to help you make the right decision.

Several resources are available to help you find out all you can about the academy and the professional opportunities available to you after graduation. In Annapolis, the Candidate Guidance Office offers detailed information about the academy's program and admissions procedures. Call the office toll free at 1-800-638-9156 or write to:

Director, Candidate Guidance
United States Naval Academy
Annapolis, MD 21402-5018

If you live near the West Coast, you also can contact a Candidate Guidance branch office in California by calling (415) 966-5931 or writing to:

Tom Teshara
Naval Academy Information Office
Naval Air Station
Moffett Field, California 94035-5017

The Candidate Guidance Office also coordinates a nationwide network of Naval Reserve officers and civilians who are trained as Naval Academy Information, or Blue and Gold, Officers. These officers, located in every state, are well qualified to counsel you on all aspects of the Naval Academy. The following state and area coordinators can help you find the name and address of the nearest Blue and Gold Officer. *If you are unable to reach your area coordinator, call the Candidate Guidance Office, toll free, at 1-800-638-9156.*

State and Area Coordinators

ALABAMA
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ALASKA
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NAS Moffett Field, CA 94035
Phone: home 415-589-0247; bus. 415-966-5931;
Autovon: 462-5931
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ARIZONA
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DELAWARE
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Captain Richard Maruszewski serves the Naval Academy in two important ways. An associate professor, he teaches courses in calculus, differential equations, matrix theory and probability. He is also a Naval Academy Information, or Blue and Gold, Officer counseling prospective candidates from Maryland on admissions procedures and life at the Naval Academy.

"I found out about the Blue and Gold Officer program when I was teaching in New York. One of my students applied to the Naval Academy and asked me to help him with his application. I thought it would be rewarding to be a Blue and Gold Officer, and it has been. By the way, that student I first helped to apply went on to graduate from the academy and he is now a submariner.

"As a Blue and Gold Officer, I interview prospective candidates and submit reports on their potential. A big part of the interviews, besides evaluating the candidates, is trying to give them a good idea of what life is like at the academy and making sure they are up to the challenges. We want to make sure they understand what Plebe Summer, the first semester and the first year are like. We make sure they know there is a certain amount of rigor necessary immediately upon arrival, and we emphasize that there is a considerable academic challenge throughout the four-year program. As a result, I think candidates are well prepared for what they will encounter here."

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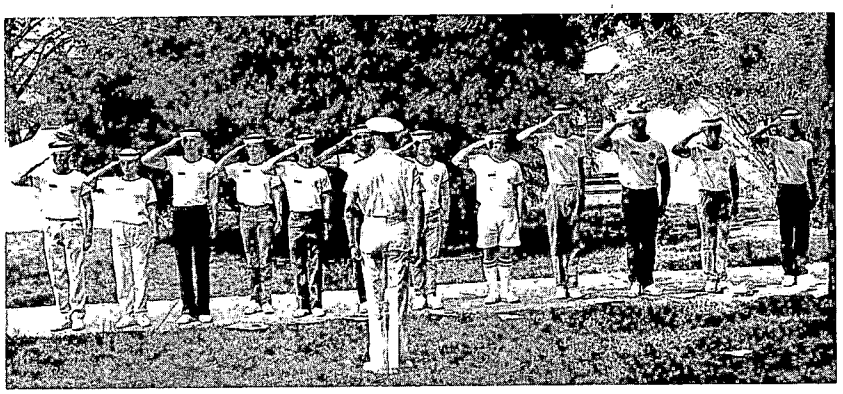
Chapter 3



Life at the Naval Academy

We can't tell you exactly what four years at the Naval Academy would be like for you personally, but we can describe our philosophy, our curriculum and the daily life you can expect. Only when you experience the exhausting rigors of Plebe Summer, only when you face the responsibility of commanding other midshipmen, and only when you throw your hat into the air at graduation will you really know what the Naval Academy experience is all about. We can explain that the four years at Annapolis are tightly structured. While there are many ways you can pursue your individual areas of interest, a four-year program is required of all midshipmen. In this section, we'll give you a general description of life at Annapolis. Later chapters give you the details of the academic, athletic and professional training programs.

Definitions

Let's start with a few basics. On your first day at the academy, you begin learning a whole new vocabulary of nautical and Naval Academy terms. Before long, the floor is the deck, the wall is the bulkhead and the restroom

is the head. Likewise, midshipmen seniority is stated in a way different from traditional college terms. We designate our class ranks this way:

Freshman = Fourth class or plebe
Sophomore = Third class or youngster
Junior = Second class or segundo
Senior = First class or firstie

All Naval Academy students, men and women, are called midshipmen, which is a rank between chief warrant officer and ensign in the Navy. A midshipman first-class is a senior. The student body is the Brigade of Midshipmen, or simply the brigade, and the naval service often is called the fleet. The brigade is divided into six battalions. Six companies make up each battalion, making a total of 36 companies. The midshipmen command structure, headed by a first class midshipman chosen for outstanding leadership performance to be brigade commander, is responsible for much of the brigade's day-to-day activities as well as the professional training of midshipmen. Overseeing all brigade activities is the commandant of midshipmen, an active-duty Navy officer of captain's rank or above. Working for the commandant, experienced Navy and Marine Corps officers are assigned as company and battalion officers.

Four-Year Summary

The pull-out chart on this page is a diagram showing the highlights of the Naval Academy's four-year program. Each year at the academy builds on the learning and experience of the previous year. As you complete basic courses and begin advanced studies, you also take on more responsibility in leading underclassmen at Annapolis and acting as a junior officer during summer professional training with the fleet.

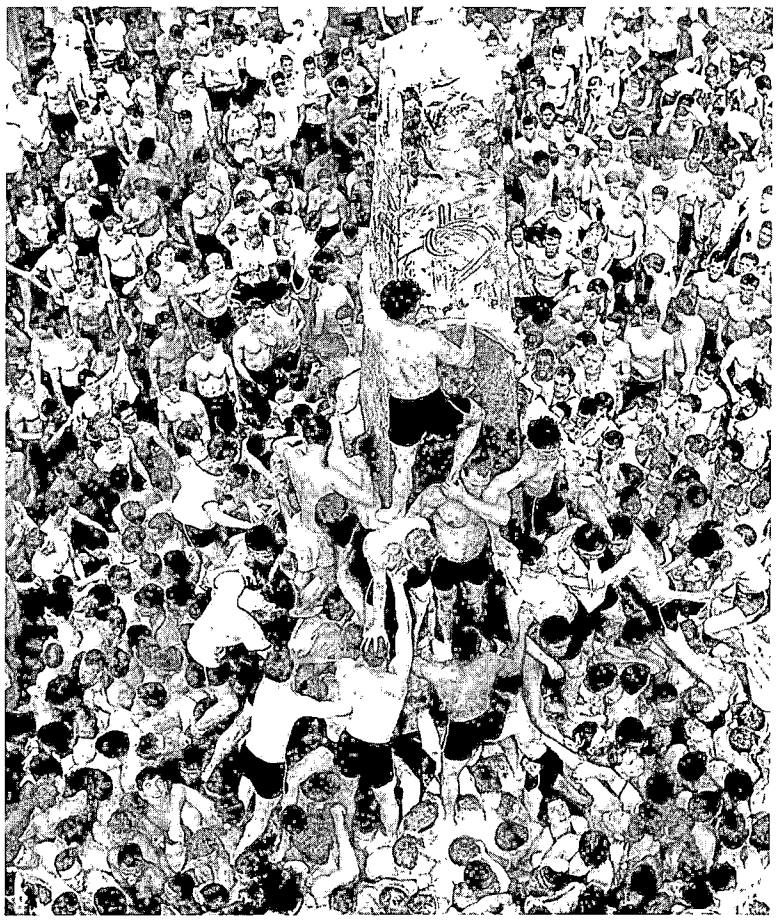
Life in the Brigade

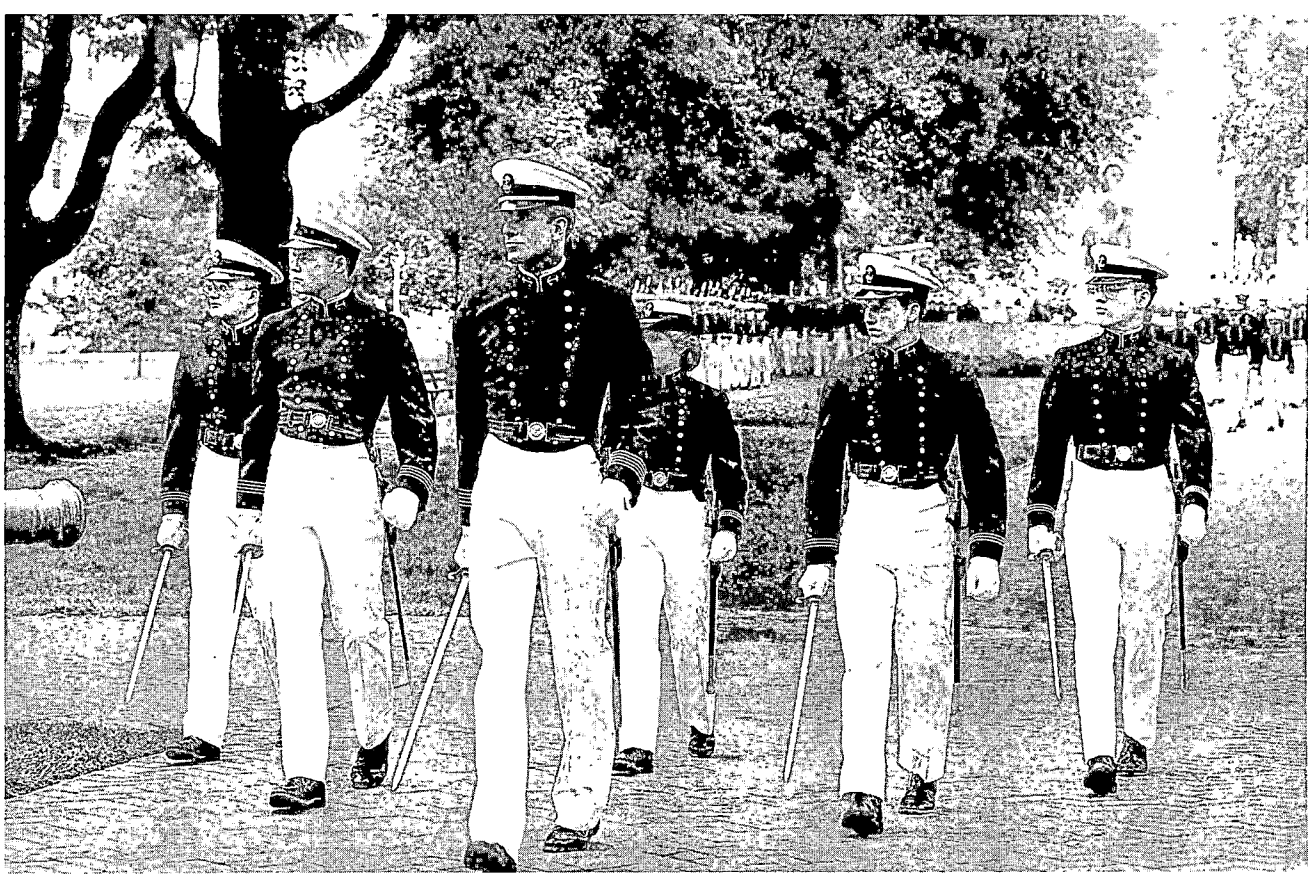
No matter what your background, chances are the living arrangements at the academy are different from anything you've experienced. The day

Midshipman Fourth Class Erik Stohlmann, 18, is from Fort Worth, TX. The Arlington Heights High School graduate is on the junior varsity soccer team and hopes to major in political science.

"At the end of junior year, I started filling out applications for the academy, and then I worked some more on them during the summer before senior year. I applied for every nomination I could. Each source had me fill out another application because they were all looking for different things in their candidates; Senator Lloyd Bentsen eventually gave me the nomination. My Blue and Gold Officer helped me a lot by answering my questions, and he made it clear that I could call him with any problems.

"I got into Vanderbilt, Georgia Tech and Purdue, but the academy was my first choice. You've really got to want to be here because it's not for everybody. It's tough mentally and physically -- you're going to lose so many privileges that you had at home and you're going to be bottled up. But if you want to be here, then you're going to make it. If you're here for someone else, then you'll get weeded out very quickly. This has got to be the roughest thing that I've ever stepped into."





begins with reveille and ends with lights out. You stand watches, march to meals and wear uniforms for almost everything you do. You and your roommates must keep your room ready for a military inspection at any time and keep your uniforms in regulation condition. Demerits are awarded for a room or uniform that is not in proper order or squared away.

All midshipmen live in Bancroft Hall, a huge dormitory complex. You are assigned to a room with one or more other midshipmen, and live in close proximity to about 110 other midshipmen in your company. Men and women midshipmen from all four classes make up each company. Each company has its own living area, called the wardroom, for meetings and recreation.

The company is the most important unit of the 4,500-member Brigade of Midshipmen. Many of your most rewarding experiences at the Naval Academy are those you share with members of your company. You eat, sleep, study, drill, play and compete as teams with your company mates. You learn to trust and rely on each other. And, you pull together to get through rough times. The company experience also gives you an idea of how things work in the Navy and Marine Corps, where small-unit cohesion, teamwork and morale are as important in peacetime operations as in combat. The year-long color competition among the 36 companies is one way company spirit is built. Companies accumulate points for academic, professional and intramural excellence. The company with the most points is recognized at the Color Parade during Commissioning Week and then enjoys special privileges for the next year, including the honor of representing the Naval Academy at official functions such as presidential inaugurations.

Midshipman First Class Dana Dewey of Vienna, VA, commands the 16th Company, the color company, for the first semester of the 1988-89 academic year. Color company selection is based on excellence in academics, military drill, professional knowledge and athletics. Members of the color company are recognized as the best in the Brigade of Midshipmen, and they have those bragging rights -- as well as special privileges -- for an entire year. Selected midshipmen from the color company carry the American, Navy, Marine Corps and Naval Academy flags in parades and special events.

"Being color company commander is one of the best positions to have at the academy because it's not so high that you are out of touch with the people in the company. You are still accountable for everyone's actions -- a pretty heavy burden to bear -- but you split up the duties among the first class. How to delegate is something we're taught in leadership class, and it works well; it makes a lot of sense in practice.

"The color company competition is good motivation, but being color company can't be the primary goal or it has defeated its purpose. It's a good reminder to all of us to do our best at all times, but it needs to remain in the background.

"We come under special scrutiny carrying that blue-bordered guidon around the parade field, but a lot of pride comes with that scrutiny. Our responsibilities, like forming the color guard and handling our mascot, Bill the goat, are recognized by getting extra privileges. Even the plebes in the company have come in with a full head of steam, knowing they are part of the color company."

Plebe Summer

All midshipmen begin the four-year program with Plebe Summer, a period designed to turn civilians into midshipmen. Plebe Summer is no gentle easing into the military routine. Soon after entering the gate on Induction Day, you are put into uniform and taught how to salute by the first-class midshipmen and officers who lead the plebe indoctrination program. For the next seven weeks, you start your days at dawn with an hour of rigorous exercise and end them long after sunset, wondering how you'll make it through the next day. Forget television, leisure time or movies. You'll have barely enough hours in the day to finish your assigned plebe tasks.

The frantic, exhausting pace of Plebe Summer leads you somewhere. It gets you ready for your responsibilities when the brigade returns from summer training and the academic year begins. The summer also builds the foundation for the tangible and intangible qualities that make an outstanding naval officer. You learn self-discipline. You learn to organize your time and decide which things are most important. You reach top physical condition. You develop your ability to think clearly under stress and to react quickly when the unexpected comes your way. Any officer who has stood the watch on the bridge of a ship in a storm or landed a jet on the deck of an aircraft carrier at night can tell you the importance of these qualities.

Plebe Summer introduces you to the basic how-to's of the Navy as well. Aboard Naval Academy sailboats, you learn to respect the power of wind and current. In motor boats and yard patrol craft, you learn the basics of seamanship, navigation and boat handling. On the weapons range, you learn how to fire small arms safely and accurately. You also learn why we have high standards of honor, character and morality. And, you begin to develop your own ideas about leadership and the techniques that will make you an effective leader when your turn comes.

Academic Year

When the upperclassmen return to the academy in late August to begin the academic year, you begin a routine that becomes very familiar during your four years. A typical weekday schedule looks something like this:

6:30	Arise for personal fitness workout and breakfast
7:00	Reveille (all hands out of bed)
7:15 - 7:30	Special instruction period for plebes
7:35	Personnel formation for muster and inspection
7:55 - 11:45	Four class periods, one hour each
12:10	Noon meal formation
12:20	Noon meal for all midshipmen
1:15 - 3:05	Fifth and sixth class periods
3:30 - 6:00	Varsity and intramural athletics, extracurricular and personal activities; drill and parades twice weekly in the fall and spring
6:30	Evening meal formation
6:40	Supper
7 - 8:00	Extracurricular and personal activities; lectures
8 - midnight	Study period for all midshipmen
11:00	Lights out for plebes

Midshipman Fourth Class Edward Schrader, of Tucson, AZ, could have been accepted at any number of civilian colleges, but he chose the Naval Academy. Throughout the rigorous Plebe Summer and the difficult ensuing academic year, he realized that the extra effort was well worth the rewards -- a naval officer's commission and the opportunity to pursue an exciting career in the Navy or Marine Corps.

"I came to the Naval Academy because of the challenge and reputation and because I wanted to be a naval officer. I just couldn't see myself doing a desk job; I wanted to do something exciting, something I would be respected for. So I tried for it and I'm lucky they gave me the chance.

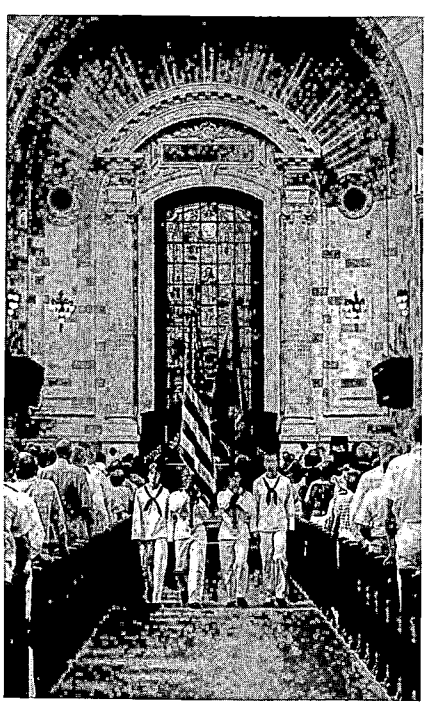
"I take my life step by step. Once I knew I wanted to come here, my goal was to get accepted. Once I knew I had made it, my goal was to get through Plebe Summer, then to make it to Thanksgiving, then to Christmas and then my summer cruise. The next thing you know it will be graduation.

"At one time or another, I think everyone here probably thinks, 'I could be sitting around watching TV with a soda, free to do whatever I want every night, wearing civilian clothes ... no squaring corners, no 'sir this' or 'sir that.' We envy our friends now because they have all this free time. But when we graduate, we'll be a lot better off. It all comes down to how hard you want to work. If you want to get anywhere in life, you have to work for it. I'm just starting earlier than my friends."

When you add to this schedule the time required for military duties, inspection preparation and extra academic instruction, you can see the demands on your time are considerable.

Leadership Responsibility

As you progress through the years at the academy, leadership responsibilities grow. Each year, you and your classmates assume more important roles in running your company, your battalion and the brigade. By the time you are a first-class midshipman, you are making daily decisions affecting the morale and performance of other midshipmen. You are teaching them the fundamentals of the naval profession and helping them through difficulties. You are leading them through personal example, communications, rewards and discipline and other techniques you've learned in the classroom and through three-years' experience. Your leadership responsibilities also increase in summer professional training. After learning what it's like to be a sailor aboard ship during youngster cruise, you undertake the duties of a junior officer during your first-class summer assignment.



You build your leadership skills in these and other settings, where you can learn from mistakes and benefit from the guidance of seasoned Navy and Marine Corps officers. By the time you take your position as a naval officer responsible for leading talented sailors and Marines, you know what leadership techniques and styles work best for you in different situations.

Religious Activities

Spiritual growth is an important part of military life. Protestant, Catholic and Jewish services are held weekly in the Naval Academy chapels. You may also attend church in the Annapolis community. Attendance at religious services is optional. The academy staff includes seven Navy chaplains

representing various faiths. They are available to counsel midshipmen in matters relating to faith or life in general. The chaplains also sponsor Bible studies, prayer groups and instruction classes.

Recreation

All midshipmen are encouraged to take part in one or more of the academy's many clubs and extracurricular activities. For plebes especially, these activities help to relieve the stress of academics and the tough military routine. After plebe year, your free time increases to relax, pursue personal interests, date and explore the local area. There's much to see and do in Annapolis, Baltimore and Washington, DC. There also are many cultural, social and sports activities sponsored by the academy.

Spectator sports

On autumn weekends, the excitement and color of Navy football sweeps the brigade. All midshipmen attend home games in Navy-Marine Corps Memorial Stadium. Groups of midshipmen also attend most away games. The football season ends with the whole brigade cheering on the team in the traditional Army-Navy game. There are 32 other varsity Navy teams to cheer on, as well. Outstanding spectator facilities bring out enthusiastic Navy supporters for almost every rivalry from wrestling and swimming to lacrosse, basketball, soccer and baseball.

M.G. Buchanan has been a friend, confidante and supporter of more than a dozen midshipmen over the last five years as a volunteer in the Naval Academy's sponsor program. Through this program, midshipmen are matched with local residents who welcome them into their homes and offer them a chance to enjoy leisure activities in the community. Buchanan, a Naval Academy tour guide, often meets parents of midshipmen and assures them that their sons and daughters at the academy always have someone friendly to turn to through the sponsor program.

"I meet a lot of midshipmen's parents who come to Annapolis from cities and towns across the country. Usually they are very concerned because they are so far away and, in many cases, they're being separated from their sons and daughters for the first time. When I tell them about the sponsor program, they are so relieved to learn that we are providing this kind of support.

"The important thing is that, when a midshipman comes here from the West Coast, or Sioux Falls, or wherever, there's someone right in Annapolis waiting with a welcome. There's a local number to call if the midshipman needs anything or just wants someone to talk to. My 'mids' know I'm only a phone call away. They can come over for a change of scenery or just to get into a sweatshirt and watch TV. It's a nice change for them, a nice home away from home, even if it's just for a few hours. But, when you are a sponsor, it's not just you doing things for them. You learn and grow with them. It's a two-way street.

"As a sponsor, you'll never know how much you help or the difference you make in a midshipman's life. But I can remember when I was in college and someone helped me -- even if it was just a smile, a word of encouragement or some other kind of outreach -- and I know you don't forget that in life.

"I wanted to do something to support the mission of the Naval Academy, and that's why I became a sponsor. I wanted to support the midshipmen -- not to coddle them -- just to love them."

Plebe Sponsor Program

During Plebe Summer, every midshipman is introduced to an Annapolis-area family which has volunteered to host midshipmen for dinners, local sightseeing, recreation and simple relaxation away from the demands of the Yard. Many sponsor relationships last long beyond the academy years.

Social events

The Brigade Activities Committee plans several special weekends during the year, including events like the annual International Ball with young guests from embassy row in Washington. Midshipmen groups also plan and participate in theatrical events, concerts and dinners. Senior naval officers join midshipmen regularly for traditional mess nights featuring formal rules of order, formal toasts, skits and fines. Individual companies of midshipmen often organize their own special activities on weekends. Certainly the highlight of our social calendar is Commissioning Week in May -- five days of dances, garden parties, parades, concerts, sailing and a Blue Angels flight demonstration leading to graduation and commissioning of first-class midshipmen.

Cultural Affairs Program

We take advantage of our proximity to Washington, DC, and Baltimore to arrange tickets and transportation to cultural events in those metropolitan areas. Plays, symphonies, operas and ballets at Washington's Kennedy Center and other theatres are open to midshipmen from all classes. Many other cultural activities, including concerts, poetry readings and lectures by leading American authors, are offered right at the academy.

Extracurricular Activities

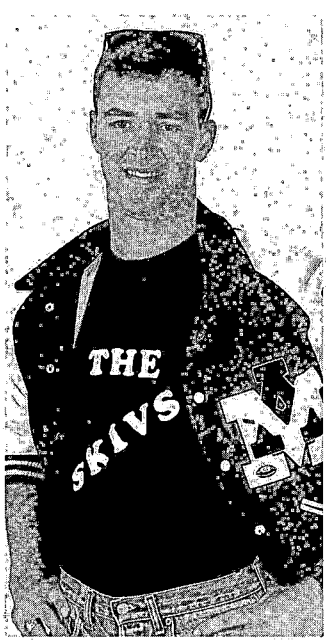
Even with a midshipman's demanding academic and athletic schedule, you will have time for extracurricular activities (ECAs). We have more than 70 which give midshipmen a chance to share recreational, professional and athletic interests. Most of the ECAs are run by midshipmen.

Musical

Antiphonal Choir
Catholic Choir
Protestant Choir
Gospel Choir
Glee Club Musical
Men's and Women's Glee Club
Modern Music Band
Trident Brass
Drum and Bugle Corps
Masqueraders drama group

Athletic

Aerobics
Bicycle racing
Powerlifting
Rugby (men)



Midshipman First Class Edwin Henderson of Marvell, AR, performs with the Glee Club's Skivs, a group that sings such 50's and 60's hits as Barbara Ann, Come and Go with Me *and* Little Darlin.' *As vice president of the Glee Club and a member of the Protestant Choir, Henderson has performed all over the country.*

"During Plebe Summer, the academy's musical director showed us slides of the Glee Club tour, of the chorus and the Barbershop Quartet, the Full Sail Quintet and the Skivs. I tried out and made the Protestant Choir, but not the Glee Club. I was so nervous I had trouble reading the music. By the next year, though, I had a place in the Glee Club, too.

"I didn't sing at all in high school, but I liked to sing when I was younger. What appealed to me most about the Glee Club was the travel and the chance to perform. I like the high school audiences the best, because the kids seem to enjoy the shows so much, but our Christmas show with the president and the first lady and some singing stars is also very impressive.

"Glee Club and choir are year-round activities. We usually do a fall tour over a long weekend and then in the spring we go somewhere warm -- Arizona this year. If I'd gone to a civilian college, I don't think I would have been able to visit both coasts and New York every year.

"It's so important to get involved in extracurricular activities (ECAs). You need something to get your mind off the academy, the pressure and the schedules -- especially during plebe year. There are so many ECAs here to choose from that I find it hard to believe that there isn't something for everyone. For me the time I've put into Glee Club and choir has given back lots of happy memories and good friendships."

Bowling
Boxing
Ice hockey (men)
Judo
Karate
Scuba
Soccer (Women)
Table tennis
Tennis (women)
Softball (women)

Professional

Dolphin Club
Drill Team
Flying Club
Flight Training Squadron (VTNA)
Navy Tactical Wargaming
Yard Patrol Squadron
Military Parachute Club
Semper Fidelis
Surface Action Group
Small Arms Club
Foreign Affairs Conference

Recreational

Amateur Radio Club
Archery Club
Art and Printing Club
Computer Club
Photography Club
Sportsman's Club
Orienteering Club

Academic

Astronomy Club
Chemistry Club
Forensic Society
History Club
International Club
Branches of many professional associations and honor societies
Language clubs
Math Club

Publications

Log magazine
Lucky Bag
Reef Points
Trident Calendar

Brigade Support

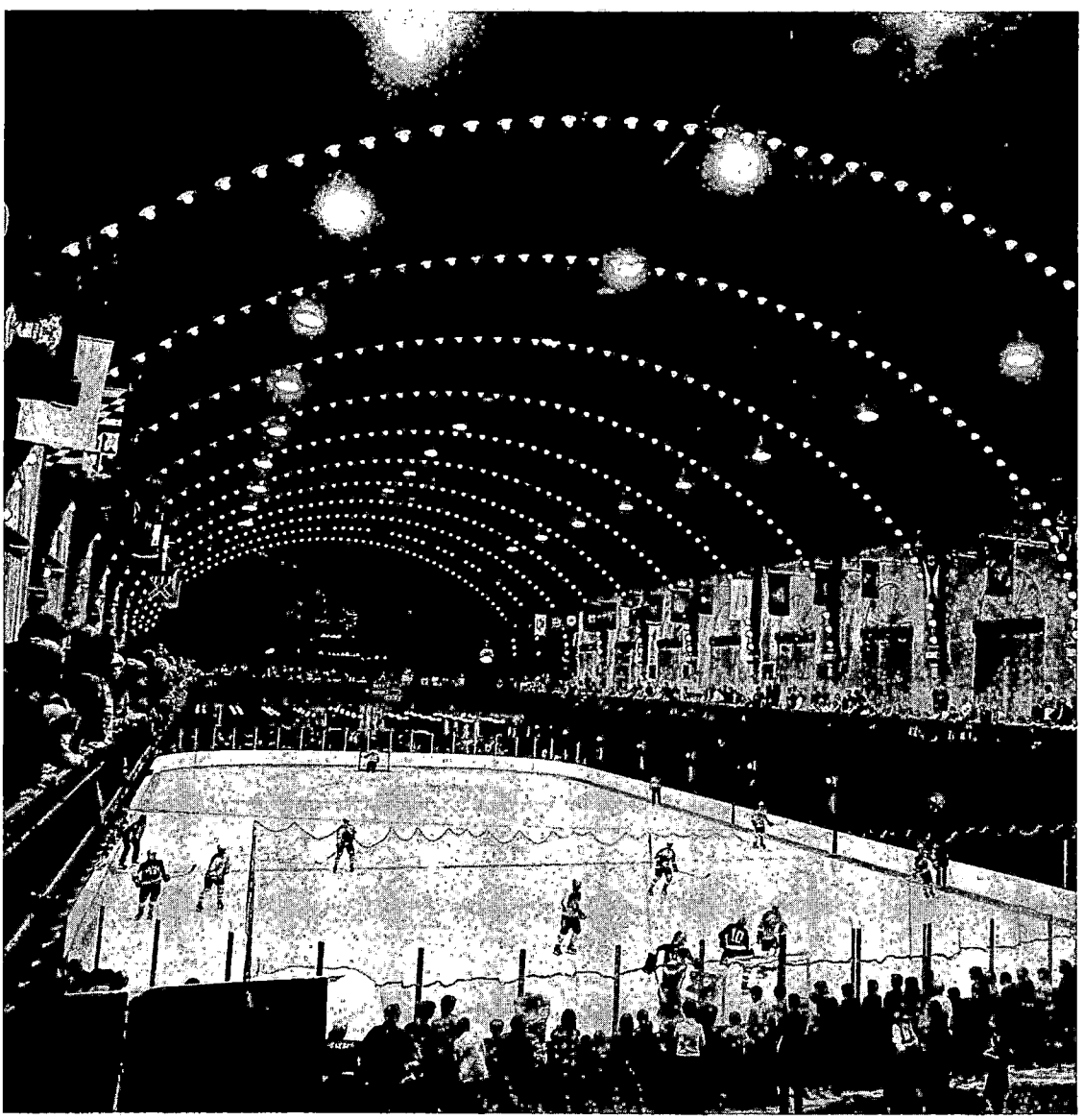
Brigade Activities Committee
Cheerleaders
Social Affairs Committee

Religious

Baptist Student Union
Catholic Midshipmen Club
Fellowship of Christian Athletes
L'Chaim
Naval Academy Christian Association
Navigators
Officers' Christian Fellowship

Other

Big Brother-Big Sister
Black Studies Club
Filipino-American Club
Midshipmen Action Organization
Ring and Crest Committee
Public Relations Committee
WRNV Radio



Local and Area Attractions

The Naval Academy lies adjacent to historic downtown Annapolis, which is famous for its state capitol, colonial homes and waterfront. The city dock is the focal point of the Annapolis waterfront. Workboats outfitted for harvesting crabs and oysters berth next to million-dollar sailing yachts and power boats. During mild weather, the dock is the scene of concerts, boat shows and festivals mixing midshipmen and local citizens with thousands of tourists. For a small city (35,000 population) Annapolis is very sophisticated, offering many fine restaurants, boutiques, art galleries, museums, repertory theatre and a symphony orchestra. Several large shopping centers and malls are located in the suburbs.

Maryland's largest city, Baltimore, is approximately 30 miles from Annapolis and the Naval Academy. Baltimore's Inner Harbor offers a wide variety of specialty shops, eateries and entertainments. The Maryland Science Center and the National Aquarium are also there. Greater Baltimore also has theatres, galleries, museums and a zoo. For sports enthusiasts, there are race tracks, a professional indoor soccer team and the Baltimore Orioles baseball team.

Due west of Annapolis lies Washington, DC, our nation's capital. Washington is home to the Smithsonian Institution with its museums of Natural History, Science and Technology, American History and Air and Space. There are hundreds of other attractions ranging from art galleries, symphonies, opera, ballet, and off-Broadway theatre to rock and jazz concerts, ethnic festivals and scenic parks. Washington also has its share of professional sports teams including 1988 Super Bowl Champion Redskins in football, the Bullets in basketball and the Capitals in ice hockey.

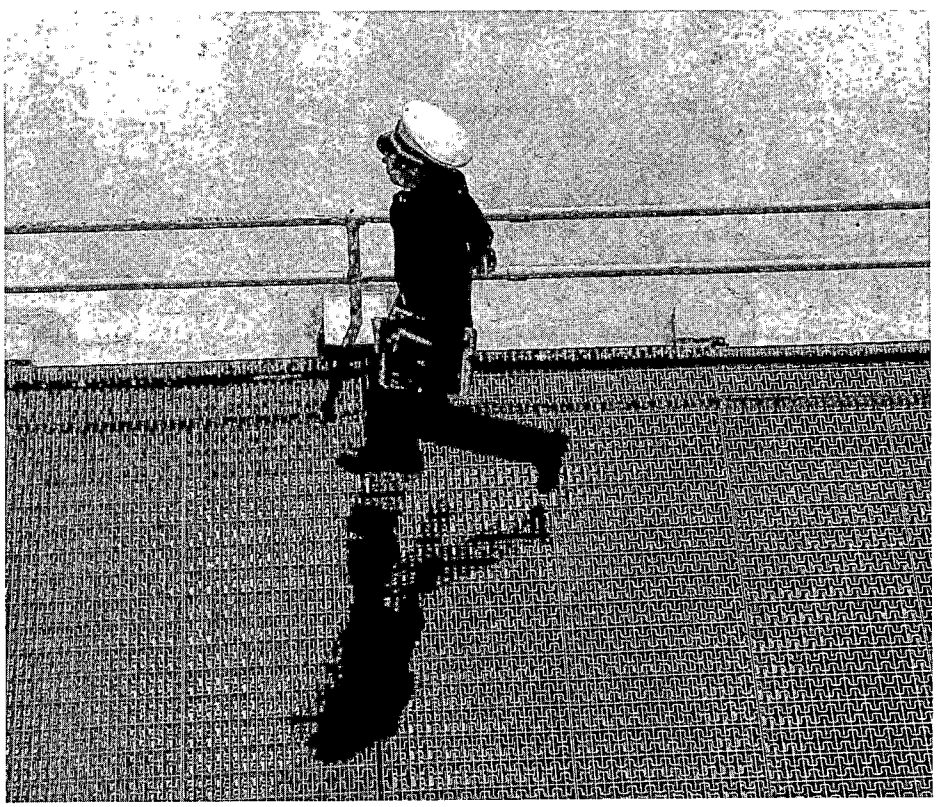
Midshipmen Pay and Benefits

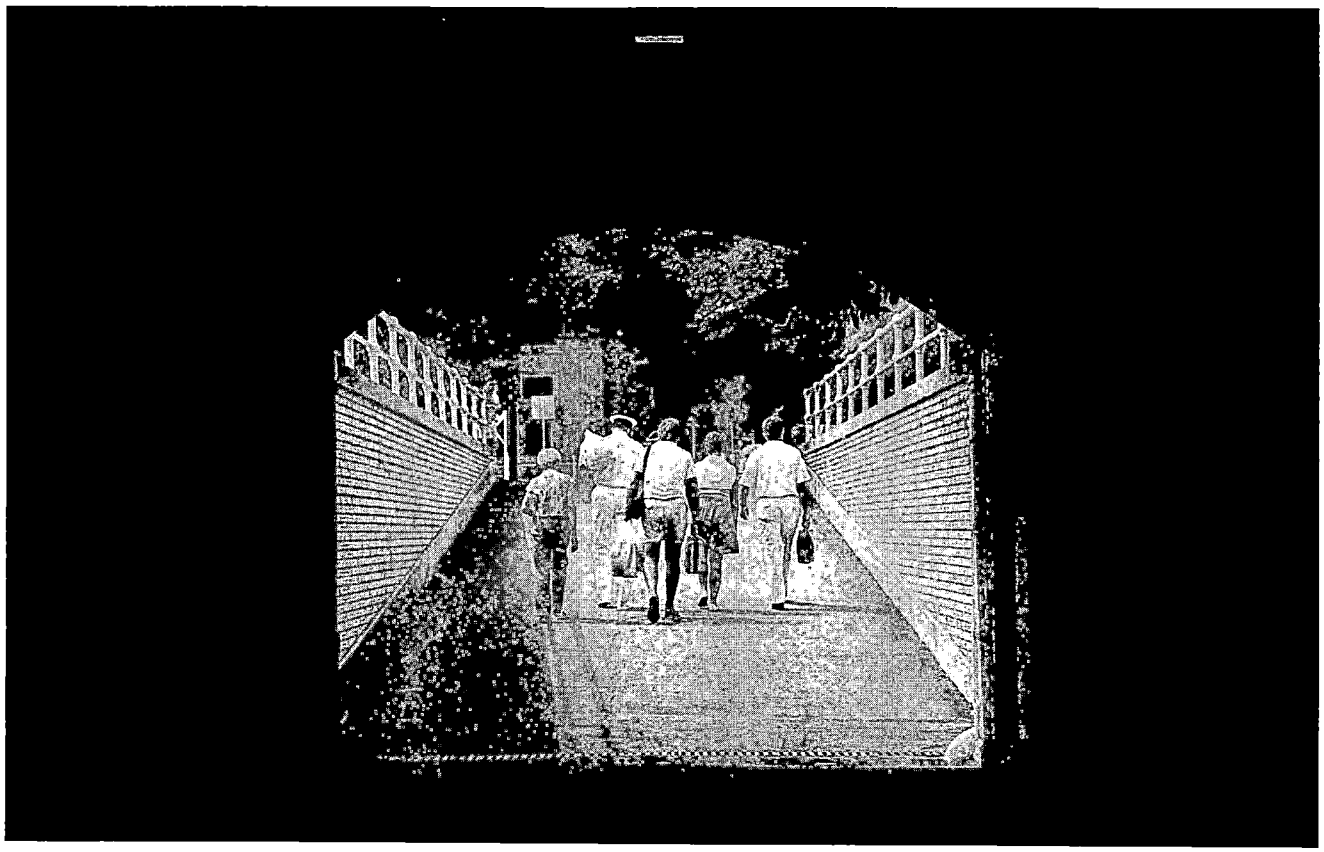
The Navy pays for the tuition, room and board, and medical and dental care of Naval Academy midshipmen. You also enjoy regular active-duty benefits including access to military commissaries and exchanges, commercial transportation and lodging discounts, and the ability to fly space-available in military aircraft around the world. In addition, all midshipmen are paid $504.30 monthly. Part of this goes to defray the cost of uniforms, books and professional equipment.

Leave and Privileges

The Naval Academy's combined academic, military and physical development programs demand a lot of effort, requiring you to spend more time on campus than the typical civilian college student. But midshipmen enjoy Christmas and summer vacations (leave) plus shorter periods of time off (liberty). Free time to be away from the academy is based in large part on assigned military responsibilities, performance in academic and military endeavors, and class seniority. You earn more liberty and privileges each year you advance at the academy. All midshipmen generally are granted leave during these periods:

- Thanksgiving leave
- a Christmas vacation at the end of the fall semester.
- mid-term leave during spring semester.
- Easter leave
- a short break at the end of spring semester and before Commissioning Week.
- a month-long summer vacation for all but new plebes, staggered according to the summer's professional training schedule.





During semesters of the academic year, off-campus privileges fall into two categories: town liberty and weekend liberty. Town liberty permits you to go anywhere within a 22-mile radius of the academy. Weekend liberty permits you to leave the academy after your last class on Friday and travel beyond 22 miles before returning Sunday evening. Liberty curfews differ according to seniority. You are not eligible for liberty if you're assigned a military watch (rotated responsibilities) or if you're having serious difficulty in academics, conduct or military performance. Generally, town and weekend liberty is authorized for midshipmen as follows:

- plebes have town liberty within 22 miles of the academy on Saturday afternoons and evenings, and liberty within the Naval Academy complex on Saturday mornings and Sunday afternoons. Plebes can date on at least four weekends during the year and throughout Commissioning Week. Special weekend liberty may be granted on special occasions.
- five liberty weekends each semester are authorized for third-classmen, eight a semester for second-classmen.
- first-classmen have town liberty all day Saturday, Sunday morning and afternoon, Wednesday afternoon and Friday evening after classes. They also have unlimited weekend liberty, except when assigned military watches.

Motor Vehicles

Restrictions apply to your use of motor vehicles as a midshipman. This is necessary because parking space is very limited at the academy and in Annapolis. Also, you have limited time off in the first years to make use of a private vehicle. These are the current rules:

•as a plebe you are not permitted to operate motor vehicles except when authorized leave, such as during Christmas vacation.

•third-class midshipmen may have a car or truck but must maintain and operate it beyond the town liberty limits (22 miles).

•second-class midshipmen may have a car or truck but must maintain and operate it at least two miles beyond academy grounds.

•first-class midshipmen may drive a car or truck in Annapolis and on board the Naval Academy, and may park at the academy.

•no midshipman is allowed to maintain or operate a motorcycle within town liberty limits.

Alcohol and Drugs

As a future naval officer, you learn at the Naval Academy to drink in a responsible way, if at all, and to shun illegal drugs entirely. Normally, plebes are not allowed to consume alcoholic beverages except when on leave away from the academy. As an upperclass midshipman, you may drink if you are the minimum legal age for drinking in the state, 21 in Maryland. The use of illegal drugs is strictly forbidden and results in expulsion from the academy. As a midshipman, you are subject to random drug testing through urinalysis, consistent with Navy-wide policies and procedures.

Services

Almost everything you need as a midshipman is available on the academy grounds. There's a bookstore, uniform and tailor shop, cobbler shop, snack bar, barber shops, post office, recreation rooms and bowling alley. We also provide the following services:

Dining

The entire brigade eats at one time in a massive dining area or wardroom, King Hall. Companies sit together and food is served family-style. The typical daily diet adds up to about 4,500 calories and includes such dishes as steak, home-baked bread, rolls and pastries, homemade ice cream, spiced shrimp, steamed Chesapeake crabs and Mexican cuisine. All of the food for the 15,000 meals served daily is prepared by our food service staff in the kitchens adjacent to King Hall.

Medical and Dental Care

Modern facilities for medical and dental treatment are located in Bancroft Hall. Besides routine medical treatment and comprehensive dental care, orthopedics/sports medicine, physical therapy and optometry services are available. Specialists in internal medicine/cardiology, dermatology and allergies provide care during scheduled visits to the academy. Consultation and treatment in virtually all major medical and surgical specialties is available at the Naval Hospital, Bethesda, MD. The branch clinic at the academy does have a small observation ward for midshipmen with illnesses or injuries not serious enough to warrant hospitalization but requiring attention that cannot be provided in the Bancroft Hall living area. Midshipmen requiring more definitive inpatient care are normally transported to the Naval Hospital, Bethesda. Exceptions to this are hospitalizations for orthopedic procedures and for emergency conditions, which are usually arranged at Anne Arundel General Hospital, a fully accredited civilian facility in Annapolis.

Counseling Services

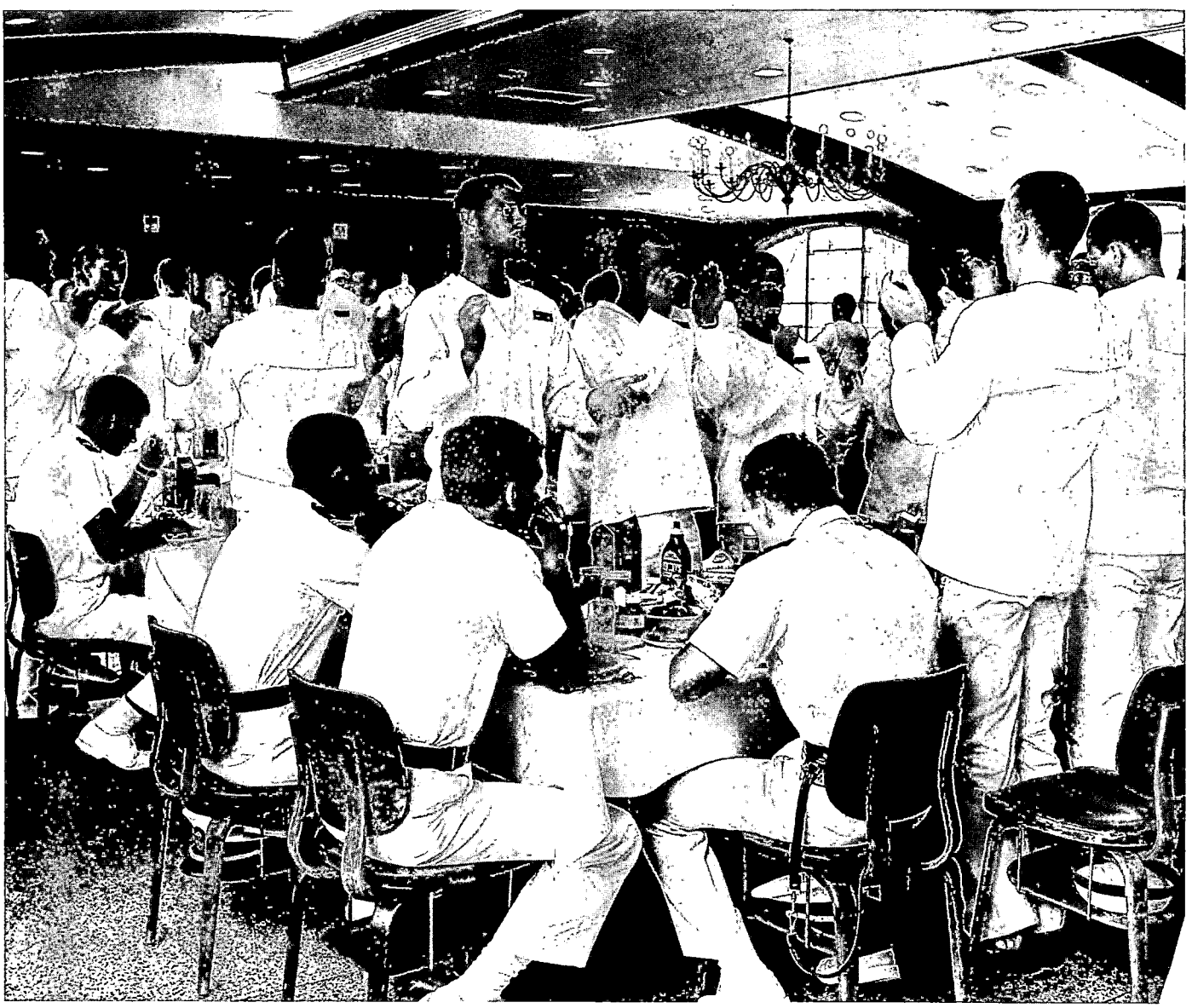
Professional counseling services are provided in the Midshipmen Counseling Center. The center is staffed by psychologists who can help with adjustment, academic, vocational, interpersonal and stress-related problems. Programs for alcohol education, time management and study skills also are available through the center.

Legal Assistance

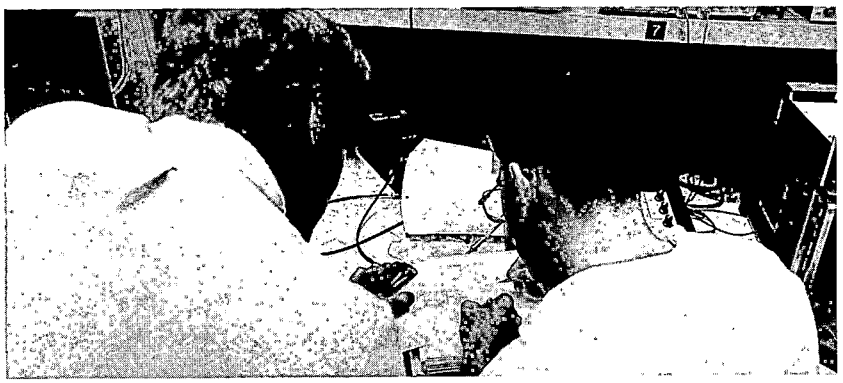
The Office of Legal Counsel is available to assist midshipmen with personal and military legal questions.

Financial Advice

Regular seminars offer information on savings, loans, insurance programs and estate planning. Individual financial counseling is available from a Navy Supply Corps officer who serves as midshipmen financial advisor.



Chapter 4



Academic and Professional Education

To prepare midshipmen as naval officers, the Naval Academy's curriculum blends professional subjects with required and elective courses similar to those offered at leading civilian colleges. Our curriculum has three basic elements:

- core requirements in engineering, natural sciences, the humanities and social sciences, assuring that graduates are able to think, solve problems and express conclusions clearly.

- core academic courses and practical training teaching the professional and leadership skills required of Navy and Marine Corps officers.

- an academic major in a subject chosen by midshipmen to develop their individual interests and talents.

Accreditation

The Naval Academy is accredited by the Middle States Association of Colleges and Secondary Schools. In addition, seven of the Naval Academy's engineering majors are professionally accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board of Engineering and Technology (ABET). The computer science major is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB), and the chemistry major is accredited by the American Chemical Society.

Degree Awarded

Upon graduation, you are awarded a bachelor of science degree, regardless of your major, because of the technical content of the core curriculum. Those in the top 10 percent of their class graduate with distinction. Those who have completed special honors programs in selected majors graduate with honors.

Educational Philosophy

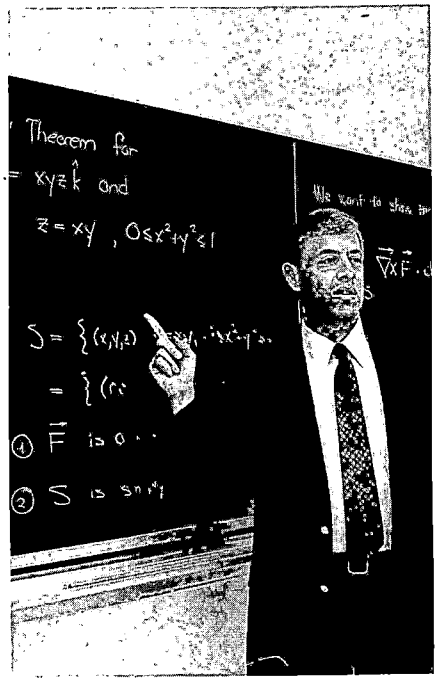
The Naval Academy's philosophy of education stresses individual attention to students by a highly qualified faculty who are strongly committed to teaching. You won't get lost in the classroom at the Naval Academy. Classes are small, generally ranging in size from 10 to 27 students. Even the core courses required of all midshipmen are divided into small sections. You get individual attention from your instructor. In science and engineering courses, the same professor who lectures in the classroom supervises experiments in the lab. This contrasts sharply with most universities, where scholars may address their students in huge lecture halls, but direct contact with undergraduates in labs or discussion sections is delegated to graduate assistants. All courses at the Naval Academy are taught by faculty members, not by graduate assistants.

Professor Peter F. Wiggins has a 27-year association with the Naval Academy as a professor of nuclear and marine engineering. He was honored in 1988 as the State of Maryland professor of the year by the Council for Advancement and Support of Education, and was a bronze medal finalist in the national professor of the year competition. In 1987, he received the U.S. Naval Academy Alumni Association's first annual award for teaching excellence, and in 1973, Western Electric awarded him the American Society of Engineering educator award for outstanding instruction to engineering students. Dr. Wiggins is also internationally known for his research efforts in neutron capture gamma ray applications. The New York City native shares his knowledge -- and enthusiasm -- for scholarship and research with his students at the Naval Academy.

"Midshipmen are generally good students. They carry a heavy academic load, and I think its important that faculty members assist them in their learning process. We are very fortunate at the Naval Academy that we have very many good teachers, and that's across the board in every department and every discipline. I think that's evident when you talk to the midshipmen. They know that faculty members are willing to give them extra instruction in the afternoon or in the evenings or Sundays.

"I think most midshipmen have a good background from high school, but we also have to inspire them to learn. We do this by showing a great amount of enthusiasm for the subject ourselves and by example. And we try to keep classes interesting and get our students interested in learning. We try to show them how technical courses will be useful to them later on in the fleet or wherever they are going ... to the Marine Corps, or as a pilot or submarine or surface warfare officer.

"I always tell them this is their opportunity to get the best possible education they can -- a foundation they can call on for the rest of their lives as naval officers. This is the beginning of their learning. Learning continues long after they leave the Naval Academy. If they don't get the basics and the foundation here, it's going to be a problem later, whether they go to graduate school or whether they are learning weapons systems or any new technology that's coming into the Navy. The Navy is a technological field. They have to understand the basic principles of engineering. If the teacher is concerned, if the teacher is interested and enthusiastic about the subject it really does rub off on the student. I think that's the best way we help them learn."



Faculty

Our 600-member faculty is an integrated group of officers and civilians in nearly equal numbers. This practice is unique among service academies dating from the earliest days of the Naval School when three civilian teachers joined four Navy officers in the first faculty. Officers rotate to the academy for assignments, bringing fresh ideas and experiences from operational units and staffs of the Navy and Marine Corps. They also can explain how studies at the academy are applied in the fleet and the field. On top of their professional training and experience, all military faculty members have master's degrees or doctorates. The academy's civilian faculty members give continuity to the educational program and form a core of professional scholarship and teaching experience. Nearly all of these civilians have doctoral degrees, and many of them are recognized as leading scholars in their fields. Working together closely, these military and civilian faculty members form one of the strongest and most dedicated teaching faculties of any college or university in the United States. Although many of them are involved in scholarly research and writing, their first priority always is teaching.

Academic Counseling

You receive as much help as you need in planning your curriculum. Plebes receive at least 2 hours of group and individual academic counseling in their first few weeks at the academy and then are assigned temporary academic advisers. When you select your major, you are assigned a permanent faculty adviser from the academic department of that major. Your professors and company officer also can help you consider curriculum options relative to your talents, interests and career goals in the Navy or Marine Corps.

Core Curriculum

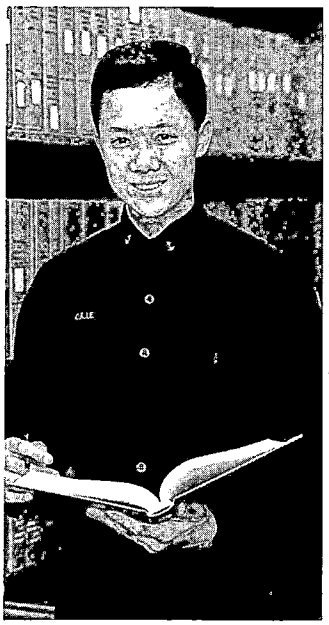
In four years at the Naval Academy, you are required to take certain core courses to make sure you are well prepared for the major career-path options available to Navy and Marine Corps officers. Core requirements also prepare you for advanced professional training and postgraduate education, which are expected of nearly all naval officers. Through required courses in engineering, natural sciences, social sciences, the humanities, professional military subjects and physical education, the Naval Academy gives you a balanced education to open practically any door of opportunity in the future.

During plebe or freshman year, all courses are required. These form the foundation for the more advanced courses chosen by upperclass midshipmen. Some core requirements in the upperclass years have alternative courses from which to choose, depending on your academic background, abilities and major.

The typical academic schedule for plebes includes five to six academic courses in each of two semesters:

Plebe Year First Semester -- 16 credit hours

- Calculus I -- Taught at several levels to accommodate different academic backgrounds. Plebes not adequately prepared for calculus take a pre-calculus course that does not count as part of the minimum mathematics requirement.



Midshipman Second Class Chris Le of San Francisco, CA, is a mechanical engineering major. As part of the core curriculum, he must also take courses in liberal arts, social sciences and natural science in addition to engineering courses. The 20-year-old thinks that by taking a variety of courses, he is getting a solid educational base and background to become a professional naval officer.

"From a practical point of view, the best thing about taking humanities courses is that as an officer you are first and foremost a leader, not a technician. So it's the humanities -- history, English, philosophy, world affairs, languages -- that build a good naval officer.

"On the other side of the house, for someone who is a humanities major, the reality of the Navy is that it is very technical, so taking engineering courses will help the humanities major. It's a perfect balance.

"The required military and physical education training is also very important. We are going to be naval officers, not just engineers or managers or whatever. In my opinion, the military performance stands above academics, but as a whole, the military training, the academics, and the physical education all come together. If you have one without the other, you're not developing the complete person, the complete officer.

"I think the core curriculum is an integral part of the academy. It builds an all-around Renaissance man."

•Chemistry -- Taught at several levels, includes laboratories.

•Fundamentals of Computing.

•Leadership I -- Introduction to military leadership principles.

•Rhetoric and Introduction to Literature I -- Some plebes take a practical writing course to prepare for this class.

Plebe Year Second Semester -- 19 credit hours

•Calculus II -- Continuation of the first-semester course.

•Chemistry -- Continuation of the first-semester course.

•American Naval Heritage.

•Fundamentals of Naval Science.

•Introduction to Naval Engineering.

•Rhetoric and Introduction to Literature II.

Advanced Placement

More than half of those entering the Naval Academy validate one or more courses based on previous college-level achievement. Each of the academy's academic departments sets its own validation standards and considers one or more of the following:

•transcripts.

•department validation tests, administered at the Naval Academy.

•College Entrance Examination Board (CEEB) Achievement and Advanced Placement tests.

If you validate a basic course, you can enroll in a sequential course in the same subject, take care of another curriculum requirement or carry a lighter academic load. In any case, you must take a minimum of 15 credit hours each semester and spend a total of four years in residence at the Naval Academy to complete professional courses and training.

Midshipmen who take advantage of advanced placement in their early years may pursue independent research, honors programs or master's degree studies in their fourth year at the academy, if they qualify for admission to these special programs.

Majors Program

The Naval Academy is, fundamentally, an engineering school, and it is expected that the majority of graduates will be engineers or technical majors. For those exceptional students with unique backgrounds, overriding interests and commitments to other fields of study, a broad majors program in those non-technical sciences and humanities that can be reasonably related to the naval profession is offered.

Near the end of plebe year, you choose a major course of study with the aid and support of academic and military advisers. A total of 18 majors are offered:

Aerospace Engineering
Chemistry
Computer Science
Economics
Electrical Engineering
English
General Engineering
General Science
History
Marine Engineering
Mathematics
Mechanical Engineering
Naval Architecture
Ocean Engineering
Oceanography
Physics
Political Science
Systems Engineering

Some of these areas offer additional specialization within the major. For example, recognizing that the Navy is an important user of space vehicles and satellites, the Naval Academy recently created an astronautics track within the aerospace engineering major to help prepare midshipmen for assignments with the Navy Space Command and NASA.

Minors in French, German, Spanish, Russian and Chinese are offered to those who began to study any of these languages before coming to the academy or who complete requirements while at the academy.

Special Academic Opportunities

Outstanding students at the Naval Academy have many opportunities to challenge and advance themselves through several special programs.

Trident Scholars

Top midshipmen scholars can spend their senior year conducting independent research in an area of interest, working with a faculty adviser who is an expert in the field. Trident Scholars carry a reduced formal course load to give them time for in-depth research and preparation of a thesis. Recent Trident Scholar projects have included research on "Failure Modes in Composite Materials" to "Analysis of Glint Patterns Using Remote Sensing Techniques."

Honors Program

Midshipmen with excellent academic and leadership performance can apply for honors programs offered in history, English, political science, mathematics and economics. Honors students complete a thesis or research project, and orally defend it before a panel of faculty members. Successful participants graduate with honors.

A marine engineering major from Princeton, NJ, Eric Reilly has known since he was a teenager that he wanted to come to the Naval Academy. He is a Trident Scholar, one of nine first-class midshipmen doing independent research with one of his professors. His project involves measuring the neutron dose exposure of people working with nuclear weapons.

"I couldn't have imagined myself doing something like my Trident Scholar project before I came here. The Trident Scholar Program allows me to do research in a real environment, and not in canned laboratory exercises. What I'm doing isn't just something I dreamed up; it is building on the Navy's present capabilities in measuring neutron dose. There are, potentially, some real benefits for the Navy.

"I'm applying for graduate school in nuclear engineering, and I'll certainly continue working with radioprotection. This is my field, the kind of thing I hope to do when I'm on shore duty. But I want to spend my career in submarines; I want to go to sea and stay at sea as long as possible.

"The best way to prepare for the academy is to take math courses in high school. Math is the basis for everything that goes on in science and engineering, and math is the language everyone speaks these days. We live in a high-tech battlefield, and we have to be prepared."

Voluntary Graduate Education Program (VGEP)

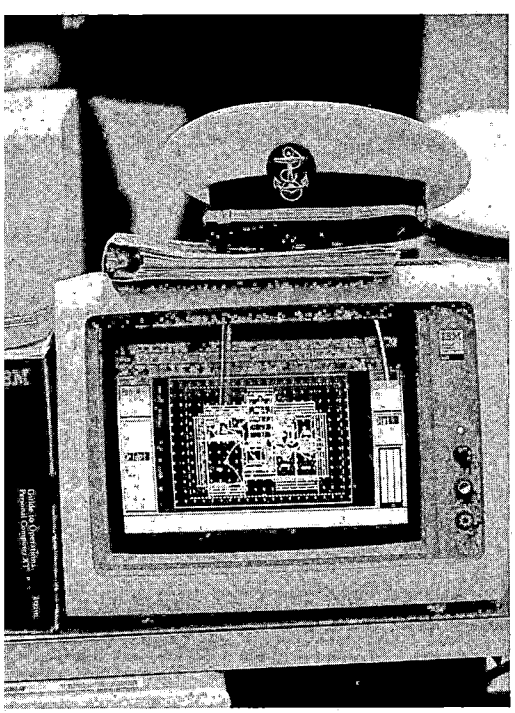
Midshipmen who have completed academy course requirements early through any combination of validation and overloading can begin work toward master's degrees at nearby civilian universities such as Georgetown, Johns Hopkins and the University of Maryland. Up to 20 midshipmen can participate annually, starting graduate work during first-class (senior) year and completing their master's degree programs within seven months after graduation from the Naval Academy. Fields of study are selected from Navy-approved graduate education programs leading to Navy subspecialty qualification.

Facilities

From wind tunnels to a nuclear reactor, we have outstanding facilities and equipment in every phase of our program. Several new academic buildings have opened in recent years, and older classrooms, labs and athletic facilities have been renovated to provide modern and comfortable areas for learning and recreation.

Special Academic Facilities

- propulsion lab
- wind tunnels, both subsonic and supersonic
- flight simulator
- 120-foot and 380-foot towing tanks
- coastal engineering basin
- environmental chamber facilities
- sub-critical nuclear reactor
- oceanographic research vessel, field laboratory and weather station
- 16-inch Cassegrain reflector telescope
- fully-equipped laboratories for chemistry, physics, engineering, oceanography and foreign language courses

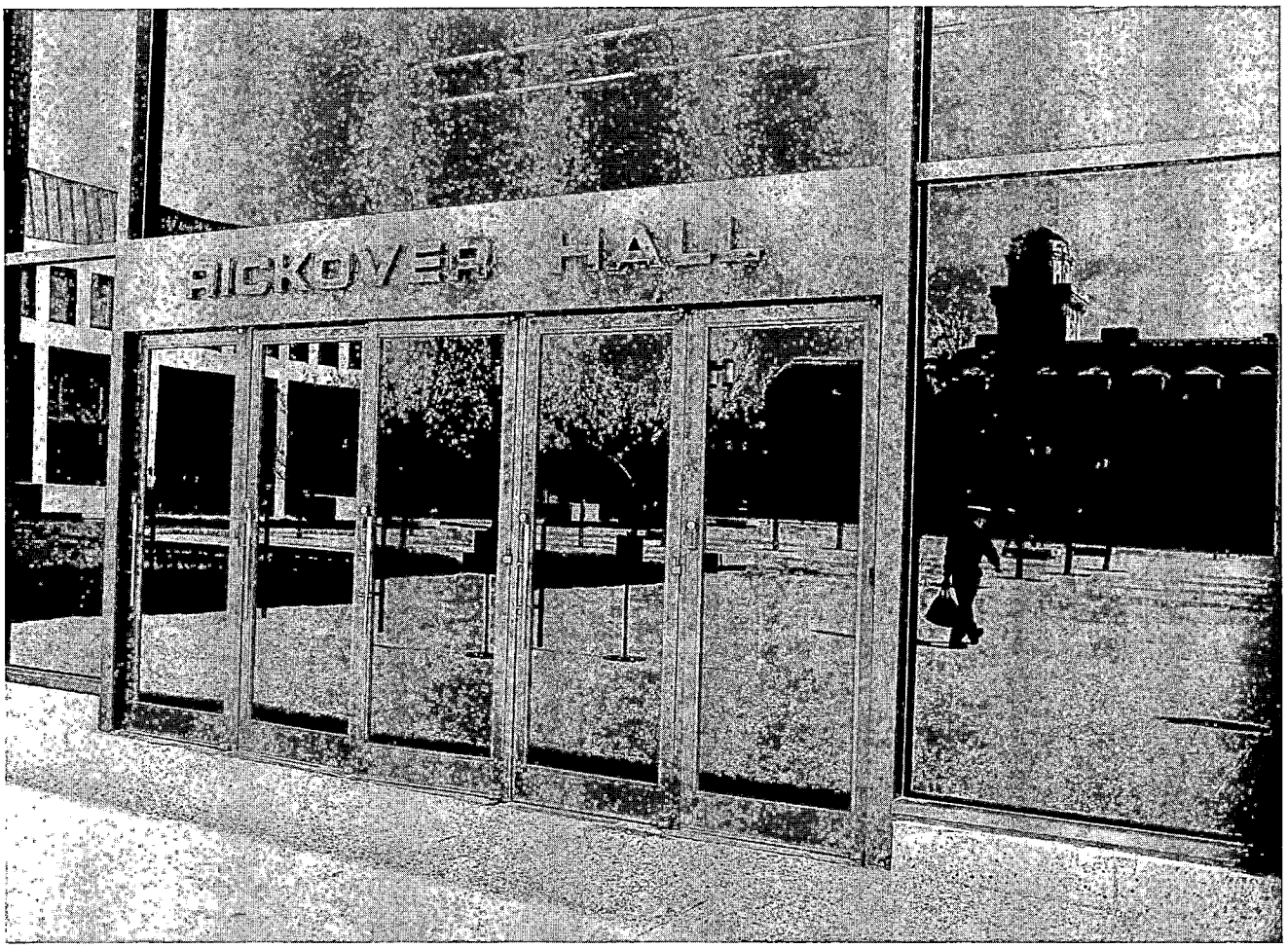


Computers

Computers play an important role throughout the Naval Academy's curriculum. Our modern computing hardware and software make the learning process easier. Also, with background and experience in computers acquired at the academy, midshipmen are better prepared for the high-tech naval systems they will manage later in the Navy and Marine Corps.

The academy's computer facilities include:

- time-shared multi-computer systems with 1,500 terminals and microcomputers
- extensive library of computer programs available for use by all midshipmen
- computer languages including ADA, BASIC, PL/1, FORTRAN, Pascal, COBAL, and APL
- NAVTAG, or Navy Tactical War Gaming, for classroom tactical instruction
- computer-aided design in engineering laboratories
- interactive video for training in foreign languages



All new midshipmen are required to purchase personal desk-top computers during Plebe Summer. After an introductory course, the personal computers are used for a variety of courses and purposes over the four-year program. Paid for through deductions from midshipmen pay, the computer then is yours to take with you when you graduate and head for your first assignment as a naval officer. Soon, personal computers in midshipmen rooms will be linked to the Naval Academy data network and, through the network, to other computers and data bases at the academy, and to outside educational and commercial information sources.

Writing Center

Open to all midshipmen, the Writing Center exists to help those needing extra writing instruction. The Writing Center is staffed by English faculty members, both civilian and military, who are experts in composition and in working with students to improve their writing skills.

Nimitz Library

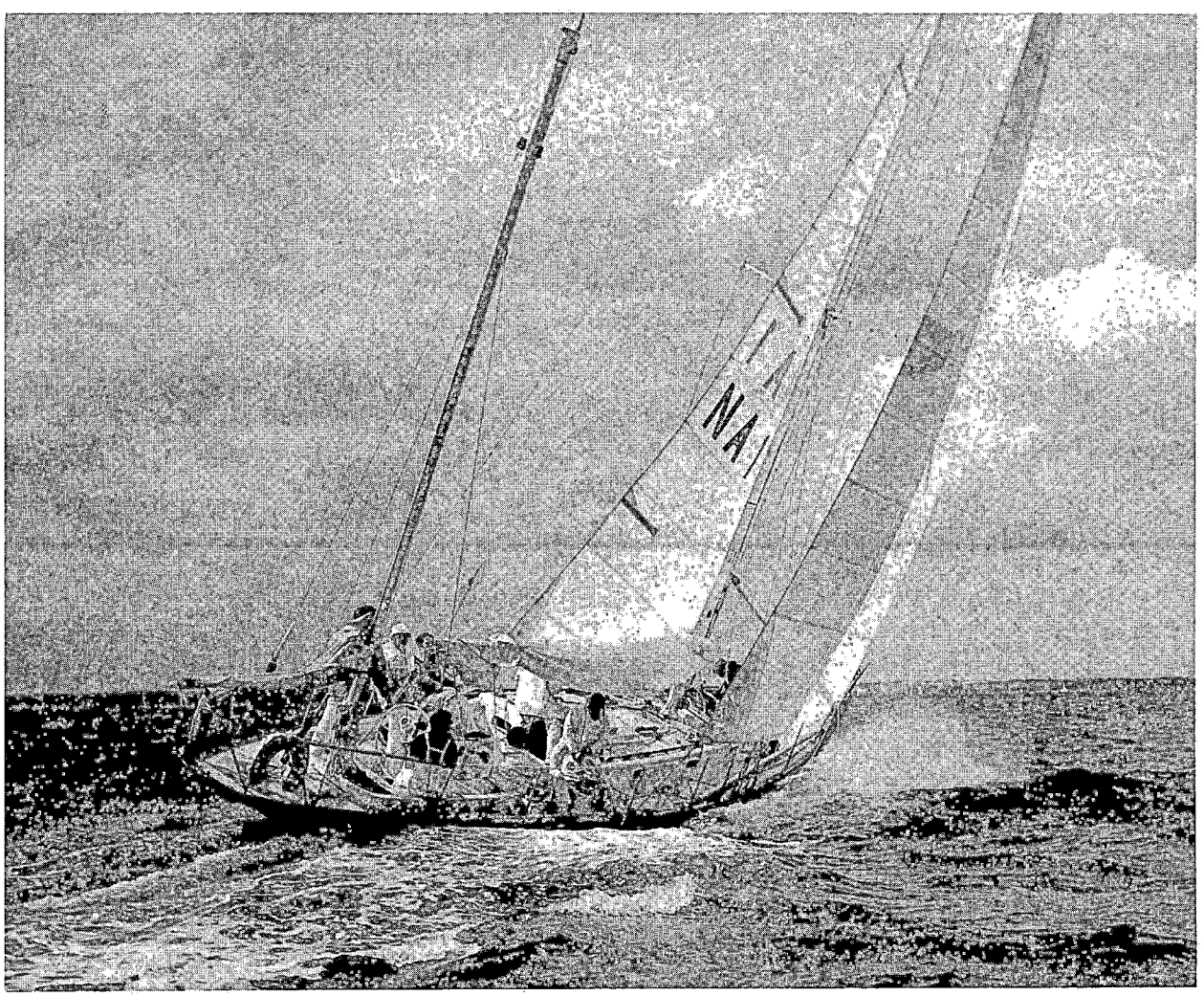
Built in 1973, our library offers more than 577,000 volumes, with a special emphasis on naval science and history. Comfortable reading and study areas can accommodate 1,500 students. The library also contains seminar and group-study rooms, typing and calculating rooms, audio and video carrels and a computer terminal room. Through Nimitz Library, midshipmen have access to other libraries in the Washington and Baltimore areas.

Resources Afloat

The fundamentals of seamanship, navigation and naval operations are taught in laboratories afloat our many sail and power craft. The Robert Crown Sailing Center on the Severn River supports many of these activities, as well as recreational and intercollegiate sailing. The Naval Academy's large and varied fleet includes:

- twenty 108-foot yard patrol craft
- seventy sailboards
- ninety Lasers
- thirty 420 dinghies
- three Tech dinghies
- twenty-six 24-foot Rainbow-class knockabouts
- twelve J-24s
- eight 44-foot sloops
- twelve 44-foot Luders yawls
- twenty 40- to 60-foot offshore sail training craft

The Naval Academy's sailing program is truly comprehensive. It ranges from basic instruction to advanced intercollegiate dinghy and international level, open-ocean racing. Each midshipman participates in sailing during Plebe Summer in 24-foot knockabouts, Lasers and 44-foot Luders yawls.



After Plebe Summer, midshipmen may take part in advanced training under sail, recreational or competitive sailing. Both the Naval Academy's Varsity Sailing Programs, intercollegiate dinghy and off shore "big boat," are consistently top ranked nationally.

Professional Courses and Training

Professional courses and training are an important part of the Naval Academy's integrated program. Required courses in such areas as naval science, engineering, navigation and weapons systems give you a working knowledge of modern naval operations and technology. Courses in leadership and military law help prepare you for leadership responsibilities as an upperclass midshipman and a naval officer. Physical education teaches you the value of physical fitness and how to stay fit for life. Summer training introduces you to operational units of the Navy and Marine Corps, the life of a sailor and the responsibilities of a junior officer.

Courses available as electives include air navigation, advanced surface and submarine navigation, leadership and psychology. Also available are extracurricular programs such as the Yard Patrol Craft Squadron and the Naval Academy Flight Training Squadron offering advanced, hands-on experience in professional areas.

Academic Year Courses and Training

Fourth-Class (Plebe) Year

Professional courses -- three required introductory classes in naval engineering, naval science and leadership. Courses include classroom studies and lab sessions in operational trainers and afloat in yard patrol craft.

Infantry drill -- about 13 hours of infantry drill in the fall and spring, including four hours in Brigade of Midshipmen dress parades.

Physical education -- fundamentals of swimming, boxing, wrestling, gymnastics, golf, tennis, volleyball, squash and personal conditioning. Women take fencing and hand-to-hand skills in place of boxing and wrestling. Performance tests each semester in applied strength, one-and-a-half-mile run and the obstacle course.

Third-Class Year

Professional courses -- three required in navigation, naval science and naval engineering.

Infantry drill -- about 13 hours in the fall and spring, including dress parades.

Physical education -- swimming, boxing and judo. Women take combative grappling in place of boxing. All courses are graded. In addition, performance tests are required each semester in applied strength, one-and-a-half-mile run and the obstacle course.

Second-Class Year

Professional courses -- six are required, including advanced courses in navigation, naval engineering and weapons. Also required are naval electricity and electronics and a leadership course emphasizing management techniques, problem-solving and decision making.

Infantry drill -- about 13 hours in the fall and spring, including dress parades.

Physical education -- swimming, personal conditioning, officiating and hand-to-hand combat. Tests in applied strength and one-and-a-half-mile run and the obstacle course are administered each semester.

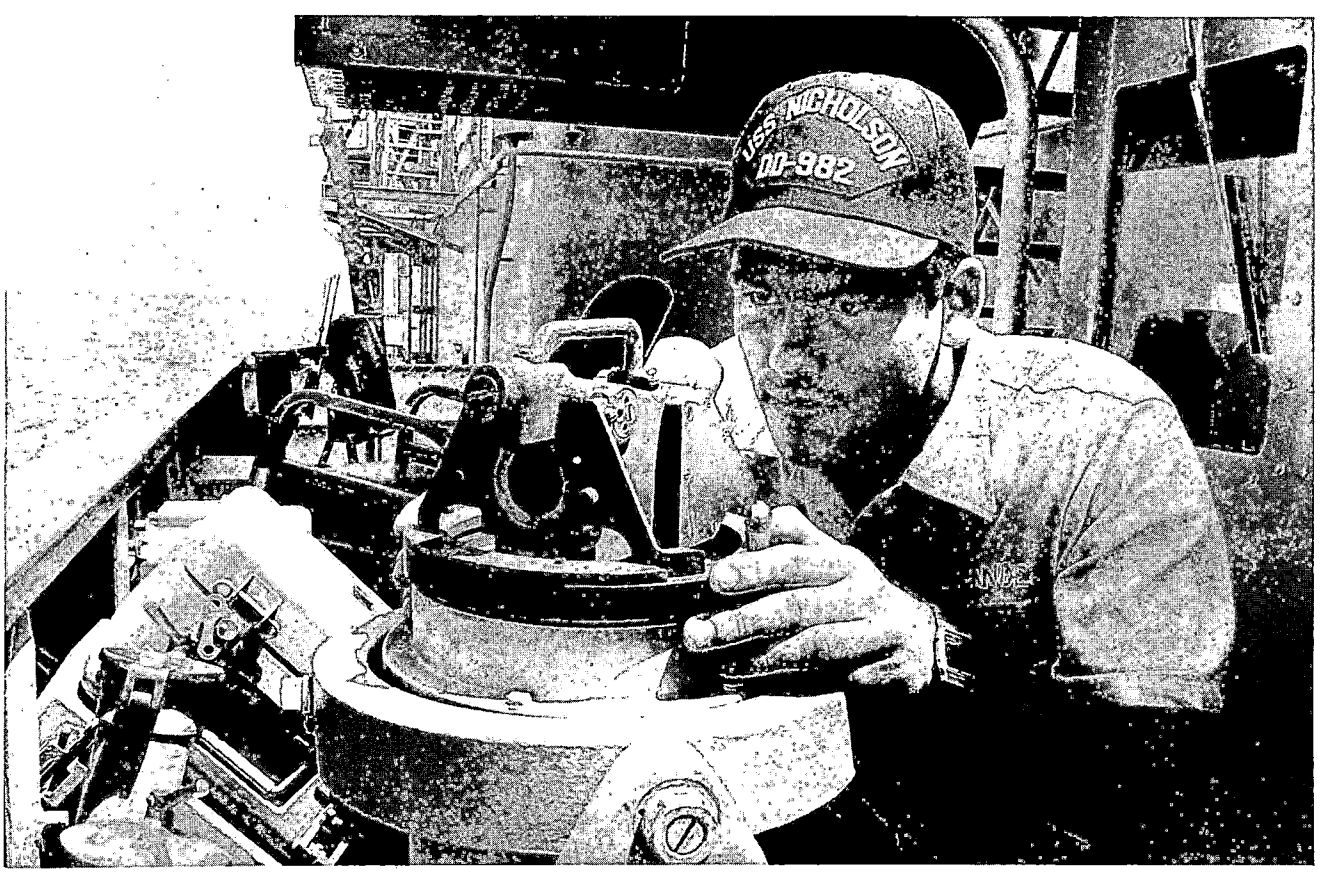
First-Class Year

Professional courses -- the two required are a weapons course exploring warfare systems design and a law course covering military justice and the law of war.

Infantry drill -- leading the brigade in about 13 hours of drill, including dress parades.

Physical education -- advanced swimming and personal conditioning.

Electives are offered in several sports. Tests in applied strength, one-and-a-half-mile run and obstacle course are administered each semester. Swimming is graded each year.



Midshipman Second Class Elton Parker, 19, from McLean, VA, is continuing a family tradition by attending the Naval Academy. His father, grandfather and great-grandfather graduated from the Naval Academy, and his father and grandfather were aviators. During his summer cruise, he got a chance to see first-hand what life on an aircraft carrier is really like. That experience reinforced his desire to be a Navy pilot.

"It was incredible on the aircraft carrier. USS Independence is a 25-year-old ship, but they had just come out of the shipyard and they were going through testing. So we actually got to learn a lot more about what the ship's capabilities are than if we had just been on a cruise. As third-class midshipmen we were like enlisted so we actually got to see how the ship works. What I thought was the best part was getting down there in the bilges, cleaning everything, chipping paint and working in engineering. It makes you appreciate the activities on the ship a lot more. You realize there's a lot to keeping that thing afloat.

"I was really impressed with the enlisted people we worked with. You realize quickly that they know the ship infinitely better than you and you spend most of your time watching and asking questions.

"I had taken the basic course, Introduction to Engineering, before going on cruise. When we went down into the engineering department to learn the system, I didn't think it would come back to me, but I was surprised at how much I retained. The engineering officer pointed out a particular piece and I could remember what its purpose was, what it hooked up to and how it worked. He asked me questions and I was able to answer; I was surprised at that, and so was he, because most people who go down there are kind of oblivious to what is going on. If you have a grasp of what is going on, it's a lot more interesting than if you have no clue."

Summer Courses and Training

Plebe Summer

This starts on Induction Day early in July. Areas of emphasis include military indoctrination, physical education, basic seamanship and sailing, small arms training, first aid and introduction to personal computers. See page 36 for more on Plebe Summer.

Third-Class Summer

In the summer between your plebe and third-class years, you and your classmates report to Navy ships and submarines around the world for youngster cruise. You become part of the crew for four weeks, taking part in gunnery exercises and drills, and standing watches underway. This experience gives you first-hand knowledge of the day-to-day routine of a Navy ship at sea. You also learn to appreciate the talents, responsibilities and perspectives of the enlisted men and women you'll later lead as an officer.

After your initial four weeks aboard a ship or sub, you will choose an additional four weeks of training from a list which includes instruction in handling yard patrol (YP) craft or sailboats, airborne or other rigorous warfare training, summer school, or additional shipboard experience.

Second-Class Summer

During the summer before your second-class year, you are introduced to every major branch of the Navy and Marine Corps. Many midshipmen consider second-class summer the most helpful experience in making decisions about what service and branch to enter after graduation. They also say it's the most fun of the professional training experiences.

In one action-packed summer, you fly Navy aircraft, go on patrol with the Marines and dive in a nuclear-powered submarine. You also spend five weeks in Annapolis studying public speaking, the law of armed conflict and the strategy, tactics and naval forces of the U.S. and the Soviet Union. Computer war-gaming introduces you to the complexities of tactical planning and the capabilities of the U.S. and Soviet navies. Finally, a yard patrol training cruise down the Chesapeake Bay teaches you tactical operations, communications afloat and refines your navigation and piloting skills.

First-Class Summer

In the final summer, you get the chance to put your leadership skills to the test, both in the fleet and at the academy. For four weeks, you join a Navy or Marine Corps operational unit, and this time your duties are those of a junior officer. Depending on your career interests and qualifications, you can choose a surface warship, submarine, aircraft carrier, land-based maritime aircraft patrol squadron. Those midshipmen interested in choosing the Marine Corps after graduation will attend the "Bulldog" six-week officer candidate course in Quantico, VA.

In addition, you will choose a four-week elective training period with an expanded range of choices beyond those offered to third-class midshipmen. First-class midshipmen also direct Plebe Summer indoctrination and training of the newly-arrived class at the Naval Academy. Other firsties help train new arrivals at the Naval Academy Preparatory School and at Navy recruit training centers.

Other Summer Training Opportunities

In addition to these training programs, the academy offers three sessions of summer school. Midshipmen may enroll in concentrated versions of regular classes to make up for previous unsatisfactory performance or to get ahead in curricular requirements. For many first classmen, there are also opportunities to participate in research internships with the Department of Defense, State Department, Atomic Energy Commission and other organizations during the leave period.

Grading

Grades have extra importance at the Naval Academy since they affect your status and privileges as a midshipman. As the major determinant of class rank, they also determine your priority in service selection and seniority upon graduation and commissioning.

We use a letter grading system with these values, called quality point equivalents, or QPE:

A = 4.0 (Excellence)
B = 3.0
C = 2.0
D = 1.0
F = 0.0 (Failing)

Grades are averaged using a weighted semester hour system called the quality point rating or QPR. Your QPR is figured by multiplying the QPE received in each course by the semester hours of credit for the course. That total is divided by the total number of hours completed in the semester. You earn semester QPRs and a cumulative QPR (CQPR) based on all of your grades.

Midshipmen must maintain a cumulative QPR of 2.0 or above or they risk academic probation or dismissal. As required by law, the academy's academic board interviews academically deficient midshipmen. Midshipmen subject to academic discharge are those who fail two or more courses; have a semester QPR below 1.5; fail to remove academic probation; are two or more courses behind in the matrix of the assigned major; do not fulfill a requirement previously assigned by the academic board; or do not complete all graduation requirements by the end of the first-class year.

Grades in military performance, conduct, physical education and summer professional training are not included in QPR, but are figured into class standing. Satisfactory performance in professional areas is required.

Academic Recognition

Three honor categories recognize midshipmen with outstanding academic and professional records:

Superintendent's List -- midshipmen with CQPR of at least 3.4 and no past-semester grade below C; grades of A in military performance and conduct, and at least B in physical education.

Dean's List -- midshipmen with CQPR of 3.4 and no failure in any academic course or professional area.

Commandant's List -- midshipmen with CQPR of at least 2.7, grades of at least B in military performance and conduct, and C in physical education.

Honor Societies

A number of national scholastic honor societies are represented at the Naval Academy. Midshipmen who excel academically may be recommended for membership in these societies:

Omicron Delta Epsilon -- international honor society for economics. Midshipmen candidates for election to the Naval Academy chapter need not be economics majors, but must have an overall scholastic average of B and at least twelve credits in economics with a B average or better.

Phi Alpha Theta -- international honor society for history. Membership includes both faculty and students who participate in forums, seminars, guest speakers and regional meetings of the society.

Phi Kappa Phi -- for superior scholarship in all fields of study. Up to six percent of the midshipmen of each class may be chosen to join, half during their second-class year and half in first-class year.

Pi Sigma Alpha -- national honor society for political science. To be eligible for membership, midshipmen must stand in the upper one-third of their class with a B or better average in at least 15 hours of political science courses.

Pi Tau Sigma -- national mechanical engineering honor society. Midshipmen majoring in mechanical engineering who stand in the upper third of their class as seniors or the upper fifth as juniors are eligible for membership.

Delta Sigma Iota Epsilon -- national honorary professional management fraternity affiliated with the Academy of Management. Midshipmen majoring in applied science who have completed 30 semester hours with at least a B average are eligible for membership in the local chapter.

Sigma Pi Sigma -- physics honor society, affiliated with the American Institute of Physics and the American Association for the Advancement of Science. Midshipmen candidates for membership must have completed three semesters of physics with at least a B average and must be in the upper one-third of their class in general scholarship.

Sigma Tau Delta -- national English honor society. To be eligible for membership, midshipmen must be in the upper third of their class with at least a B average in advanced English courses.

Sigma Xi -- scientific research society which encourages original investigation in the fields of pure and applied science. The Naval Academy chapter includes members from the professional staffs of the academy and the Annapolis laboratory of the David Taylor Research Center.

Tau Beta Pi -- national engineering honor society. The top fifth of senior engineering majors and top eighth of junior engineering majors are eligible for membership.

Graduation Requirements

To be eligible to graduate, you must:

- complete at least 140 academic credit hours, including core requirements in engineering, natural sciences, humanities and social sciences.

- complete the courses required in your chosen major.

- achieve a final cumulative quality point rating (CQPR) of at least 2.0, a C average.

- meet required standards in professional studies and at-sea training.

- meet required standards of military performance, conduct, honor and physical education.

- accept a commission in the Navy or Marine Corps, unless one is not offered due to physical disqualification.

Adm. William J. Crowe Jr., a 1946 graduate of the Naval Academy, was appointed chairman of the Joint Chiefs of Staff by President Ronald Reagan in 1985. He is the senior military advisor to the president, the secretary of defense and the National Security Council. He had the following words of advice and encouragement for members of the Class of 1986 at their graduation:

"In my experience, the greatest joy a human being can know is the joy we celebrate today: accomplishment -- the joy of completing a job well done. This joy can be boundless when we make full use of our minds, our talents, our time. But, there are no guarantees with either your diploma or your commission. They may widen your opportunities, but future achievement, results and satisfaction depend on what you have yet to do.

"At times the path ahead of you will be difficult, boring, discouraging and certainly not well marked. But, if you remain fully engaged and take each step as well as you can and keep on walking, you will ultimately reach high ground. In this regard, you enjoy an advantage you must never overlook. As graduates of the United States Naval Academy, you are part of a long and impressive tradition that you can call on in times of strife and peril. You are steeped in the history and the standards of the world's foremost Navy and Marine Corps team. You inherit a code of perseverance and victory second to none. I can testify that there will be times when you will personally draw on the Navy's traditions for strength and that you will, in turn, find them genuinely sustaining."

Awards

Outstanding midshipmen are recognized publicly during Commissioning Week. A number of organizations and individuals sponsor more than 80 prizes and awards honoring midshipmen for excellence in academics, professional studies, leadership, athletics, sailing, debate and public speaking.

Advanced Education

Postgraduate education is encouraged for all naval officers. In fact, it's practically a requirement in today's Navy and Marine Corps, which operate very sophisticated systems in a complex world. Nearly all graduates go to advanced professional training en route to their first duty assignments. New Marine officers go to the basic school at Quantico, VA. Navy ensigns go to surface warfare officer school, nuclear power school, flight training or other schools, depending on their chosen specialty and the nature of their first assignment. Professional training then continues throughout your career.

There also are several ways for Naval Academy graduates to earn advanced academic degrees besides the Voluntary Graduate Education Program (VGEP) discussed on page 54. Most officers are automatically considered for graduate school as they complete their first duty assignment. If selected, they can enter master's degree programs at one of many civilian universities or at the Naval Postgraduate School in Monterey, CA.

Midshipmen with outstanding academic records can compete for a number of scholarships for postgraduate school right after graduation from the Naval Academy or after an initial operational assignment. There's also a program for up to 15 graduates a year who want to combine careers in medicine and the Navy. To prepare for this program, midshipmen usually major in chemistry and then enter civilian or armed forces medical schools soon after graduation and commissioning.

Among the scholarship programs available are these:

Captain Marshall H. Cox Fund -- supports summer travel and language study abroad by newly commissioned Naval Academy graduates. Programs are offered in Russian, Chinese, Spanish, French and German.

William H.G. FitzGerald Scholarship -- supports two years of graduate study at Oxford University in England for one Naval Academy graduate each year.

Marine Corps Burke Scholarship -- open to 10 graduates from each class who enter the Marine Corps. Graduate study begins approximately two years after commissioning. Selectees may choose their field of study from an extensive list of disciplines.

Navy Burke Scholarship (Junior Line Officer Advanced Educational Program) -- open to 10 qualified graduates in each class for study toward a master's degree in science or engineering. These studies, usually at the Naval Postgraduate School, begin after one operational tour of two to four years.

Oceanography Joint Master's Degree Program -- two midshipmen from each Naval Academy graduating class may be selected for a graduate program in oceanography at the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution. This 27-month program leads to a master of science degree in oceanography and a Navy warfare specialty designation in oceanography.

Olmsted Foundation Scholarships -- established by the George and Carol Olmsted Foundation in cooperation with the Department of Defense, these scholarships support two years of graduate education at foreign universities, using foreign languages, for Navy and Marine Corps officers. Two Naval Academy graduates who have served between two and seven years of active duty are eligible each year.

Thomas Pownall Scholarship -- supports two years of graduate study at Cambridge University in England for one Naval Academy graduate each year.

Civilian University Scholarships and Fellowships --

Naval Academy graduates qualify for a number of other scholarships and fellowships awarded for study at civilian colleges and universities. These graduate studies can be pursued in various fields and in several countries while graduates receive pay as commissioned Navy and Marine Corps officers. Up to 10 members of each class can begin postgraduate studies under these scholarships immediately after graduating from the Naval Academy. Such scholarships include:

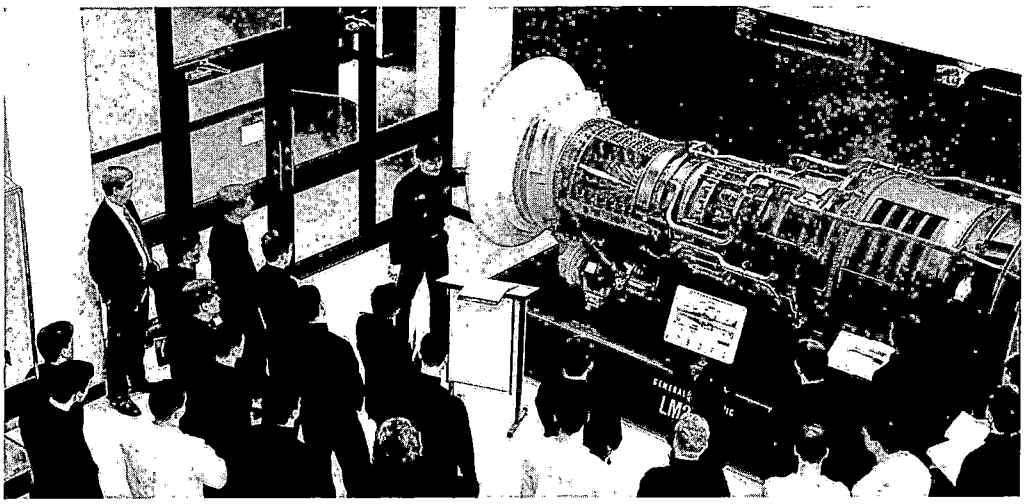
Rhodes and Marshall Scholarships for two or three years of graduate study in any field leading to a master of arts or master of philosophy degree -- at Oxford for the Rhodes Scholarship or at any university in Great Britain for the Marshall Scholarship -- with all expenses provided for study and travel. Thirty midshipmen have been selected to be Rhodes Scholars since 1930, when Navy participation began. There have been four Marshall Scholars from the Naval Academy since 1981.

Guggenheim Fellowship (Daniel and Florence Guggenheim Foundation) for graduate study at one of three major centers for research and development in rocket propulsion, space flight and space flight structures.

Hertz Fellowship (Fannie and John Hertz Foundation) for graduate study in the applied physical sciences at a choice of 17 universities.

National Science Foundation (NSF) Fellowship leading to a master of science or master of arts degree in the mathematical, physical, biological, engineering, and social sciences and in the history and philosophy of science.

Other scholarships in marine engineering, mechanical engineering, naval architecture, nuclear engineering, ocean acoustics, oceanography and other areas.



Division of Engineering and Weapons

Department of Aerospace Engineering
Department of Electrical Engineering
Department of Mechanical Engineering
Department of Naval Systems Engineering
Department of Weapons and Systems Engineering

Department of Aerospace Engineering

Aerospace Engineering Major

The aerospace engineering department offers one of the most exciting and challenging academic programs at the Naval Academy. The program is structured to produce naval officers who will serve in the forefront of the inception, development and employment of Navy air and space assets. The curriculum provides a background in engineering fundamentals through courses in chemistry, physics, mathematics, engineering mechanics, thermodynamics and electrical engineering. With these subjects as a base, students undertake aerospace engineering topics including aerodynamics, propulsion and aerospace structures. The major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

In the area of aeronautics, students extend their study of aerodynamics, flight structures and flight mechanics. The astronautics track allows students to study astrodynamics, satellite attitude dynamics and control, and the space environment. Both tracks conclude with a design course, which allows midshipmen to apply their engineering knowledge to the design of an aero or space flight vehicle. Both tracks also involve thorough laboratory experimentation. The Naval Academy's aerospace laboratory facilities are some of the most advanced and extensive in the country. These facilities include structures, propulsion and rotor labs; variable stability aircraft simulator; spacecraft tracking and experimentation facilities; and various wind tunnels with flow velocities ranging from subsonic to hypersonic.

The aerospace engineering major is not required (or recommended) for midshipmen who just want to fly. The Naval Academy prepares all midshipmen to become professional officers in the naval service and upon commissioning they can choose from exciting careers in the aviation, surface or subsurface communities, or service in the Marine Corps.

Graduates from the aerospace engineering major are also fully prepared to undertake postgraduate education programs in engineering disciplines either at the Naval Postgraduate School or any other academic institution. Naval officers with advanced degrees in the aero/space areas may be assigned to billets involved with the research, development, test and evaluation of Navy aircraft or spacecraft projects. Locations for these challanging technical billets include the Naval Air Systems Command, Naval Research Laboratory, Test Pilot School, the Navy's Space Command, the Unified Space Command, the Navy Space Support Activity, and perhaps, as a naval astronaut with the National Aeronautics and Space Administration.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NL300*, NL400, NS300*
Mathematics: SM211, SM212, SM311;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, FE210, HH206, and three electives;
Engineering: EM211, EM214, EM217, EM232, EM319, EE331, EE332, ES410;
Major: EA202, EA301, EA304, EA322, EA330, plus
Aeronautics track: EA303, EA401, EA413, EA440, plus three major electives; or
Astronautics track: EA361, EA362, EA461, EA463, EA464, EA470, plus one major elective.

*Taken during second-class summer.

Aerospace Engineering Courses

EA202 Principles of Flight (2-2-3). Gives a broad overview of aerospace engineering. Topics covered include history of flight, the earth's atmosphere, fluid statics, introductions to fluid dynamics, aerodynamics, and the performance of flight vehicles. *Prereq: SM102 or SM112 or SM162.*

EA301 Aerodynamics (3-0-3). Covers essentials of fluid mechanics and topics in aerodynamics including potential flow, panel methods, thin airfoil theory and elements of finite wing theory. *Prereq: EA202, Coreq: SM311.*

EA303 Wind Tunnel (1-2-2). A laboratory course in wind tunnel test techniques. *Coreq: EA301.*

EA304 Aerodynamics II (3-0-3). Discussion of lifting surface theories and modern panel methods. Introduction to viscous flow and boundary layer. External compressible flow concepts; Mach and shockwaves, small perturbation and linearized flow methods are introduced. *Prereq: EA301.*

EA322 Aerospace Structures I (2-2-3). Applications of statics and solid mechanics to the design of atmospheric and space flight vehicle structures. Topics include determinate and indeterminate space structures, generalized bending and energy methods to determine shear flows, shear centers and deflections for determinate and indeterminate semimonocoque structures. *Prereq: EM217.*

EA330 Propulsion I (2-2-3). Basic one-dimensional compressible flow including thermodynamics of perfect and real gases in subsonic and supersonic flows. The principles of fluid dynamics and thermodynamics are specialized to the problem of propulsion of aircraft and space vehicles. Cycle analysis, ram-jets, jet engines, rockets and propellers. The role of engine components is covered. Numerous laboratory experiments demonstrate the principles involved. *Prereq: EM319, EA301 or EM324.*

EA401 Applied Aero and Design (3-0-3). The basic principles for lift and drag calculations are extended to entire flight vehicle analysis. Static and dynamic point performance analysis. Introduction to energy methods with selected optimum climb and trajectory problems. Mission analysis and carpet plots leading to design selection criteria. *Prereq: EA304, Coreq: EA330.*

EA413 Stability and Control (3-0-3). The aerodynamic and inertial forces and moments acting on the flight vehicle and its component parts are analyzed to determine their effect on static and dynamic stability. *Prereq: EA301.*

EA421 Aerospace Structures II (3-0-3). Introduction to the finite element methods of structural analysis as applied to atmospheric flight and space flight vehicles.

Topics include: formulation of the element stiffness matrices, assembly of the global structural matrix, formulation of equivalent loads, energy methods and matrix equation solution methods. A design project using a finite element computer program is carried out. *Prereq: EA322, SM311.*

EA424 Structural Dynamics (3-0-3). An introductory course in structural dynamics as applied to atmospheric flight and space flight vehicles. Topics include: the analysis of free, damped and forced vibrations of single and multi-degrees of freedom systems, continuum vibrations of strings, beams and rectangular plates, matrix formulation of equations of motion, introduction to the finite element method of structural dynamic analysis. *Prereq: EA322, SM311.*

EA425 Viscous Flow (3-0-3). An advanced course covering viscous flow problems including laminar, turbulent, incompressible and compressible boundary layers with heat transfer. *Prereq: EA304.*

EA426 Aeroelasticity (3-0-3). An advanced course covering structural mechanics, stability criteria and vibrations. Unsteady two and three dimensional incompressible, subsonic, transonic and supersonic aerodynamics. Flutter analysis and influence coefficient method are covered. *Prereq: EA322.*

EA427 Aerodynamics III (3-0-3). An advanced course continuing the study of compressible high speed flow including general conservation laws for inviscid flows, unsteady flow problems, numerical techniques for supersonic flows, and real gas effects. *Prereq: EA304.*

EA428 Computational Aerodynamics (3-0-3). Introduction to the major numerical techniques used in computational aerodynamics. Topics include: mathematical methods, boundary conditions, stability, panel methods, lattice methods, nonlinear problems, time dependent solutions and transonic flow problems. *Prereq: EA304.*

EA430 Propulsion II (3-0-3). The second propulsion course covers turbomachinery theory including compressors, turbines, pumps, application and design methods. Combustion, and cooling techniques in modern engines are introduced. *Prereq: EA330.*

EA435 The Aerodynamics of V/STOL Aircraft (3-0-3). An advanced course covering the aerodynamics of vertical and short take-off and landing aircraft, including fixed-wing and rotary-wing types, with major emphasis on the helicopter. *Prereq: EA304.*

EA439 Special Design (1-4-3). This course, along with EA440 or EA470, provides a two semester sequence in aerospace design for selected midshipmen. *Prereq: 1/C standing in aerospace engineering.*

EA440 Aerospace Vehicle Design(1-4-3). Preliminary design of a flight vehicle. Includes preliminary layout, weight and balance estimates, performance analysis, stability analysis and structural analysis. *Prereq: 1/C standing in aerospace engineering.*

EA450 Computer-Aided Design in Engineering (2-2-3). Introduction to the engineering design process as well as its computer adaptation. Capabilities and utilization of digital computers and CRT computer graphics are discussed. *Prereq: 2/C or 1/C standing, conxent of instructor.*

EA482 Aerospace Seminar (1-0-1). A series of discussions or lectures on special or current aerospace engineering topics. *Prereq: 1/C standing in aerospace engineering.*

Astronautics Courses

EA361 Introduction to Space (1-2-2). This introductory course is designed to give an overall perspective of space systems and their uses. Topics include: history of space flight, orbital operations, launch platforms and facilities, space environment, and a study of existing and proposed systems and their applications. Laboratory techniques and engineering reporting procedures are introduced. *Prereq: SM102 or SM112 or SM162.*

EA362 Astrodynamics I (3-0-3). Development of the classical two-body problem. Topics include: orbital parameters, insertion, orbit determination and maneuvers, types of orbits and their uses, transfer orbits, rendezvous, and interplanetary transfer with hyperbolic passage. *Prereq: EM232, SM212.*

EA461 Space Environment (3-0-3). Introduction to the environment of the

upper atmosphere, near earth space, and interplanetary space. Topics include: properties of the upper atmosphere and ionosphere, the magnetic field, radiation belts and magnetosphere of earth, the solar wind and interplanetary medium, remote sensing of the atmosphere and oceans, environmental effects on astronauts and spacecraft systems. *Prereq: SP212.*

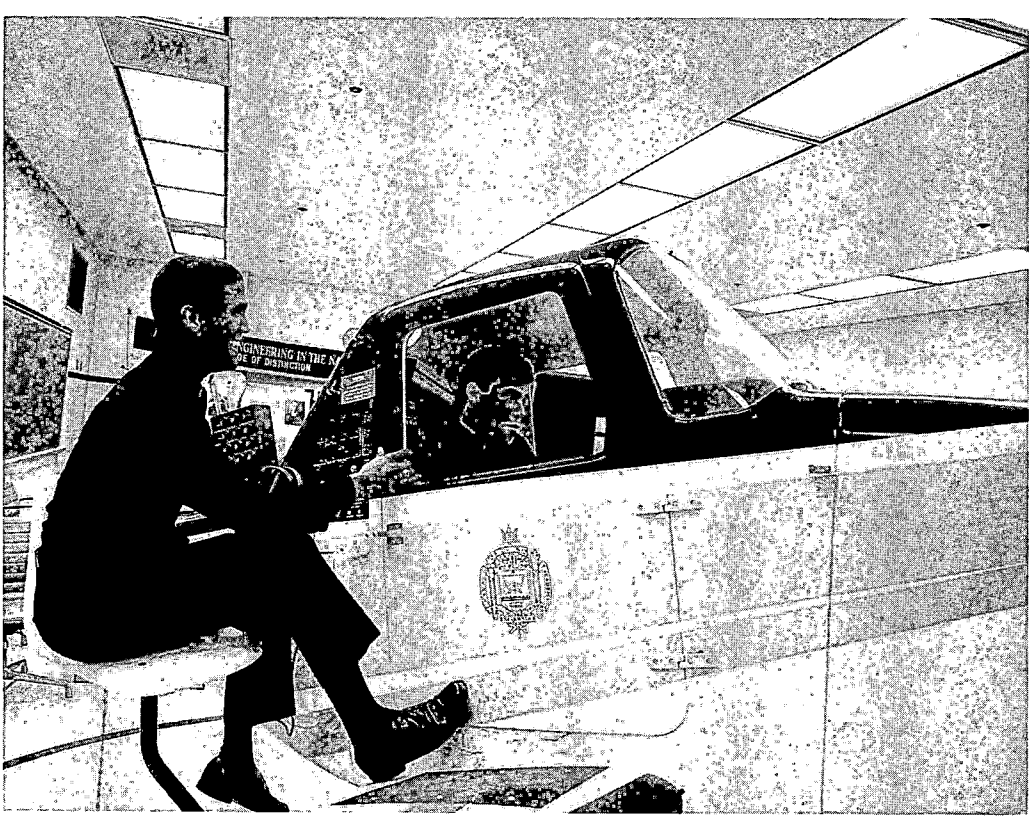
EA462 Astrodynamics II (3-0-3). Advanced topics in astrodynamics including potential of an arbitrary body and of the earth, orbit determination from observations including numerical techniques for data smoothing, special and general perturbations of orbits and interplanetary trajectories, drag effects on low altitude orbits. Special projects. *Prereq: EA362.*

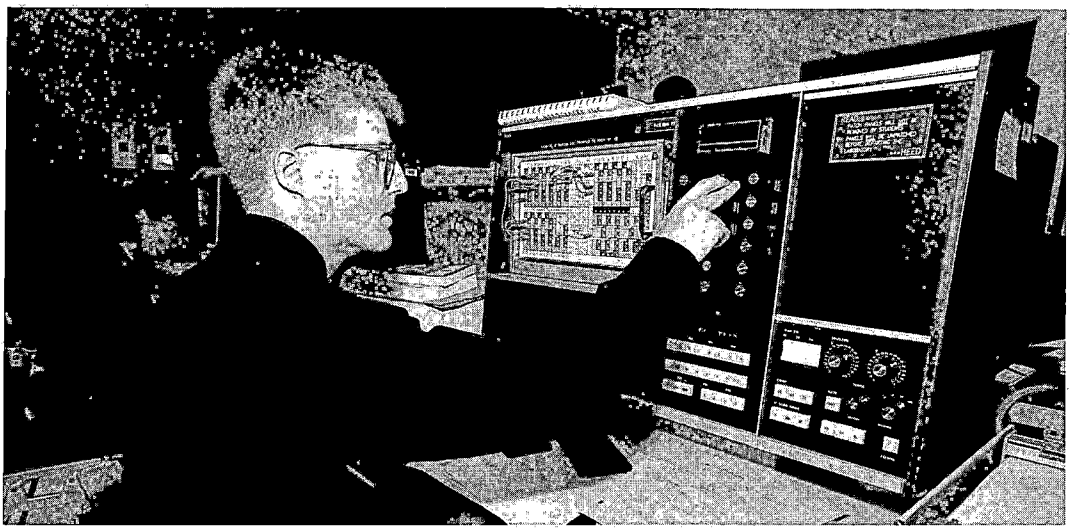
EA463 Spacecraft Systems (3-0-3). Analysis and design of the major system elements that are an integral part of space systems. These include: payload, ground control and power, attitude control, detection, telecommunications, propulsion, and thermal control systems. Constraints imposed on the system designer by the system application, launch vehicle, and space environments are considered. *Prereq: EE331; Coreq: EA461.*

EA464 Spacecraft Attitude Dynamics and Control (3-0-3). Rigid body dynamics and control of spacecraft. Euler angles, inertial properties of rigid bodies, body centered equations of motion, torque-free motion. Passive, active, and semi-active attitude controls. Linear feedback control theory and linear estimation. *Prereq: EM232.*

EA466 Spacecraft Thermal Control (3-0-3). This advanced course covers the energy management of a spacecraft. Heat loads from external and internal sources. Heat transfer principles: radiation, conduction and convection. Heat transfer equipment, insulators. Systems consideration including radiator design and optimization. *Prereq: EM319.*

EA470 Spacecraft Design (1-4-3). The preliminary design of a spacecraft vehicle is carried out. The vehicle is to be designed to meet specific mission objectives. Consideration is to be given to unique design requirements and constraints imposed on the vehicle by outside factors such as the space environment and the launch evolution, etc. Special attention is paid to the methodology used in the design process. *Prereq: 1/C standing in aerospace engineering.*





Department of Electrical Engineering

Electrical Engineering Major

The electrical engineering major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The major offers a solid grounding in the fundamental concepts of electrical engineering as well as the opportunity to specialize in digital computer systems, communication systems, microwave systems and solid state design. Through extensive laboratory experimentation, the major will be prepared to meet the challenges of the modern Navy and Marine Corps. A bachelor of science degree in electrical engineering is awarded.

There is extensive opportunity for the student to apply theoretical concepts developed in the classroom. The department has laboratories in microwave theory (radar application), design and development of solid state devices (transistors), digital hardware/software, both digital and analog communications, energy conversion and electrical engineering design.

Each semester, the midshipman with the best electrical engineering design receives the Steinmetz Prize for his innovative work in the electrical engineering design laboratory. During Commissioning Week, the Captain Boyd R. Alexander Prize in electrical engineering is presented to the midshipman of the graduating class who has demonstrated the greatest achievement in the courses required to complete the electrical engineering major.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NS300*, NL300*, NL400;
Mathematics: SM211, SM212, SM311;
Science: SP221, SP222, SP226, SP431;
Humanities/Social Sciences: HE300*, HH206, and five elective courses;
Engineering: EM318, EM319, ES410
Major: EE221, EE232, EE322, EE341, EE342, EE362, EE421, EE423, plus four approved major electives.

*Taken during second-class summer

Electrical Engineering Courses

EE221 Introduction to Electrical Engineering (3-2-4). Terminal characteristics of passive linear and nonlinear devices and energy sources are introduced. Network combinations of these devices are analyzed in the steady state. In addition to mesh and nodal analysis by computer techniques, concepts of equivalence and network theorems are studied in detail. *Prereq: SM111 or SM101.*

EE232 Circuit Analysis I (3-0-4). This course treats topics in the behavior of second order systems; develops methods

for dealing with complex power, including three-phase power and power factor correction, applies the techniques associated with complex frequency, frequency response and filtering, and develops techniques for analyzing circuits containing coupled coils and transformers. Computer methods of circuit analysis are used throughout the course. *Prereq: EE221.*

EE311 Electrical Fundamentals and Applications I (3-2-4). Provides an understanding of the terminal characteristics of circuit building blocks. The basic techniques of circuit analysis using these building blocks to model real devices are presented. The course finishes with the principles of operation and analysis techniques applied to transformers and rotating machines. *Prereq: SP212.*

EE312 Electrical Fundamentals and Applications II (3-2-4). A continuation of the application of modeling and analysis of practical electronic devices such as transistors and diodes. Covered are basic amplifiers, frequency response characteristics, and use of these devices as switches. Basic principles of digital logic circuitry are also introduced. The final subject covered by this course is the theory of AM and FM modulation from the viewpoint of naval systems applications. *Prereq: EE311.*

EE313 Logic Design and Microprocessors (3-2-4). Introductory course that progresses from fundamental logic gates through a sequential controller, covering both combinational and sequential circuits. Microcomputer architecture, interfacing and programming. Applications stressed. *Prereq: EE312 or EE332, or permission of instructor.*

EE322 Signals and Systems (3-0-3). The principles of circuit analysis are extended to the transmission of signals through linear systems. The approach is based on determination and interpretation of the natural frequencies, pole-zero diagrams, and their relation to the state equations. Transform techniques are applied to the analysis of analog filters. *Prereq: EE232.*

EE331 Electrical Engineering I (3-2-4). A study of fundamental DC and AC electrical circuits. Circuit analysis includes natural and forced response of first and second-order systems; the sinusoidal steady state is investigated in both time and frequency domains. The characteristics of transformers and rotating machines using previously learned techniques of analysis and modelling complete the course. *Prereq: SM211, SP212.*

EE332 Electrical Engineering II (3-2-4). Continues student's survey of electrical engineering. Semiconductor theory is introduced and includes the study of applications of diodes and transistors. Emphasis is placed on understanding, modeling, and use as amplifiers and switches. Combinational and sequential digital logic applications are introduced. The course finishes with a study of the methods of AM and FM modulation and demodulation. *Prereq: EE331.*

EE341 Electronics I (3-2-4). Each major semiconductor device (p-n junction diode, bipolar and field effect transistors) is introduced by presenting a physical picture of its internal behavior. This approach leads naturally to device characterization in terms of appropriate external variables and allows small-signal and large-signal models to be constructed. Emphasis is on large-signal and digital applications of the devices, especially in integrated circuit form. Applications are emphasized in the weekly laboratory exercises. *Prereq: EE221.*

EE342 Electronics II (3-2-4). Small signal and analog applications in integrated circuit operational amplifier designs. Hybrid parameter and hybrid Pi models are used to predict voltage, current, and power gains; input and output impedances; and frequency response of single-stage and cascaded amplifiers. The feedback concept is discussed in detail, stability is treated quantitatively, and the relationship between "amplifier" and "oscillator" is developed. The course concludes with power circuits and systems.*Prereq: EE341.*

EE362 Communications Electronics (3-2-4). Principles of small-signal and large-signal radio frequency amplifier and oscillator circuits employing discrete circuit elements. Basic principles of amplitude modulation (AM) and frequency modulation (FM). Typical circuits for generating AM and FM signals and for demodulating such signals. Radio receivers and alignment techniques. Radio-frequency transmission lines and use of the Smith chart for rapid calculations. Directional characteristics of antennas and antenna arrays. Single-sideband

transmitters and receivers. Pulse modulation. Principles of FM stereo broadcasting and reception. *Prereq: EE342.*

EE421 Energy Conversion (3-2-4). Characteristics and construction of electromagnetic devices which configure power and control systems, including motors, generators, and transformers. Equivalent circuits are developed and used to predict performance under steady-state and dynamic conditions. Laboratory time is spent to determine parameters of equivalent circuits and to compare actual performance with predicted. *Prereq: EE221 or EE331.*

EE423 Electrical Engineering Design (2-2-3). Practice in engineering. Each midshipman chooses a project and writes a report that describes in detail exactly what the student intends to build. Following approval by the instructor, the midshipman builds, trouble-shoots, and packages the proposed circuit. Student devotes remainder of term to gathering performance data and writing a final project report.*Prereq: EE342.*

EE424 Electronic Instruments and Measurements (2-4-4). Fundamentals of electronic measuring instruments with emphasis on digital instruments and on the use of mini and microcomputers in measurements. Not offered every year. *Prereq: EE341.*

EE431 Communications Theory I (3-2-4). An introduction to information theory and fundamental concepts in communication processes. Time and frequency domain characterization of signals and transmission of signals through linear systems are explored. Pulse code modulation, time-division multiplexing, modulation and demodulation techniques, single sideband representation of signals, and matched filter concepts are developed. Statistical techniques are applied to calculate error rates in analog and digital communications systems. *Prereq: SM311, EE232, EE332 or permission of instructor.*

EE432 Communications Theory II (3-2-4). The basic principles of signal processing used in modern radar, sonar and digital communication systems are studied through the investigation of random processes. Discrete Fourier transforms, fast Fourier transforms and digital convolution and correlation concepts are applied to these systems. Random and deterministic signals are analyzed using digital spectral methods. Laboratory work involves the use of small, high speed microcomputers to solve practical signal processing problems. *Prereq: EE431.*

EE451 Electronic Properties of Semiconductors (3-0-3). Develops an understanding of those semiconductor parameters that relate to the performance of semiconductor devices. Hole and electron conduction and charge carrier distribution as a function of energy are developed. Charge carrier generation and recombination and carrier dynamics leading to drift and diffusion are used to study semiconductor transport phenomena. The p-n junction and the bipolar junction transistor are studied in detail. *Prereq: SP222 or instructor permission.*

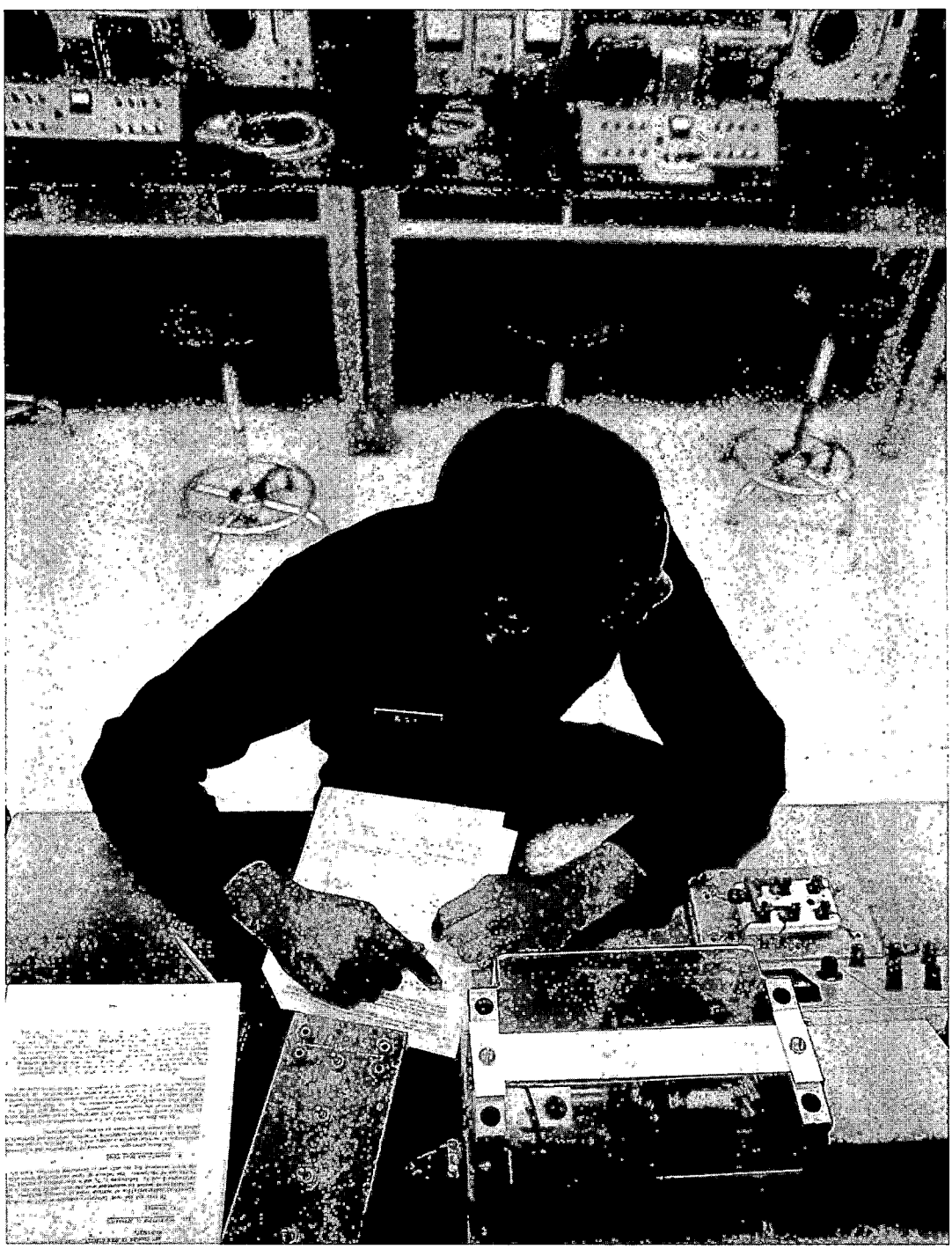
EE452 Semiconductor Electronics (3-2-4). An introduction to the physics and technology of planar silicon devices and integrated circuits. The physics of the silicon-silicon dioxide interface is developed and is used to study the MOSFET. Analysis and design of digital integrated circuits is emphasized. The laboratory involves an individual student research project. *Prereq: EE451.*

EE461 Microcomputer-Based Digital Design (3-2-4). A principles-based foundation to the concepts and techniques used in analyzing and designing traditional and microprocessor-based digital systems. The student will acquire a detailed understanding of the system bus; the architecture and interfacing of various processor, memory, and input-output elements; the instruction set; and assembly-language programming. Emphasis is on concepts that will have long-term value. This course is supported by a continually updated laboratory. *Prereq: EE342 or EE332.*

EE462 Microcomputer Interfacing (2-4-4). This course provides a strong foundation in techniques for connecting computers to peripherals and communications devices, and in the methodology for programming the computer to control external devices in real time. Principles that support the technology are stressed to prepare the student for self-education in the future; this is an absolute necessity in this rapidly changing field. This course is supported by a project-oriented laboratory. *Prereq: EE461.*

EE471 Microwave Systems (3-2-4). An introduction to the nature of magnetic waves. Time varying Maxwell equations are developed and solutions to wave equations presented. Characteristics of microwave components such as power sources, amplifiers, filters and waveguide are considered. The methods of distributed parameter circuit analysis are introduced. Applications of microwave devices in systems are discussed with emphasis on systems integration. *Prereq: SP341.*

EE478 Naval Sensors (3-0-3). Theoretical principles of passive and active naval sensors operating within the frequency spectrum from audio to visible. Emphasis on conceptual fundamentals which bind together seemingly diverse sensor systems such as: sonar; navigation; radio; television; radar; electromagnetic compatibility; electronic counter-countermeasures; identification, friend or foe; laser range finders; infrared imagers; and low level light television. *Prereq: EE471 or SP436.*



Department of Mechanical Engineering

Mechanical Engineering Major

The mechanical engineering major, accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, offers one of the most diversified engineering programs available at the Naval Academy. Students acquire a sound and balanced background in engineering fundamentals, science, mathematics and the humanities, while gaining theoretical and practical knowledge over the full spectrum of engineering applications. Electives allow study of advanced concepts. Additional opportunities for development as an engineer are offered through student chapters of engineering societies.

Mechanical engineering majors study under civilian and military instructors of varied backgrounds and wide professional experience. Laboratories in materials science, process control, solid mechanics, fluid dynamics and thermodynamics, and in other interdisciplinary fields, provide support. These include some of the finest undergraduate engineering facilities in the country. Awarded a bachelor of science degree in mechanical engineering, graduates have a solid base for future graduate studies in engineering and for professional registration.

A Navy or Marine Corps officer with a bachelor's degree in mechanical engineering is well equipped for a wide variety of career assignments both ashore and afloat. Operational sea billets in surface ships, submarines and aircraft squadrons provide many opportunities for a mechanical engineer to develop practical experience in a warfare or engineering specialty area while contributing to fleet engineering and material readiness. The operational environment enables a junior officer to rapidly develop sound leadership and managerial abilities while refining mechanical engineering capabilities acquired at the Naval Academy.

Ashore, the mechanical engineer has a wide range of opportunities in subspecialty billets with naval applications. These include such areas as ship and aircraft design, propulsion systems, environmental systems, advanced engineering education, major project management and weapons systems acquisition. Just as there is an abundant and continuing need for mechanical engineers throughout today's naval service, there is also great potential for a satisfying, rewarding and productive career.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NS300*, NL300*, NL400;
Mathematics: SM201 or SM211 or SM251, SM212, SM311;
Science: SP211 and SP212;
Humanities/Social Sciences: HE300*, HH206, FE210, and four electives;
Language: none;

Engineering: EM217, EM211, EM232, EM313, EM319, EM324, EE331, EE332, ES410;
Major: EM320, EM371, EM411, EM471, EM472, plus four approved electives.

*Taken during second-class summer

General Engineering Major

The general engineering major gives the student a basic technical education in mathematics, science, engineering fundamentals, and naval professional engineering subjects. It is intended to provide an adequate background for future naval technical training and education. Midshipmen completing the general engineering major receive a designated bachelor of science degree. The major is not accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Mechanical Engineering Courses

EM211 Statics (3-0-3). An initial course in applied vector mechanics with emphasis on static equilibrium. Topics include forces, moments, couples, equivalent force-couple systems, centroids, distributed forces, and Coulomb friction. The application of the free body diagram in the analysis of static equilibrium of frames, machines, and trusses is stressed. *Prereq: 4/C mathematics; Coreq: Calculus III and General Physics I.*

EM214 Elements of Materials Science (2-2-3). An introductory course in the physical, electrical, and mechanical properties of engineering materials including their structures, use in engineering application, environmental effects, and modes of failure. *Prereq: 4/C chemistry; Coreq: Calculus III.*

EM217 Strength of Materials (3-2-4). A first course in mechanics of deformable bodies with emphasis on the engineering approach to the responses of these bodies to various type loadings. Topics include stress-strain relationships, stress-strain analysis, load-deflection, bending, torsion, buckling, temperature effects, and dynamic response. *Prereq: EM231; Coreq: SM212.*

EM232 Dynamics (3-0-3). A course in classical vector dynamics. Topics include vector algebra and calculus, kinematics, and kinetics of particles and rigid bodies, as well as energy and momentum methods. Extensive problem solving involving particle and rigid body motion is required. *Prereq: EM211; Coreq: SM212.*

EM313 Materials Science (3-2-4). An introductory course in the physical and mechanical properties of engineering materials including metals, ceramics, and plastics, their structures, use in engineering applications, and failure phenomena. All laboratory projects are structured to provide strong physical illustrations for the topics covered in lectures. *Prereq: EM217.*

EM318 Applied Fluid Mechanics (3-0-3). A first course in incompressible fluid mechanics. Topics include properties of fluids, fluid statics, integral conservation equations, differential field analysis, dimensional analysis and similitude, incompressible boundary layers, viscous flow in conduits, and flow about immersed bodies. *Prereq: EM319 or equivalent.*

EM319 Engineering Thermodynamics (3-0-3). A basic thermodynamics course in which the first and second laws of thermodynamics are studied primarily from the classical macroscopic viewpoint and applied to both closed and open systems. Working substances include perfect gases, real gases, and vapors in addition to solids and liquids. Naval applications are emphasized. *Coreq: SM212.*

EM320 Applied Thermodynamics (2-2-3). Laboratory equipment which operates on principles of thermodynamics and fluid mechanics is used to reinforce analyses and designs of gas and vapor power cycles, refrigeration and air conditioning, ship and aircraft propulsion systems, combustion, energy conversion, and compressible flow. *Prereq: EM319 or equivalent.*

EM324 Fluid Dynamics (3-2-4). An introductory course in fluid dynamics stressing both the integral and differential forms of the conservation laws of fluid flow. Engineering applications are made to hydrostatics and to ideal and real fluid flows. Laboratory experiments and problems sessions complement the lectures. *Prereq: EM319 or equivalent.*

EM327 Essentials of Fluid Dynamics (3-0-3). An introductory study of the behavior of fluids at rest and in motion. Effects of various fluid properties and forces on flow patterns force interaction between fluid and its boundaries, and the application of these principles to practical, applied problems are presented. *Prereq: SM212 or SM202.*

EM328 Thermodynamics (3-0-3). An introductory course in classical thermodynamics stressing the understanding and application of the basic laws of thermodynamics. A logical development of the relationships among physical properties and their application in the thermodynamic analyses is presented. *Prereq: SM212.*

EM371 Introduction to Design (2-2-3). Fundamentals of mechanical design, with emphasis on the design of pertinent machine elements. Topics such as fasteners, springs, anti-friction bearings, lubrication and journal bearings, gearing, and shafts are covered. *Prereq: EM217, EM232.*

EM411 Heat Transfer (3-0-3). Study of thermal radiation, steady and transient conduction, laminar and turbulent convection, internal and external flow, boundary layers, and empirical correlations. Applications address fins, nuclear reactor cooling, heat exchangers, and interactive computing. *Prereq: EM319 and EM324.*

EM417 Intermediate Mechanics of Materials (3-0-3). A continuation of EM217: elastic-plastic stress-strain, torsion, bending, transverse loading of unsymmetrical beams. Deflection, energy methods, plate and shell theory. *Prereq: EM217.*

EM423 Mechanical Vibrations (3-0-3). The treatment of vibration fundamentals, including free, damped, and forced harmonic vibrations of linear single and multi-degree of freedom systems, transient and nonperiodic vibrations, continuous systems, and random vibration analysis. *Prereq: EM217, EM232, SM311.*

EM425 Process Dynamics (2-2-3). Ship propulsion system elements such as pressure vessels and heat exchangers are described by mathematical models. Theoretical responses are compared with pilot plant outputs. Predictive power of the mathematical models is improved by parameter adjustment. *Prereq: SM212.*

EM426 Process Control (2-2-3). Mathematical models are developed for typical shipboard systems where thermodynamic variables such as temperature and pressure are controlled automatically. Theoretical responses are compared to outputs of pilot plant models of these same systems. *Prereq: SM212.*

EM431 Experimental Stress Analysis (2-2-3). Theoretical considerations of combined stresses are compared with experimental methods. Electrical resistance strain gage, photoelasticity, moire, and brittlecoating techniques are studied in detail and extensively used in the laboratory. *Prereq: EM217.*

EM432 Computer Methods in Structural Mechanics (3-0-3). Structural design and analysis; matrix formulation employing flexibility and stiffness methods of analysis, computer languages, and techniques in structural design. Topics include temperature effects, effects of settlement of supports, and misfit of structural parts. *Prereq: EM217.*

EM434 Advanced Mechanics of Materials (3-0-3). Topics include theories of elasticity and plasticity, stress and strain as tensors, compatibility and constitutive relationships, energy methods, stability, yield functions, behavior of time dependent materials, plasticity limit theorems, plastic design. *Prereq: EM217, SM311.*

EM442 Computer Graphics and Engineering Mechanisms (3-0-3). Mathematical theory of computer graphics; including curves, surfaces, transformations, and projections. Use of computer graphics to analyze the behavior and calculate the properties of mechanisms such as cams, gears, and 4-bar linkages. *Prereq: 1/C or 2/C standing.*

EM443 Energy Conversion (3-0-3). Introduction to energy conversion and

utilization. Terrestrial and thermodynamic limitations, direct energy conversion devices, alternative energy sources, present and future energy research design and development, and energy usage and economy are presented. *Prereq: EM319 or equivalent.*

EM446 Environmental Systems Engineering (3-0-3). Principles of thermodynamics, heat transfer, and fluid mechanics as applied to the design and control of thermal environments. Cycles and equipment for heating, cooling, and humidity control. Air transmission, distribution, and cleaning are also considered. *Prereq: EM319 or equivalent.*

EM450 Compressible Flow and Turbomachinery (3-0-3). Fundamental principles of fluid dynamics and thermodynamics are applied to one-dimensional compressible flows. Topics include varying-area isentropic flow, flow with friction, flow with heat transfer, and normal and oblique shock waves. Introductory concepts in the design and analysis of turbomachinery are covered. *Prereq: EM320, EM324.*

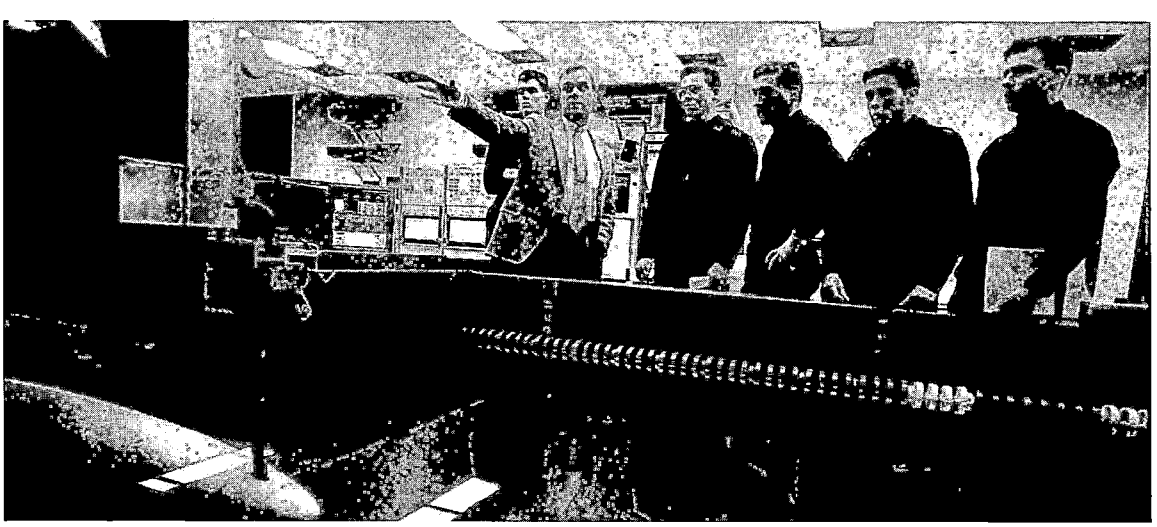
EM453 Physical Metallurgy (3-0-3). Study of the principles of physical metallurgy including imperfections in crystal structures, liquid and solid phases of metals, phase transformations, and solid-state reactions with applications to metallurgical processes such as casting and welding. *Prereq: EM313 or EM214.*

EM454 Mechanical Behavior of Materials (3-0-3). Treatment of mechanical behavior from a materials viewpoint. Elastic, elastic-plastic, and viscoelastic behavior are treated, as well as modes of fracture, including brittle and ductile. Scanning electron microscopy is performed for fractography. Ductile-to-brittle transition, elastic and elastic-plastic fracture mechanics, fatigue, and creep are considered. *Prereq: EM214 or EM313 and EM217.*

EM461 Combustion: Principles and Applications (2-2-3). An introductory course in combustion science covering basic principles and applications. Fuel science topics such as solid, liquid, and gaseous fuel sources; heating values of fuels; combustion products; and environmental impacts are covered. The principles of combustion are then applied to a variety of internal and external combustion systems both analytically and experimentally. *Prereq: EM324 or equivalent.*

EM471 Mechanical Engineering Experimentation (2-2-3). Planning experiments and making measurements. Statistical inference plan; data analysis; detailed work on thermocouples and strain gages; pressure, flow, vibration, and other measurements; and testing for signal validity. *Prereq: 1/C standing in mechanical engineering major or approval of department chairman.*

EM472 Mechanical Design (2-2-3). A detailed study of the engineering design process emphasizing the integration of objectives, analysis of alternatives and synthesis of components. Practical experience is gained by participation in team projects. *Prereq: EM371, or approval of department chairman.*



Department of Naval Systems Engineering

Marine Engineering Major

The marine engineering major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The major is concerned with the analysis and design of energy systems. Energy -- its shortage, its efficient use, and pollution caused by its use -- are problems tackled by the marine engineer. The marine engineer's task is to develop propulsion plants to move ships at optimum operational speeds while using as little fuel as possible. Improvements in efficiency of all types of power plants are needed -- conventional steam, gas turbine, diesel, and nuclear. Today's marine engineers are also engaged in developing new fuels and technologies. They are developing lightweight reduction gears and superconductive motors and generators. They are studying the feasibility of using closed-cycle helium turbines for ship propulsion plants.

Midshipmen majoring in marine engineering develop a sound understanding of the principles of ship design and construction; of problems involved in analyzing and designing systems for use in the ocean environment; of the principles of fluid dynamics, heat transfer, and reactor physics; and of the techniques and methods utilized in power plant design and analysis. They have ample opportunity to broaden this knowledge through participation in individual and group design projects under the direction of faculty members representing a wide range of technical backgrounds and practical experience. This major is particularly suited for midshipmen considering Nuclear Power School and a nuclear Navy career following graduation, an area which continues to grow in importance with each nuclear submarine and surface ship entering the fleet.

Among the outstanding laboratory facilities available to marine engineers in Rickover Hall are a steam power plant, gas turbines and diesel engines, a sub-critical nuclear reactor and a high-energy neutron generator.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NS300*, NL300*, NL400;
Mathematics: SM211, SM212, SM311;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and four electives;
Engineering: EM217, EM211, EM232, EM313, EM319, EM324, EE331, EE332, ES410;
Major: EN241, EN361, EN362, EN460, EN463, EN465, EM411, plus three approved electives.

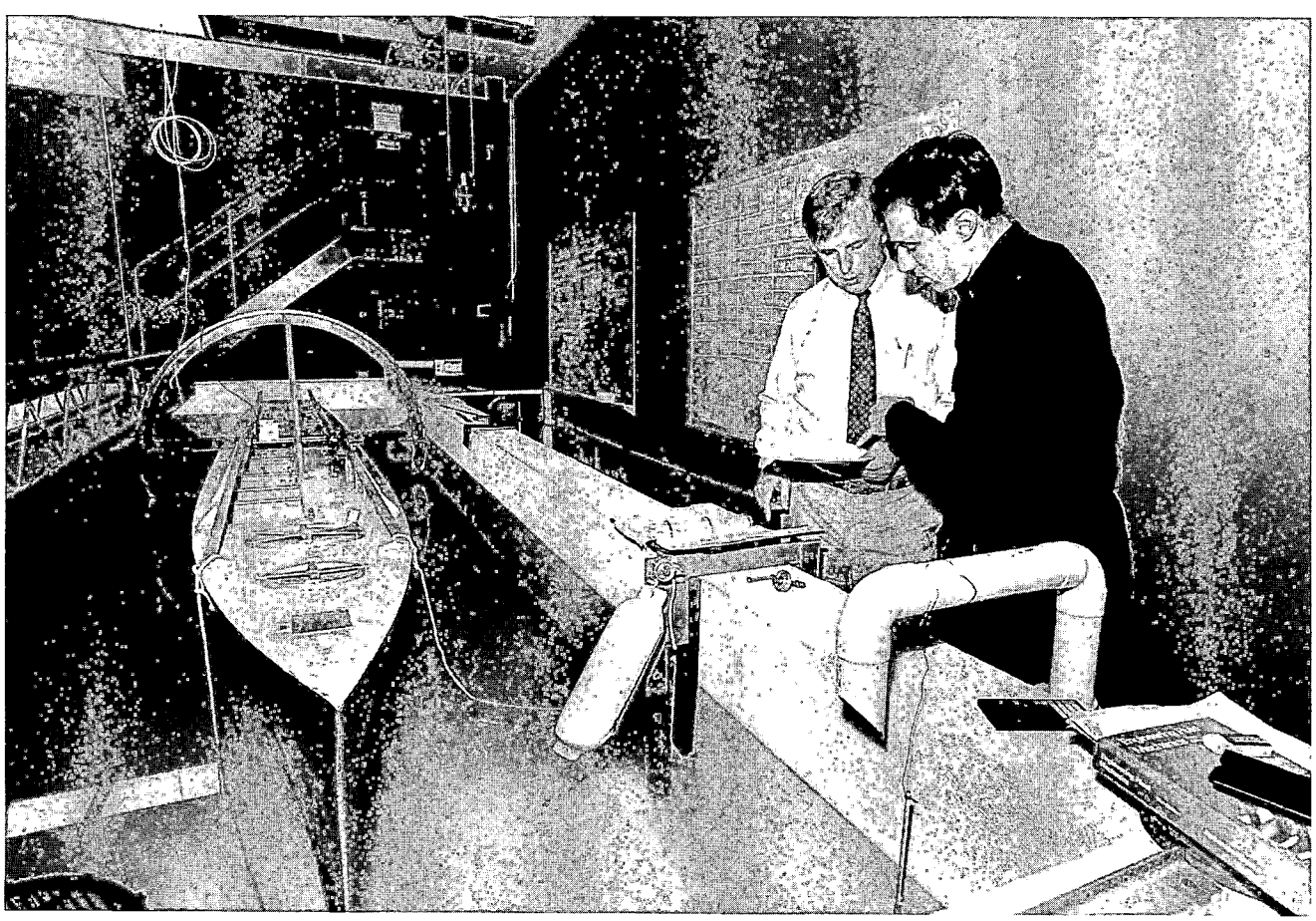
*Taken during second-class summer

Naval Architecture Major

The naval architecture major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The major is unlike most engineering disciplines which are unified by the nature of the phenomena involved. This major originally came into being as a discipline because of a single end-product, the ship. A special combination of knowledge and experience is needed to develop, design, and build this single product. Variety exists not only in the kinds of work (design, research, cost-estimation, management), but also in the types of craft involved -- from sailboats to aircraft carriers, hydrofoil boats to catamarans, and submarines to surface-effect vehicles.

Naval architects use both art and engineering in designing ships. Armed with imagination and experience, they convert functional requirements into a suitable, cost-effective design. They analyze and select the best dimensions and hull form, calculate the power requirements, and estimate the weights of the principal components. They design and analyze the hull structure and decide on the location of military sub-systems, machinery spaces, accommodations, and stores. Additionally, the ship must be divided into watertight compartments so that, if damaged, the chances of survival are maximized. Weighing and compromising all such conflicting needs in the design of the ship are the creative and challenging responsibilities of the naval architect.

Naval architecture at the Naval Academy approaches these topics in a fully integrated program of classroom sessions, hands-on laboratory work, field trips, and the latest in computer-aided design and analysis techniques. Two towing tanks, a circulating water channel and a static stability tank are some of the many facilities available to midshipmen majoring in naval architecture. A distinguished and innovative faculty complement these outstanding facilities and contribute to making this one of the finest undergraduate majors available in its field. A bachelor of science in naval architecture is awarded.



Ocean Engineering Major

Ocean engineering is the key to the last frontier on earth -- the ocean depths. Ocean scientists have provided us with a basic knowledge of the ocean environment; it is up to the ocean engineer to apply modern engineering principles in order to enable us to work in and utilize this environment more effectively. By blending the fundamentals of mathematics, physics, materials science and oceanography with the basic elements of civil, mechanical and electrical engineering, the ocean engineer is able to apply this knowledge to ocean materials, power systems, acoustics, wave mechanics, life support systems, ocean energy and a wide variety of ocean vehicles and offshore and coastal structures.

The ocean engineering major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The major offers an integrated program of study, utilizing a balance between classroom theory, laboratory work and practical application providing midshipmen with the background to work effectively as ocean engineers. Laboratory experiments are conducted in the 120-foot towing tank and coastal engineering basin. Both are equipped with pneumatic wave-makers and instrumented with sophisticated sensors and on-line data acquisition and analysis equipment. A circulating water channel, hyperbaric test facility, a sediment and materials laboratory and an environmental chamber are also available. The Naval Academy's computer systems are used in solving design problems. Supervising, directing and teaching this program are the faculty and staff of the naval systems engineering department -- a team of professionals recognized for providing one of the finest undergraduate majors in ocean engineering available in America. A bachelor of science in ocean engineering is awarded.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NS300*, NL300*, NL400;
Mathematics: SM211, SM212, SM311;
Science: SP211, SP212;

Humanities/Social Sciences: HE300*, HH206, and four electives;
Engineering: EM217, EM211, EM232, EM319, EM324, EE331, EE332, ES410;
Major: SO221, EN241, EN361, EN382, EN441, EN461, EN462, EN475, plus three approved electives.

*Taken during second-class summer

Naval Systems Engineering Courses

EN100 Introduction to Naval Engineering (2-0-2). An introduction to the components, function, and basic operation of the various common propulsion systems and auxiliary engineering equipment used by the naval service including safety considerations involved with shipboard equipment. Also ship stability, damage control, electrical distribution, hull construction, and hydraulics.

EN200 Naval Engineering I (3-2-4). An introduction to ship systems, including basic methods of ship procurement, construction, and powerplant selection. Principles of ship stability and operability as related to preventive and corrective damage control. *Prereq: EN100, Physics I, 3/C cruise.*

EN241 Introduction to Naval Systems Engineering (3-0-3). This course provides an application of basic mathematics, physics, and mechanics to marine vehicles and static marine systems. It provides a background in naval architecture and ocean engineering to prepare a midshipman for future major electives offered by the department. Specific topics include ship stability, resistance and powering, maneuvering principles, materials in the ocean, and marine structural principles. *Prereq: EM211 or EM231 or permission.*

EN242 Introduction to Naval Architecture (1-2-2). Provides a technical overview of engineering areas of the naval architecture curriculum. A ship's line drawing is created in the laboratory. Introduces the specialized nomenclature and engineering tools of the naval architect. *Prereq: EN211, EM231.*

EN300 Naval Engineering II (3-2-4). A study of naval engineering systems, including the principles of energy conversion and the basic operation of steam, gas turbine, and internal combustion engine powerplants. *Prereq: EN100, Physics I, 1/C cruise.*

EN 320 Micro Computer Aided Engineering and Design (2-2-3). A fundamental course in engineering applications of the personal computer. Covers problem-solving techniques utilizing computer-aided design, spreadsheet and equation modeling software. Develops skills required to undertake an engineering research or design project. *Prereq: engineering major.*

EN351 Ship Hydrostatics (3-2-4). Transverse and longitudinal stability of both surface ships and submersibles are studied. Flooding and stability of ships in the damaged condition are covered. Digital computers are used to solve hydrostatic problems. *Prereq: EM211 or EM231.*

EN352 Resistance and Propulsion (3-0-3) Topics include dimensional analysis, similitude, wave and viscous resistance of ships, ship-model testing techniques, full-scale performance prediction, momentum theory of propulsive devices, and propeller vibrations and design. *Prereq: EN351, EM318 or EM324.*

EN358 Ship Structures (3-2-4). A course in structural theory and practice. Topics include longitudinal and transverse strength of the hull girder, bending moments in a seaway, plate theory, development of ship structural design, submarine pressure hull design, and shipbuilding materials. *Prereq: EM217, EN351.*

EN361 Marine Power Systems (2-2-3). Applies the concepts of thermodynamics, fluid dynamics and other fundamental principles to marine power systems. Includes the combustion of fuels to produce heat energy and how it is converted to power in engines, steam power plants and gas turbines. Topics covered are psychrometrics, air conditioning, heat pumps, diesel engines, gasoline engines, gas turbines, steam turbines, incompressible flow, compressible flow, mass/energy balance, heat exchangers, computer aided design and experimental design. *Prereq: EM319; Coreq. EM318 or EM324.*

EN362 Reactor Physics I (3-0-3). An introductory course in nuclear reactors covering fission, neutron diffusion, material and geometric buckling, and the critical equation. Bare and reflected homogeneous reactors are studied. *Prereq: SM212 or equivalent.*

EN382 Ocean Materials Science and Engineering (3-2-4). Deals with the optimal use of materials in ocean systems with emphasis on corrosion prevention. Laboratory projects include heat treatment, mechanical testing of metals, and corrosion and fouling studies. *Prereq: EM217.*

EN405 Naval Applications of Thermodynamics (2-2-3). Provides practical applications for the thermodynamics principles previously acquired, concentrating on marine propulsion systems and their components. Covers the interrelationships between components of a given propulsion plant and the application of basic thermodynamics, fluids, and heat transfer theory to these systems. *Prereq: EM319 or EM328, general engineering major.*

EN410 Seafloor Mechanics (2-2-3). A study of the basic principles of soil mechanics as applied to marine sediments. Topics include shear strength, consolidation, slope stability. *Prereq: EN241 or permission.*

EN420 Coastal Engineering (2-2-3). A study of littoral drift and wave action on coastal structures. Topics include littoral drift past a river estuary, breakwaters, jetties, groins, and harbor design. *Prereq: EM217, EM324, or equivalent.*

EN 430 Underwater Work Systems (3-0-3). Acquaints the student with design and operational considerations for manned submersibles, unmanned remotely operated vehicles and deep dive systems. *Prereq: 1/C engineering major or permission of department chairman.*

EN 440 Design of Foundations for Ocean Structures (3-0-3). Design and analysis of gravity pile and anchored foundations for ocean and coastal facilities fixed to the seafloor. Includes recommended practices and procedures for planning, designing, and constructing adequate foundations for marine structures. *Prereq: EN410 or permission of department chairman.*

EN441 Ocean Engineering Structures (3-0-3). Structural design considerations for fixed ocean structures, mooring systems, and undersea vehicles are analyzed. Design techniques including matrix methods and finite element analysis are introduced. Boundary conditions, wave effects, foundations, loading, and materials considerations are studied. *Prereq: EM217.*

EN450 Engineering Economic Analysis (3-0-3). Basic methods and reasons for conducting an engineering economic study are presented. Economic criteria are developed. Procedures for making a selection from among a set of technically feasible alternatives are studied. Assumptions and implications associated with these decision-making procedures are discussed. *Prereq: FE210, 1/C standing.*

EN451 Decision Analysis (3-0-3). The design process and analytical tools required for effective decisions in the design of marine systems are studied. Methods for the analysis and transformation of available data are developed and evaluated. Once procedures for establishing the technical feasibility of a design have been addressed, emphasis shifts to the proper resolution of decisions dominated by economic considerations. *Prereq: 1/C standing as naval architecture major or permission.*

EN 452 Advanced Ship Structures (3-0-3). Provides an understanding of forces acting on a ship's hull and the use of current technologies to calculate the structural response. Specific topics include: statistical representation of the sea surface to determine design values of structural response; structural analysis using Finite Elements; methods for the ultimate strength analysis of stiffened panels and hull modules; and introduction of plastic frame analysis of the ship's primary structure. *Prereq: EN358.*

EN453 Seakeeping and Maneuvering (3-0-3). Topics include ship steering, maneuvering, motion, and seakeeping. The basic equations of motion for a maneuvering ship and for ship motions in a seaway are developed, and various methods of solution are discussed. *Prereq: EN352; Coreq: EN467.*

EN454 Ship Vibrations (3-0-3). A ship is a complex elastic structure in which vibration may be caused by periodic forces generated by waves, propellers, or

machinery. The basic concepts of vibration, as well as hull, propeller, and machinery-induced vibrations, are considered. *Prereq: EM232.*

EN456 Computer Applications in Naval Architecture (3-0-3). An introduction to computer-aided ship design is presented. Topics include numerical procedures applied to form, stability, resistance, propulsion, motion, maneuvering, and strength. *Prereq: EN352 or permission.*

EN457 Hydrofoil and Propeller Theory (3-0-3). The analysis and design of hydrofoils and marine propellers are presented. Lifting line and lifting surface theories are applied to naval devices. Design and towing tank work supplements recitations. Not offered every year. *Prereq: EN352 or permission.*

EN458 Advanced Marine Vehicles (2-2-3). Modern watercraft discussed: planing boats, hydrofoil craft, ground-effect machines, and combatant and research submersibles. Analysis and design features are investigated experimentally in the towing tank when appropriate. *Prereq: EN453.*

EN460 Marine Engineering Design (2-2-3). Conceptual design of a marine system is accomplished by midshipmen teams. The realistic project format followed involves proposal writing, project manager designation, progress reports, and preparation and design review by experts. *Prereq: 1/C standing as an engineering major.*

EN461 Ocean Engineering Design I (2-2-3). A detailed study of the engineering design process is undertaken including requirements definition, design synthesis, alternative evaluation, criteria optimization and project presentation. Practical experience is gained through design of basic structural elements for fixed ocean facilities. *Prereq: 1/C standing in ocean engineering major or approval of department chairman.*

EN462 Ocean Systems Engineering Design II (1-4-3). Conceptual design of an ocean engineering system is accomplished by midshipmen teams. The realistic project format followed involves proposal writing, project manager designation, progress reports, and design review by experts. *Prereq: EN461.*

EN463 Reactor Physics II (2-2-3). The topics covered include neutron generation times, reactor period, delayed neutrons, negative temperature coefficient, xenon poisoning, control rod theory, shielding, and finally, a reactor kinetics case problem. *Prereq: EN362*

EN465 Advanced Marine Power Systems (3-0-3). The components making up the main propulsion systems are studied with respect to their design and operation. Power plants studied are nuclear, gas turbine, conventional steam and diesel. The student selects one component as the topic of an individual research effort and technical report. *Prereq: EN361.*

EN466 Computer Methods in Nuclear Engineering (3-0-3). Transient reactor problems are studied using computer numerical methods. Topics include the dynamic analysis of a reactor power primary and secondary loop systems. Matrix, finite difference, and Hansen's methods are used. *Prereq: EN463 or permission.*

EN467 Experimental Naval Architecture (1-4-3). This course covers the experimental aspects of marine vehicle resistance, propulsion, and seakeeping. Vehicle hydrodynamics as well as experimental methods, data acquisition systems, and technical report preparation are studied and used. *Prereq: EN352; Coreq: EN453.*

EN468 Nuclear Energy Conversion (3-0-3). Principles of the conversion of nuclear energy into useful power are covered. Various types of nuclear power plants, their design, cycles, load following characteristics, etc., are studied. Direct nuclear energy conversion systems are also studied. *Prereq: EN362.*

EN470 Life Support Systems (3-0-3). The physiological and psychological aspects of man in the sea are presented with the related engineering requirements. Topics include hyperbaric physiology, saturation diving, life support equipment, deep dive systems, diving operations and hazards. *Prereq: 1/C engineering major or permission.*

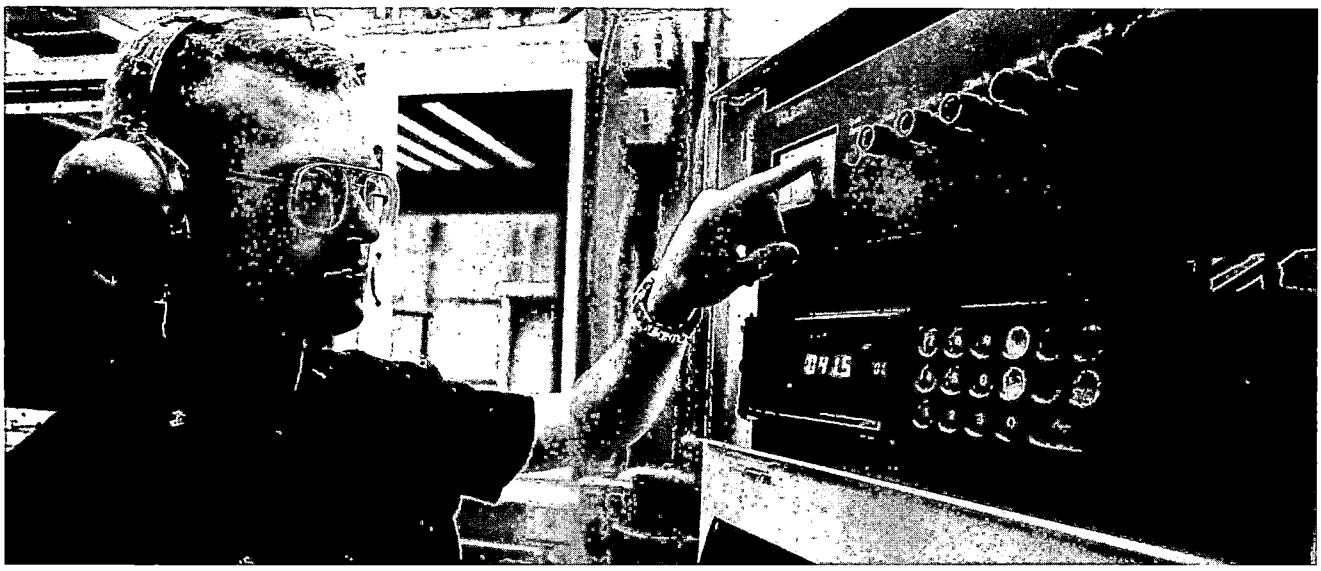
EN475 Ocean Engineering Mechanics (3-2-4). Effects of gravity waves on surfaced and submerged floating bodies and on moored and fixed bodies. Measurement

techniques discussed include measurements of wave height, wave-induced forces, and motions in waves. *Prereq: EM318 or EM324, EN241 or permission.*

EN476 Ship Design (1-4-3). This course represents the culmination of an undergraduate naval architecture program in which the student applies technical skills to the design of a ship. *Prereq: EN467.*

EN477 Undersea Power Systems (3-0-3). The principles of design of undersea power systems are presented. Topics include batteries, fuel cells, chemical-dynamic systems, radioisotopes and nuclear reactor systems, and cable systems. *Prereq: EE332, EM318 or EM324, EN241 or permission.*

EN479 Computer-Aided Design of Floating Platforms (3-0-3). Utilizes the numerical methods available for the optimized design and configuration of various floating platforms, namely, catamarans, semi submersibles, deep submersibles, drilling platforms, etc. *Prereq: EN241.*



Department of Weapons and Systems Engineering

Systems Engineering Major

Modern systems, from microwave ovens, stereos and automobiles to spacecraft, missiles and robots, are a complex combination of different engineering disciplines. Systems engineering is the science of combining diverse technologies into a single unit and the control of that unit to achieve its design purpose.

The Naval Academy's systems engineering curriculum, rated number one in the country for the past nine years, is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. It is an interdisciplinary major encompassing electronics, mechanics, vibrations, linear physical systems, automatic control systems, computer engineering and system simulation. Analysis and simulation tools include analog, digital and hybrid computers. An overall understanding of the analysis and design of complete engineering systems, including the interdisciplinary interfaces between systems, is the primary goal of the major. Systems engineering is particularly suited to those persons interested in the interactions and performance of a complete system. A bachelor of science in systems engineering is awarded.

Since most modern systems contain automatic control functions using digital control methods, the core of the systems engineering major emphasizes feedback control theory with digital control as a major element. Surrounding this core of control theory is the interdisciplinary part of the major with advanced courses in digital technology and microprocessors, computer interfacing and engineering, analog and digital communications, analog and digital simulation and robotics. As a part of the interdisciplinary concept, portions of the systems engineering major may be fulfilled with advanced courses from other disciplines, such as mechanical or electrical engineering, math, physics or computer science.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS252, ES300, NN302, NL303, NS300*, NL300*, NL400;
Mathematics: SM211, SM212, SM239, SM312;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, FE210, and four electives;
Engineering: EM211, EM232, EM318, EM319, EE331, EE332;
Major: ES201, ES303, ES305, ES306, ES309, ES402, ES416, plus five approved electives.

*Taken during second-class summer

Systems Engineering Courses

ES201 Introduction to Systems Engineering (2-2-3). Introduction to the modeling and control of electrical, mechanical, and hydraulic systems. A survey of the simulation and control laboratory courses available in systems engineering. *Prereq: SI180; Coreq: SM212.*

ES300 Naval Weapons Systems (3-0-3). An introduction to the theory of weapons systems through a study of the fundamental principles of sensor, tracking, computational and weapons delivery subsystems. *Prereq: NS101, SM102, SP212, SC104.*

ES303 Analog/Digital Computer Methods (2-2-3). Principles of analog and digital computer simulation of linear and nonlinear multivariable systems are applied to the study of the behavior of realistic engineering control systems. *Prereq: ES201; Coreq: ES305.*

ES305 Linear Control Systems I (3-0-3). A study of the dynamic behavior of physical systems through classical transform and modern state variable techniques. *Prereq: ES201; Coreq: ES303.*

ES306 Applied Control Systems and Instrumentation (2-2-3). Determination of mathematical model parameters of physical systems by statistical analysis of laboratory data. Comparison of predicted and actual system response. Introduction to hybrid computation. *Prereq: ES303, ES305; Coreq: ES309.*

ES309 Linear Control Systems II (3-0-3). Analysis and design of linear automatic control systems. *Prereq: ES303, ES305; Coreq: ES306.*

ES400 Weapons Systems Engineering (4-0-4). A study of the engineering principles governing the functioning of the various components (in detection, control, delivery, and destruction) of naval weapons systems. *Prereq: ES300, 1/C at-sea training, EN300,EE312.*

ES402 Systems Engineering Design (2-4-4). Introduction to the macro-techniques of engineering design including performance, reliability, management control, redundancy, man-machine systems and testing techniques. Design, construction, test and evaluation of an approved project is accomplished in the lab. *Prereq: ES306, ES309.*

ES406 Analog Information Systems (3-0-3). Study of analog information flow and signal-to-noise and signal-to-jamming ratios in communication systems. *Prereq: ES306, ES309, ES412.*

ES407 Hybrid Computer Computation (1-4-3). Introduction to hybrid computation, hardware and software consideration of hybrid interface, digital filter and controller simulations, and solution of boundary value and optimization problems using hybrid techniques. *Prereq: ES306 or consent of instructor.*

ES408 Digital Technology (2-2-3). An introduction to logical organization and internal functioning of digital devices applying sequential machine theory, machine language, Boolean algebra and switching circuits. *Prereq: SI180.*

ES409 Modern Control Systems (3-0-3). Analysis and design of control systems using modern control theory. *Prereq: ES306, ES309.*

ES410 Control Systems and Their Application to Weapons (3-2-4). Linear control systems for engineering majors, using analytical, graphical and computer techniques. *Prereq: 1/C standing in an engineering major or approval of department chairman.*

ES412 Digital Information Systems (2-2-3). Analysis of digital information and its transfer through communications systems. *Prereq: 1/C standing in an engineering major or approval of department chairman.*

ES414 Sampled Data and Digital Control Systems (2-2-3). Analysis, design and simulation of digital filters and continuous systems under digital control using z-transforms and modern control techniques. *Prereq: ES306, ES309.*

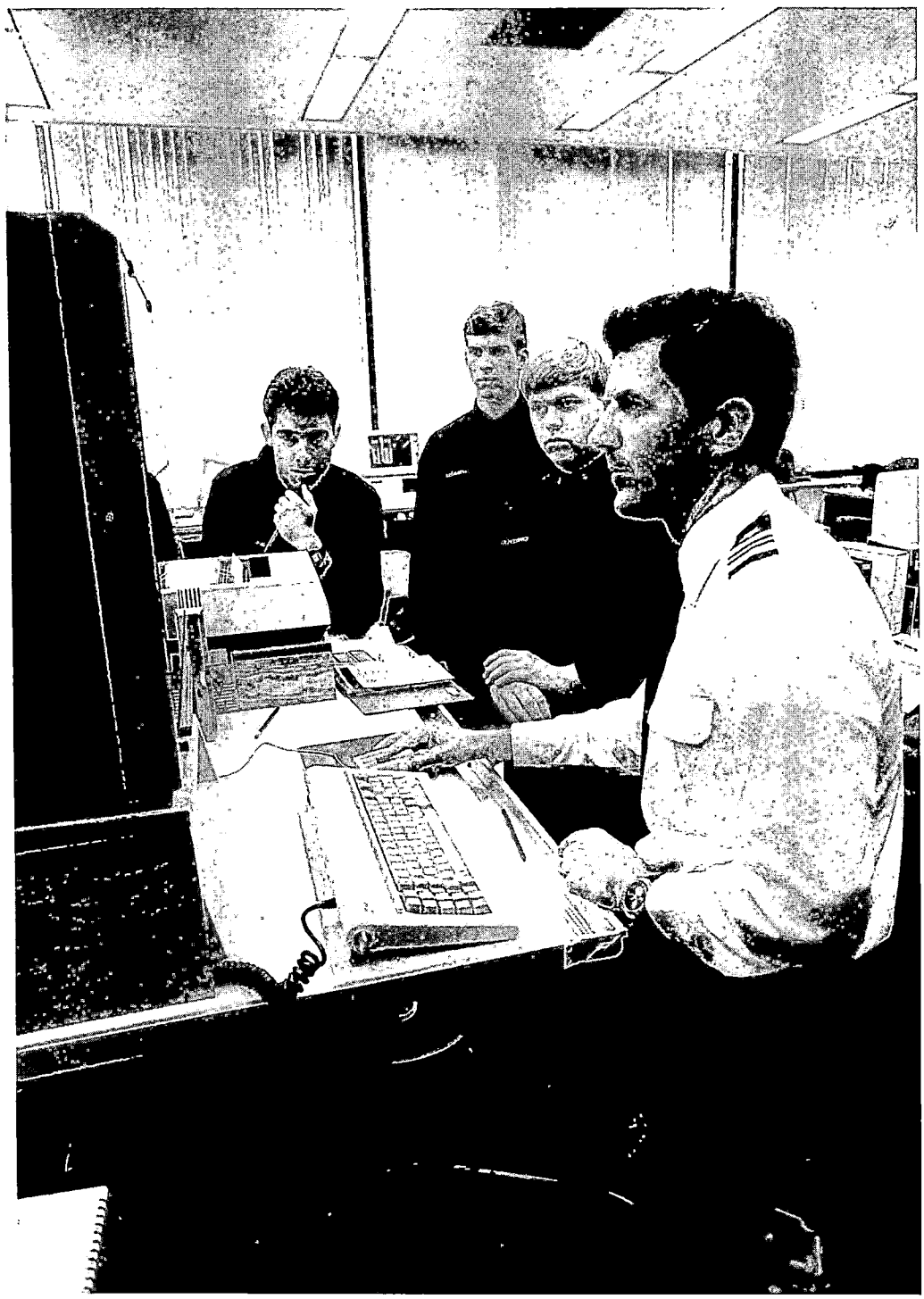
ES415 Nonlinear Control Systems (2-2-3). Analysis and design of control systems having nonlinear components. *Prereq: ES306, ES309.*

ES416 Advanced Control Systems (3-0-3). A study of advanced topics of automatic control systems including compensation, modern control theory, and

nonlinear analysis, and selected topics in research techniques. *Prereq: ES305, ES309.*

ES442 Microcomputers in Control Applications (2-2-3). An introduction to the role of the microcomputer as a component in control systems, applying assembly language programming techniques and a variety of interface hardware. *Prereq:: ES408.*

ES451 Introduction to Robotic Systems (2-2-3). Fundamentals of robotic systems including historical development, applications, basic configuration and design considerations, control principles of robot systems, computer vision processing and a group design project. *Prereq: 1/C standing insystems engineering major or approval of department chairman.*



Division of Mathematics and Science

Department of Computer Science
Department of Mathematics
Department of Chemistry
Department of Oceanography
Department of Physics

Department of Computer Science

Computer Science Major

The computer science major gives students a background in the main facets of computer science with an orientation toward the naval applications of computers. A designated bachelor of science degree is awarded. The program is accredited by the Computer Science Accreditation Commission of the Computing Sciences Accreditation Board.

The computer science department operates its own VAX 8350 minicomputer running the VMS operating system, hosting the following languages: Ada, C, Pascal, LISP, FORTRAN, and RDB. This machine is accessed by students with one of 40 microcomputers in two laboratory classrooms. Two MicroVAXIIs support a local area network operation. Additionally, the department maintains a suite of AT&T machines consisting of one 3B15, three 3B2/400's and 25 7300 Unix workstations. A digital logic lab, affording students hands-on opportunities to build and study basic computer circuitry, is run by the department.

Complementing departmental resources, the computer services department operates a Gould minicomputer running the Unix operating system and a mainframe Honeywell DPS 8/52 system running the Dartmouth Time Sharing System. All midshipmen have accounts on these machines. Upon entry into the academy, each midshipman is issued a microcomputer with software for a word processing program, a Pascal compiler and a windows environment package.

Today's Navy and Marine Corps require junior officers with the highest levels of technical expertise and professional competence. The computer science major will be well-equipped to meet the challenges of managing multiple computer systems and handling the rapid integration, analysis and dissemination of information generated.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL300*, NL303, NL400, NN302, EN300, ES300, EE311, EE312, ES400;
Mathematics: SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206 and five electives;
Major: SI210, SI211, SI262, SI301, SI304, SI332, SI411, SI434, SM239, and four major electives.

*Taken during second-class summer

Computer Science Courses

SI180 Fundamentals of Computing (3-0-3). A first course in computing for all midshipmen. Introduction to current computer technology and applications, hardware and software building blocks of modern computer systems, and software development. A high-level language is used to teach the principles of software development.

SI210 Introduction to Computer Science (3-0-3). Introduction to algorithmic development, problem solving, and software design. Principles and concepts to provide foundation, knowledge, and experience upon which later computer science courses will build. The first course for computer science majors. *Prereq: SI180.*

SI211 Advanced Programming (3-0-3). Machine and assembly language, compilers and interpreters. Program segmentation and linking. Macros, subroutines, and utility routines. Input/output, peripheral devices, and auxiliary storage. Program efficiency and documentation. *Prereq: SI210 or EE221 or ES201.*

SI262 Discrete Structures (3-0-3). An introduction to the mathematical foundations of computing through modern algebra, graph theory, set theory and propositional logic. *Prereq: Calculus II, SI210.*

SI301 Data Structures (3-0-3). Data representation and information management. Lists, strings, arrays, trees, and graphs. Storage structures, allocation, and collection. Sorting techniques, symbol tables, and searching. *Prereq: SI210.*

SI304 Programming Languages (3-0-3). A study of formal language specification. Topics include data typing, program structure, sequencing, recursion, storage management, file interfacing, and translation and syntax. The implementation of features like run time stacks, environmental tables, and parameter transmission are discussed in detail. *Prereq: SI301.*

SI305 Applied Algorithmic Processes (3-0-3). Use of top-down design and software engineering methodology to develop structured algorithms for problem-solving. A high-level language, such as FORTRAN or Ada, is used to implement the algorithmic designs. *Prereq: SI180 or equivalent.*

SI310 Computer Graphics (2-2-3). Presents the concepts, theories, and algorithms related to computer graphics. Builds understanding in evaluating and implementing graphical support in various application settings. *Prereq: SI210.*

SI332 Introduction to Computer Architecture (3-0-3). Organization, logic design and components of digital computing systems. Overall organization of modules into a system. *Prereq: SI211, Coreq: EE312.*

SI411 Operating Systems (3-0-3). The study of the operating system as a resource manager. Topics include process management, interrupt processing, memory management, deadlock handling, file systems, multiprogramming, multiprocessing, and data security and protection. *Prereq: SI211, SI301.*

SI412 Compiler Construction (3-0-3). Using formal programming language theory as a foundation, the issues of automata theory, program optimization, and language translation are examined. Sections of actual compilers are constructed to study the practical application of theory presented. *Prereq: SI211, SI301.*

SI420 Artificial Intelligence (3-0-3). A study of the fundamental concepts and techniques in the design and

implementation of functionally intelligent machines. Topics include problem-solving using state-space search, problem-reduction techniques, game trees, general problem solver; and knowledge representation using production systems, first-order predicate calculus and natural language. *Prereq: SI301.*

SI421 Discrete Simulation (3-0-3). Simulation and modeling of discrete systems. Introduction to queuing theory and stochastic processes. Comparison of simulation languages. Design, analysis and validation of simulation models. *Prereq: SI304 and SM239 or SI305.*

SI430 Fundamentals of Microcomputer Systems (3-0-3). Analysis and design of software systems for micro-processors. Includes characteristics and organization of microprocessors, peripheral interface software, and applications of software design. *Prereq: SI332.*

SI434 Software Engineering (3-0-3). An introduction to the latest trends in software engineering, information hiding, program specification, design requirements and reliability. Department of Defense rules for procurement of hardware and software. *Prereq: SI332.*

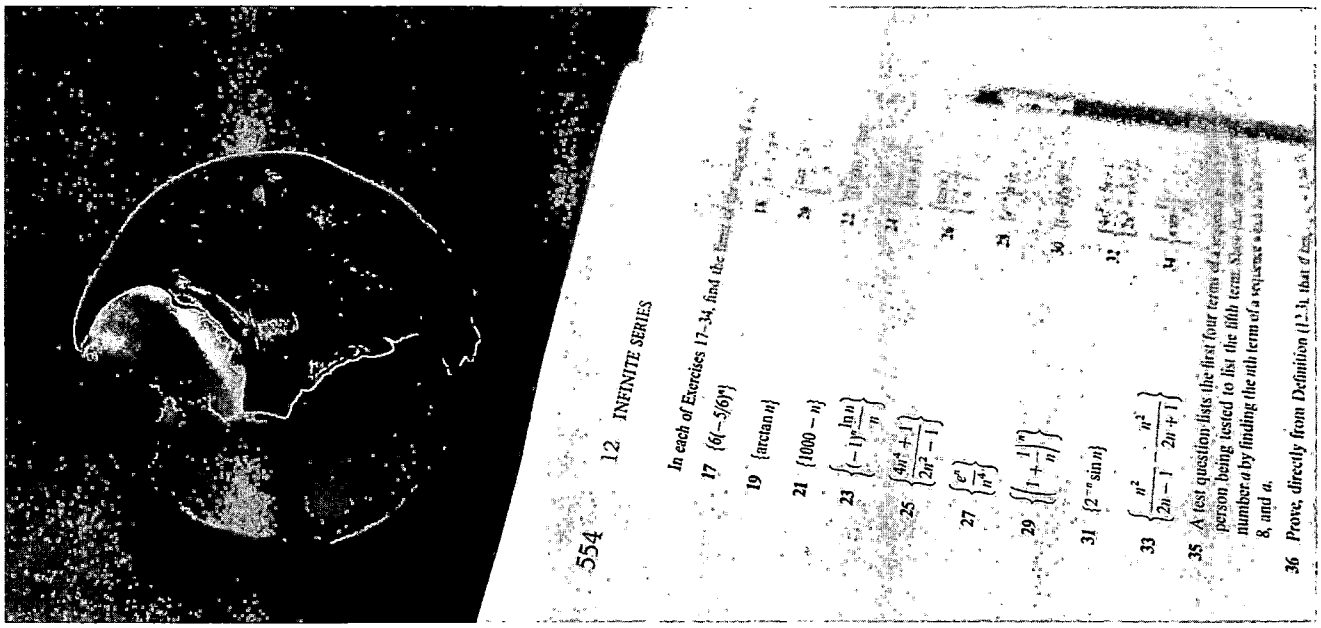
SI440 Database Organization (3-0-3). Topics include database systems architecture, the various approaches to database organization including relational, hierarchical and network models; normalization and implementation issues. *Prereq: SI301.*

SI451 Real Time Processing (3-0-3). Presents the topics and concepts necessary to design and manipulate interactive and real time computer and control systems. Introduces advanced concepts in processor interrupt control, multi-tasking and concurrency. *Prereq: SI304 and SI332.*

SI452 Advanced Computer Architecture (3-0-3). This course provides an advanced study of the design and building principles used to create computer systems. *Prereq: SI332 and SM239.*

SI454 Computer Networks (3-0-3). The course presents major topics in the area of computer networks. It views a computer network as a group of related layers or abstract machines as exemplified by the International Organization for Standardization (ISO) network reference model. *Prereq: SI332.*

SI472 Computer Algorithms and Finite Automata (3-0-3). Presents concepts and theories related to complexity of algorithms. Illustrates the application of complexity theory to determine the relative efficiency of algorithms.



Department of Mathematics

Mathematics Major

The major in mathematics gives students the opportunity to acquire a sound mathematical foundation and to develop facility in applying mathematical concepts and techniques. The program permits concentration in mathematics, operations analysis, or computational mathematics. A bachelor of science degree is awarded. An honors program with a designated honors degree is available for selected students.

A solid background in mathematics facilitates postgraduate specialization in many technical areas, including nuclear power. Mathematics provides the broad foundation for the development of analytical skills required to work with and develop new technology.

The mathematics department is the largest academic department at the Naval Academy. Each semester about two-thirds of all midshipmen take one or more courses in mathematics. Courses are taught in sections with 20-22 students in lower level courses and 15-18 students in upper level courses. Because of the department's size, there is a wide variety of elective courses to satisfy individual interests or major requirements.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, EE311-312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211 or SM251, SM212 or SM222, SM239, SM291, SM292SM331, SM332;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and five electives;
Special: one free elective;
Mathematics concentration: SM362, plus three additional mathematics courses (two of which must be at the 400 level) chosen from SM242, SM259, SM311, SM312, SM315, SM364, SM411, SM425, SM426, SM433, SM461, SM462, SM464, SM465;
Operations Analysis concentration: SM339 and SA401, plus three electives chosen from SA367, SA402, SA410, SA412, SA430, SA442;
Computer Science concentration: SI210 and SM425 or SM426, plus three courses chosen from SI211, SI301, SI304, SI332, SI411, SI412, SI420, SI421, SI430, SI440, SI452, SI454, SI472.

*Taken during second-class summer

General Science Major

The major in general science gives students the opportunity to pursue a broad, scientifically-oriented program in the field of physical applications of mathematics and science. The major permits midshipmen to experience an interdisciplinary technical course without the need for specialization. A bachelor of science degree is awarded.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, EN300, ES300, EE311/312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206 and five elective courses;
Major: SI210, SM230, SA302, HP340, SB251, SO221, SO342, SP301, SP411; two electives from mathematics/science/engineering.

*Taken during second-class summer

Mathematics Courses

SM005 Pre-Calculus Mathematics (4-0-4). Basic review of algebraic and arithmetic operations, analysis of functions and their graphs, and trigonometry. This course does not fulfill any of the requirements of any major and may be required in addition to stated graduation requirements for certain midshipmen. *Prereq: permission of department chairman.*

SM100 Introduction to Analytic Geometry and Calculus I with Trigonometry (5-0-5). Same as SM101 plus trigonometry.

SM101 & SM102 Introduction to Analytic Geometry and Calculus I & II (4-0-4, 4-0-4). Course content similar to SM111 and SM112. For those not qualified to enroll in SM111.

SM111 & SM112 Calculus and Analytic Geometry I & II (4-0-4, 4-0-4). Plane analytic geometry; differential and integral calculus of one real variable.

SM161 & SM162 Calculus with Computers I & II (5-0-5, 5-0-5). Programming using Pascal, algorithmic development of the integral and differential calculus of one real variable. *Prereq: permission of department chairman.*

SM201 Analytic Geometry and Calculus III (4-0-4). Course content same as SM211 plus material to strengthen the background of students completing SM102. *Prereq: SM102 and SI180 or permission of department chairman.*

SM211 Calculus and Analytic Geometry III (3-0-3). Solid analytic geometry, series, partial differentiation, and multiple integration. *Prereq: SM112 or SM162; SI180 or equivalent.*

SM212 Differential Equations (4-0-4). Linear and simultaneous differential equations; solution by Laplace transform and series; partial differential equations and Fourier series. *Prereq: SM201 or SM211 or SM251.*

SM219 Statistics and Probability (3-0-3). Nature of statistical methods, description of data, probability, distributions, sampling, estimation, testing hypothesis, correlation and regression. Computer methods emphasized. Credit cannot be given for SM219 if credit has been given for SM239. *Prereq: SM102 or SM112 or SM162; SI180 or equivalent.*

SM222 Differential Equations with Matrices (4-0-4). A more rigorous treatment of material from SM212, the course uses basic ideas from linear algebra. Intended for mathematics majors. *Prereq: SM201 or SM211 or SM251; coreq: SM261.*

SM230 Introduction to Probability and Statistics (3-0-3). An elementary treatment of the basic concepts of probability models and statistical inference. Sample spaces, discrete and continuous random variables, standard distributions, central limit theorem, sampling, statistical inference. Credit cannot be given for SM230 if credit has been given for SM239. *Prereq: SM102 or SM112 or SM162.*

SM239 Probability and Statistics I (3-0-3). A more rigorous treatment of

material in SM230 for advanced work in mathematics, operations research, science and engineering. *Prereq: SM201 or SM211 or SM251.*

SM242 Discrete Mathematics (3-0-3). Introduction to combinatorial analysis and graph theory. Applications to problems in enumeration, matching, network analysis, optimization, scheduling, searching and sorting. *Prereq: SM102 or SM112 or SM162.*

SM251 Calculus with Computers III (4-0-4). Course content includes and extends that of SM211 with extensive computer applications. *Prereq: SM162.*

SM259 Mathematical Logic (3-0-3). Mathematical languages, formal logic, propositional calculus and truth tables, first order predicate calculus, proof theory, axiomatic systems and model theory. Applications to logical networks and nonstandard analysis. *Prereq: SM102 or SM112 or SM162.*

SM261 Matrix Theory (3-0-3). Matrices, transformations, linear equations, vector spaces, characteristic matrix, eigenvalues, orthogonality. *Prereq: SM102 or SM112 or SM162.*

SM264 Introduction to Numerical Analysis (3-0-3). Polynomial approximations, iterative methods for solving equations, systems of linear equations, numerical integration, interpolation, curve fitting. Computer methods emphasized. *Prereq: SM102 or SM112 or SM162; SI180 or equivalent.*

SM270 Introduction to Mathematical Economics (3-0-3). Equilibrium analysis, models, theory of the multiplier, acceleration principle, optimization, and linear differential and difference equations. *Prereq: SM261.*

SM271 Linear Programming (3-0-3). Simplex and dual simplex methods, minimax theorem, transportation problems and game theory. *Prereq: SM102 or SM112 or SM162; SI180 or equivalent.*

SM281 Vector Analysis (3-0-3). Vector algebra, vector calculus, fields, line and surface integrals, Stokes and Gauss theorems. *Prereq: SM201 or SM211 or SM251.*

SM291 Fundamentals of Mathematics I (2-2-3). Introduction to mathematical reasoning and the written and oral presentation of mathematical concepts, theory, and application of sets, relations, matrices, vector spaces and subspaces. *Prereq: SM102 or SM112 or SM162.*

SM292 Fundamentals of Mathematics II (2-2-3). Continuation of SM291. Mathematical reasoning with emphasis on presentation of theorems. Introduction to proof technique. Theory and application of functions, linear transformations, inner product spaces, eigenvalues and eigenvectors. *Prereq: SM291.*

SM311 Engineering Mathematics I (3-0-3). Vector analysis, Fourier analysis, partial differential equations, Sturm-Liouville problems, Legendre polynomials, determinants and matrices. *Prereq: SM212 or SM222.*

SM312 Engineering Mathematics II (3-0-3). Laplace and Fourier transforms, selected topics from complex variables. *Prereq: SM212 or SM222.*

SM315 Introduction to Partial Differential Equation (3-0-3). Linear equations, Cauchy problems, Laplace and Poisson equations, boundary value problems, heat equations. Sturm-Liouville problems and orthonormal expansions. *Prereq: SM212 or SM222.*

SM331 Advanced Calculus I (4-0-4). Real number system, continuity and limits, basic properties of functions on the real line, theory of differentiation, theory of integration. *Prereq: SM261.*

SM332 Advanced Calculus II (4-0-4). Metric spaces and mappings, differentiation in several variables, integration in several variables, infinite sequences and series of numbers and functions. *Prereq: SM331.*

SM339 Applied Statistics I (3-0-3). An applied study of a variety of statistical methods used in obtaining, presenting, summarizing and analyzing statistical information. Included are strategies for data collection and presentation, and techniques of statistical inference for population, parameters based on the concepts of sampling, probability and distribution theory. *Prereq: SM239.*

SM362 Modern Algebra (3-0-3). Integers, groups, mappings, rings, fields. *Prereq: SM102 or SM112 or SM162.*

SM364 Applied Numerical Analysis (3-0-3). Numerical approximation methods for single variable nonlinear equations, systems of linear equations, ordinary differential equations, and polynomial interpolation with attention to accuracy, stability, and computer implementations. More rigorous treatment given in SM425 and SM426. *Prereq: SM212, or SM222; SM261.*

SM411 Introduction to Complex Variables (3-0-3). Algebra and topology of complex numbers. Elementary functions. Complex derivative and integral. Theorems of Cauchy. Analytic functions, conformal nappings, Taylor and Laurent series, singularities, residue theory, analytic continuation. Applications to real analysis and physical problems. *Prereq: SM331.*

SM425 Advanced Numerical Analysis (3-0-3). Numerical solution of equations in one and several variables; direct and iterative algorithms, rate of convergence. Computer methods emphasized. *Prereq: SM331 or permission of instructor.*

SM426 Numerical Methods for Differential Equations (3-0-3). Interpolation and polynomial approximation, numerical integration and differentiation, numerical algorithms for initial value, and boundary value problems. *Prereq: SM212 or SM222, SM331 or permission of chairman.*

SM433 Methods of Applied Mathematics (3-0-3). A course of selected topics in applicable mathematics built upon students' prior studies in linear algebra (SM261) and analysis (SM331). A few topics are chosen from such subjects as linear operator theory, calculus of variations, integral equations, transform methods, tensor calculus and distribution theory. Areas of application include physics, engineering, systems engineering and operations analysis. *Prereq: SM331 or permission of chairman.*

SM461 Linear Algebra (3-0-3). Vector spaces, linear transformations, Jordan canonical form, inner product spaces. *Prereq: SM261, SM331.*

SM462 Algebraic Structures (3-0-3). Groups, rings, fields, Galois theory. *Prereq: SM262, SM331.*

SM464 Topology (3-0-3). A mathematical analysis of such surfaces as the sphere, torus, Klein bottle and Mobius strip. To develop an intuitive feel for the subject, a visual approach is used and many examples are investigated. *Coreq: SM332.*

SM465 Advanced Differential Equations (3-0-3). Existence and uniqueness of solutions to ordinary differential equations. Stability, oscillation, dynamical systems. *Coreq: SM332.*

Operations Analysis Courses

SA302 Analysis of Naval Tactics (3-2-4). An introduction to the techniques of modeling and quantitative analysis applied to specific naval operational problems, including search and patrol, screening, anti-air warfare, mining, equipment reliability and decision rules.*Prereq: SM239 or SM230.*

SA367 Introduction to Mathematical Modeling (3-0-3). Realistic problems, often of military interest, are formulated mathematically and solved using techniques from probability, statistics, calculus, and differential equations. The analysis is carried out by students working in small teams and individually. Solutions are presented in oral nontechnical briefings and in written technical reports. *Prereq: SM239 or SM222.*

SA401 Linear Models and Optimization (3-0-3). Investigation of fundamentals of linear optimization subject to constraints, including construction and analysis of linear programming and network problems. *Prereq: SM261.*

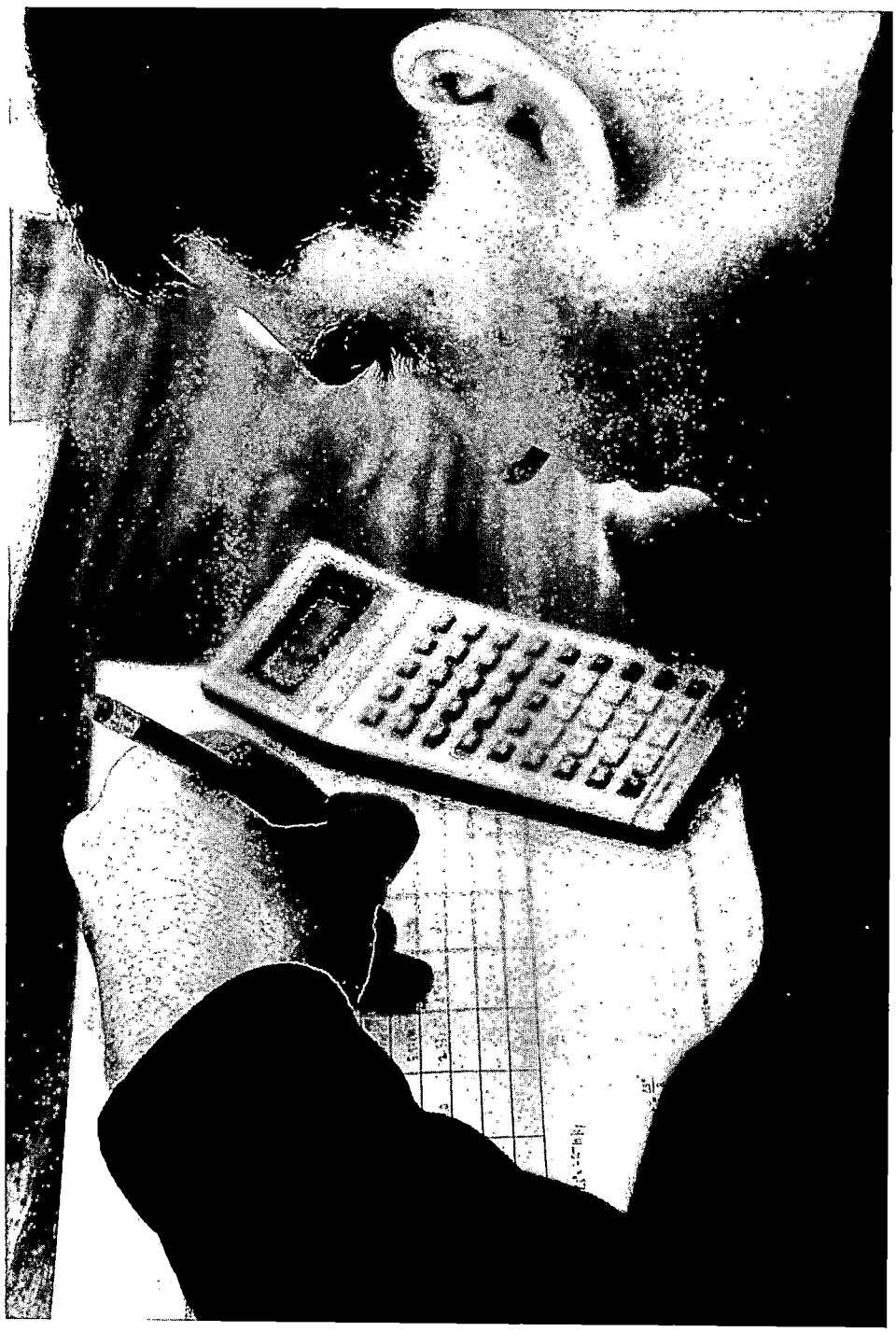
SA402 Dynamic and Stochastic Models (3-0-3). Investigation of quantitative analysis of decision options, including PERT/CPM, dynamic programming, Markov chains and queuing theory. Applications to typical operations are stressed. *Prereq: SM239, SM261.*

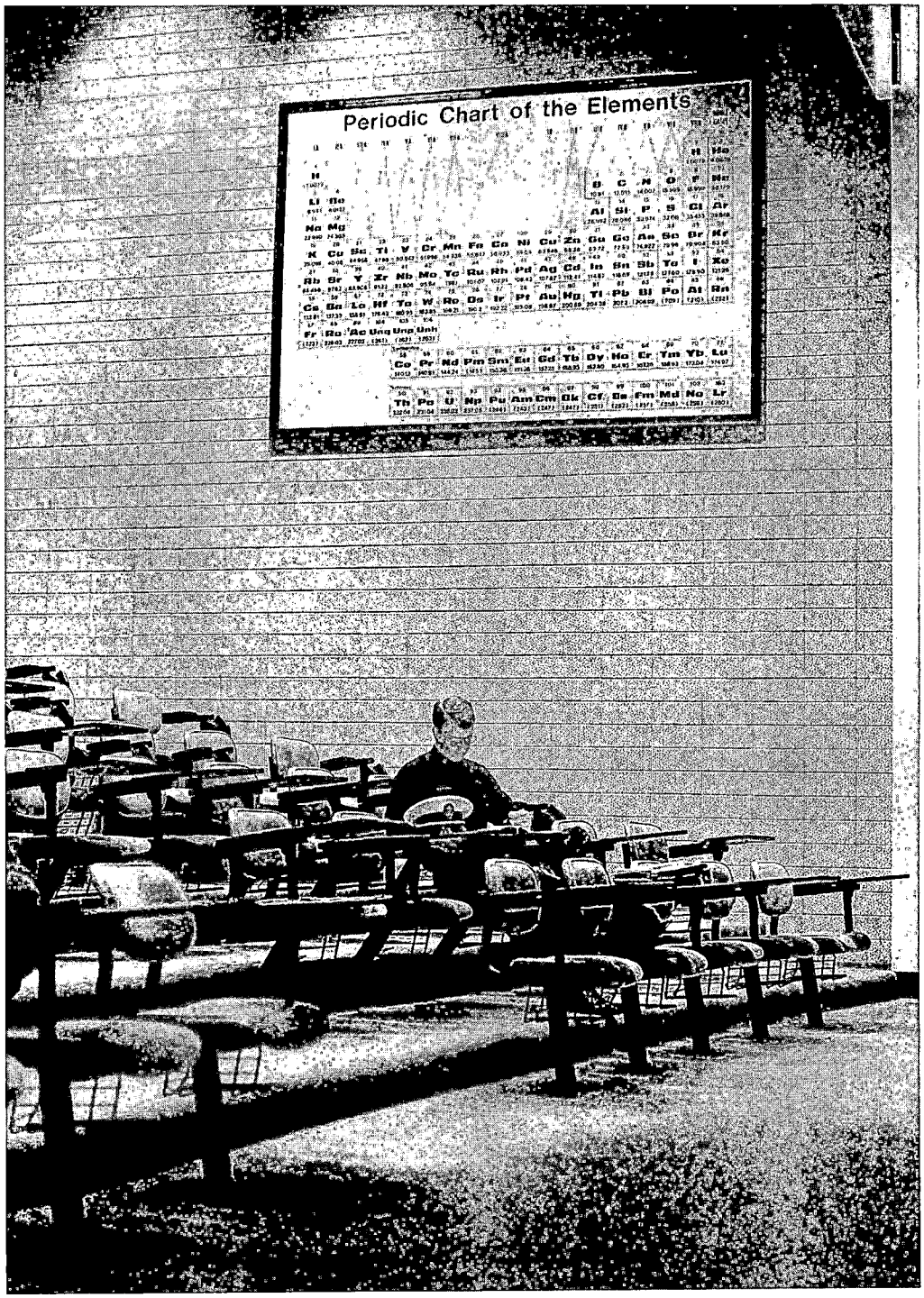
SA410 Applications of Search and Detection Theory (3-0-3). Application of probability and deterministic models to analysis of operational problems. *Prereq: SM230 or SM239.*

SA412 Projects in Operations Analysis (2-2-3). Operations research techniques are applied using student projects, case studies and visiting lecturers.Topics include current military and industrial problems.*Prereq: permission of chairman.*

SA430 Logistics (3-0-3). Investigates techniques of operations analysis applicable to the solution of problems in reliability, maintainability, availability, and inventory. *Prereq: SM239 and SA401.*

SA442 Applied Statistics II (3-0-3). A continuation of SM339 that includes examination, evaluation, and application of advanced statistical methods. Techniques studied include sampling, nonparametric analysis, simple and multiple regression, correlation, analysis of variance and decision theory. *Prereq: SM339.*





Department of Chemistry

Chemistry Major

The chemistry major at the Naval Academy provides midshipmen with training in all of the discipline's traditional fields, leading to a bachelor of science degree certified by the American Chemical Society.

All chemistry majors take required courses in organic, inorganic, analytical and physical chemistry. In addition to the required courses, midshipmen may take advanced courses in each of these subject areas. Individual laboratory research projects enable midshipmen to investigate topics of particular interest to them under the guidance of a faculty member.

Chemistry is an experimental science and many hours are devoted to laboratory work. The chemistry department at the Naval Academy has one of the finest undergraduate laboratories in the nation, with modern spaces and a wide array of instrumentation. Skilled technicians maintain the laboratories, assist the faculty and help midshipmen solve practical problems in the labs.

Faculty have a wealth of experience, not only in their academic understanding of chemistry but also in the practical application of chemistry in the Navy and Marine Corps. Chemistry majors will find that their civilian and military instructors can make the study of chemistry a highlight of their learning experience at the Naval Academy.

The chemistry major gives midshipmen a solid background in scientific principles required for most of the technical disciplines in which they will work as naval officers. It also provides an excellent academic base for graduate studies in such diverse fields as oceanography, operations research, management and engineering.

The ability to approach problems from a scientific viewpoint has enabled Naval Academy graduates with a major in chemistry to have particularly distinguished records of performance in the Navy's nuclear power training program, in academic phases of flight training and in surface warfare specialties.

Chemistry-related problems are found in many aspects of the Navy's operations, including:

- problems involving the handling, storage and quality-control of fuels and propellants which are found in all warfare communities.
- the development and application of protective coating materials which concern all weapons platforms, from nuclear-powered fast attack submarines to F-14s.
- the protection of ships' hulls, high pressure boilers, exotic alloys on high performance aircraft and sensitive electronic components from corrosion.
- environmental quality control, whether the problem is a submarine's atmosphere or the monitoring of stack gas emissions for acceptable pollutant levels.

Work in these areas is not restricted to research and development. Wherever an officer is in the Navy, and whatever the duties, an officer with a sound scientific background will be in an excellent position to analyze and find solutions to his or her command's particular problems. Equally important, as a division officer or department head, a naval officer is a teacher to whom others look not only for leadership but also for technical knowledge. The solid scientific background developed at the academy as a chemistry major provides graduates with basic technical knowledge which not only will be recognized by their subordinates, but also proves a lasting value to them throughout their years as an officer.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, NS200, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, EE311-312, ES400, NL300*, NL400;
Mathematics: SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206 and five electives;
Major: SC201, SC202, SC301, SC306, SC310, SC321, SC405, SC410, and two chemistry electives.

*Taken during second-class summer

Chemistry Courses

SC103 & SC104 Elements of Chemistry (3-2-4, 3-2-4). A two-semester sequence presenting the fundamental laws and theories of chemistry. Atomic and molecular structures, periodicity, chemical equilibrium, kinetics and electrochemistry are covered in a balanced classroom and laboratory approach for the student with a limited chemistry, mathematics and science background.

SC105 & SC106 General Chemistry (3-2-4, 3-2-4). A two-semester sequence stressing the fundamental laws and theories of chemistry. Topics include atomic and molecular structures, bonding, chemical thermodynamics, equilibrium, kinetics, acids and bases, and electrochemistry. Laboratory emphasis is on development of scientific laboratory skills, particularly the generation, analysis and presentation of data.

SC113 & SC114 Principles of Chemistry (3-2-4, 3-2-4). Rigorous courses in the fundamental principles underlying the areas of inorganic, organic and physical chemistry designed for students with above average ability in the sciences.*Prereq: one year of high school chemistry.*

SC201 & SC202 Organic Chemistry (3-6-5, 3-6-5). The chemistry of covalent compounds of carbon, including aromatic, aliphatic and heterocyclic. The second semester laboratory includes qualitative organic analysis. Special attention is given areas of petroleum, plastics, drugs and spectroscopy. *Prereq: SC114 or SC106 or SC104.*

SB251 General Biology I (3-2-4). Fundamental principles are introduced. Topics include protoplasm, plant and animal histology, plant and animal metabolism, gametogenesis and cell division, as well as genetics, ecology and organic evolution.

SB252 General Biology II (3-2-4). Expands upon topics from General Biology I, particularly plant and animal metabolism, and introduces vertebrate morphology and physiology.

SC301 Physical Chemistry (3-0-3). An introduction to the physical states of matter, kinetic theory of gases and liquids, phase equilibria, properties of solutions, atomic and molecular structure. *Prereq: SM211, SP212.*

SC306 Instrumental Methods of Analysis (3-6-5). The theory and applications of modern instrumental methods of analysis are stressed. A wide array of sophisticated instruments is available for student use. *Prereq: SC301, SC321.*

SC310 Inorganic Chemistry (3-0-3). The chemistry of the Main Group elements is used to establish the conceptual framework of inorganic chemistry. *Prereq: SC202, Coreq: SC321.*

SC321 Quantitative Analysis (2-6-4). A study of volumetric, gravimetric, and modern optical and electrical methods of analysis. Theory and laboratory procedures and techniques are stressed. *Prereq: SC114 or SC106.*

SC405 Physical Chemistry (3-6-5) Second semester of a year-long course. Emphasizes thermodynamic aspects of physical chemistry in both laboratory and lecture. *Prereq: SC301, SC306.*

SC410 Inorganic Chemistry (3-3-4). Uses concepts of SC310 and expands to consider the chemistry of the transition metals. Laboratory emphasizes modern techniques of synthesis, purification and identification. *Prereq: SC310, SC405.*

SC432 Biochemistry (3-0-3). The biological chemistry of the human body is discussed, including both normal and abnormal aspects. Metabolism, nutrition, vitamins and hormones are included. *Prereq: SC201.*

Department of Oceanography

Oceanography Major

The oceanography major is designed to give future naval officers practical and theoretical knowledge of the ocean environment and to build a sound academic foundation for future graduate study in any technical discipline. An interdisciplinary science major, oceanography involves the study of meteorology, geophysics, physics, chemistry, biology and geology as they relate to the effects of ocean environment on naval operations. Basic courses in these areas are prerequisites for more advanced oceanography and meteorology courses required by the major or available electives. Students take courses in geophysical fluid dynamics, sound propagation in the ocean, the study of waves and tides and the use of satellites in oceanography. Courses in advanced biological oceanography offer a glimpse of the undersea world and its marine creatures; synoptic meteorology courses involve hands-on weather forecasting experience using the latest tools available.

More than 25 percent of the required course load is within the oceanography specialty. Other courses include advanced mathematics, a tool by which oceanographers describe the complex behavior of the fluid environment in which they work.

The Naval Academy boasts the most extensive undergraduate oceanographic facilities in the country. Located on the mouth of the Severn River, the Hendrix Oceanography Laboratory is a multi-function enclosure featuring a wet laboratory where students interact with the world's largest estuary, the Chesapeake Bay. The academy's research vessel enables midshipmen to collect samples and oceanographic data afloat and deliver them to Hendrix Lab. Another laboratory complex in Rickover Hall houses the geological, biological, chemical and general oceanographic laboratories. The meteorological laboratory has an on-line facsimile receiver to display charts from the National Oceanic and Atmospheric Administration, direct access to the World Meteorological Organization's data network, a color weather radar, and a high resolution satellite receiver. Students use all of these facilities in required courses as well as in their electives.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, EE311-312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211, SM212, SM311;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH204 and five electives;
Major: SB251, SO261, SO313, SP328, SO342, SO413, SO424, SO472, and SP411 plus two approved major electives.

*Taken during second-class summer

Oceanography Courses

SO211 Introductory Oceanography (3-0-3). An introductory course designed for general science majors, treating physical and chemical properties of sea water, submarine geology, marine biology, the heat budget of the oceans, water masses and general circulation, currents, waves, and tides. *Prereq: SC104, SC106 or SC114; SP212.*

SO221 Introduction to Oceanography (3-0-3). A descriptive course designed for the ocean engineering major to provide an overview of significant oceanographic factors and their impact on engineering applications. *Prereq: SC104, SC106, or SC114; SP211; SM201 or SM211.*

SO261 Physical Geology (3-2-4). A study of the dynamic Earth, centered around the concept of global plate tectonics, with emphasis on the materials, form, and structure, and particularly the internal and external processes which shape the Earth and affect its inhabitants.

SO313 General Oceanography (3-2-4). Beginning physical oceanography, the ocean basins, age and origin of oceans, physical properties of sea water, chemical properties of water and ice, distribution of variables, and physical characteristics of estuaries. Ocean current systems, water masses, motion-producing forces, heat budget, heat distribution and thermal structure, waves, tides, and marine biology. Laboratory work includes a field trip and oceanographic surveys of the Chesapeake Bay. *Prereq: SB251, SO261; SC106 or SC114; SP212; SM201 or SM211.*

SO341 General Meteorology (3-0-3). An introductory study of the atmosphere including radiation, weather patterns and phenomena, atmospheric motion, and the effects of weather on naval operations. *Prereq: SM201 or SM211; SP211.*

SO342 Atmospheric Thermodynamics and Kinematics (3-2-4). A study of the thermodynamics of the atmosphere with respect to wind, temperature, and moisture processes. Introduces the basic techniques of meteorological observation and the use of meteorological charts. *Prereq: SM201 or SM211; SP211.*

SO413 Oceanic and Atmospheric Processes (3-0-3). The dynamics of quasi-horizontal, inviscid flow on the rotating earth. The motions of interest are isolated through the use of scale analysis of the governing equations. *Prereq: SSP328, SM311, SO342.*

SO422 Nearshore Oceanography (2-2-3). Examines the oceanographic regime from the continental break to the intertidal zone, concentrating on shallow water wave, surf, and beach processes. *Prereq: SO313, SO221 or SO211.*

SO424 Waves and Tides (3-0-3). The dynamics of surface and internal wave phenomena in the oceans and atmosphere and an examination of wind-generated wave characteristics and prediction methods. *Prereq. SO413.*

SO425 Oceanography from Space (3-0-3). Introduces the physical principles of space-based environmental satellite remote sensors and their operation. Examines applications of environmental satellite remotely sensed data in oceanography, meteorology and earth sciences. *Prereq: SO211, SO221 or SO313.*

SO441 Synoptic Meteorology (2-2-3). A practical course in meteorological analysis and forecasting as applied to operational planning. *Prereq: SO341 or SO342.*

SO444 Climatology (3-0-3). A climatic approach to weather phenomena. *Prereq: SO3441 or SO342.*

SO445 Air-Sea Interaction (2-2-3). Develops an understanding of the mass and energy transfer processes between the ocean and atmosphere, and how these processes affect the vertical wind profile. Lab work involves reducing and analyzing boundary layer measurements. *Prereq: SP328, SO313, SO342.*

SO451 Biological Oceanography (2-2-3). An introduction to the ocean as a biological environment. Laboratory work includes practical studies of the biology of the Chesapeake Bay. *Prereq: SB251,;SO313, SO221, or SO221.*

SO452 Applied Biological Oceanography (2-2-3). A study of the biological phenomena which affect naval operations. Significant biological and chemical processes are analyzed in the laboratory. *Prereq: SO451.*

SO461 Geological Oceanography (2-2-3). Introduction to marine geological instrumentation, theory and data gathering, analysis, interpretation and applications. Geomorphology, structure, petrology, sedimentation, stratigraphy, origin and development of ocean basins and margins are examined in light of theory of plate tectonics. Practical studies of the Chesapeake Bay are part of the laboratory work.*Prereq: SO261, SO313, SO221, or SO211.*

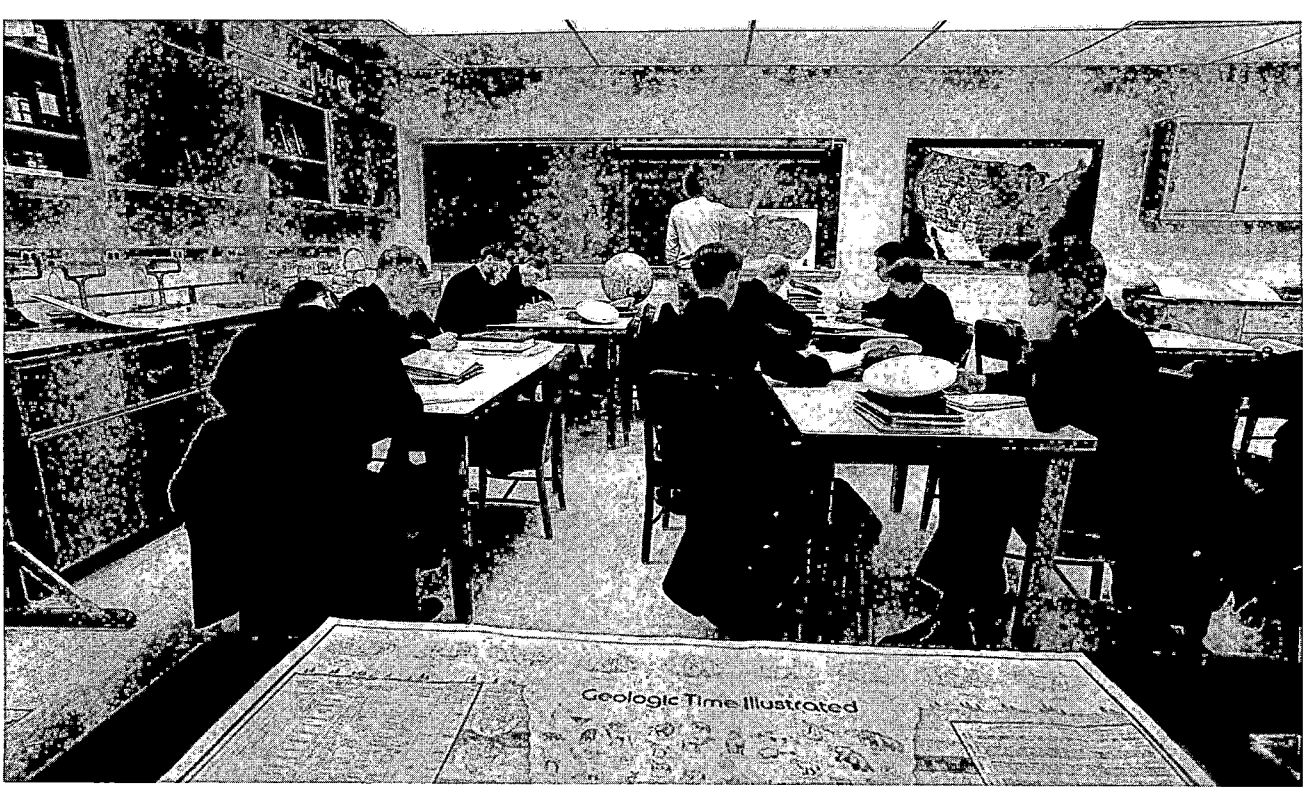
SO463 Current Topics in Oceanography and Meteorology (3-0-3). Provides an opportunity to present current material pertinent to oceanography and meteorology and their application to areas of Navy interest. Not offered every year. *Prereq: oceanography major or chairman approval.*

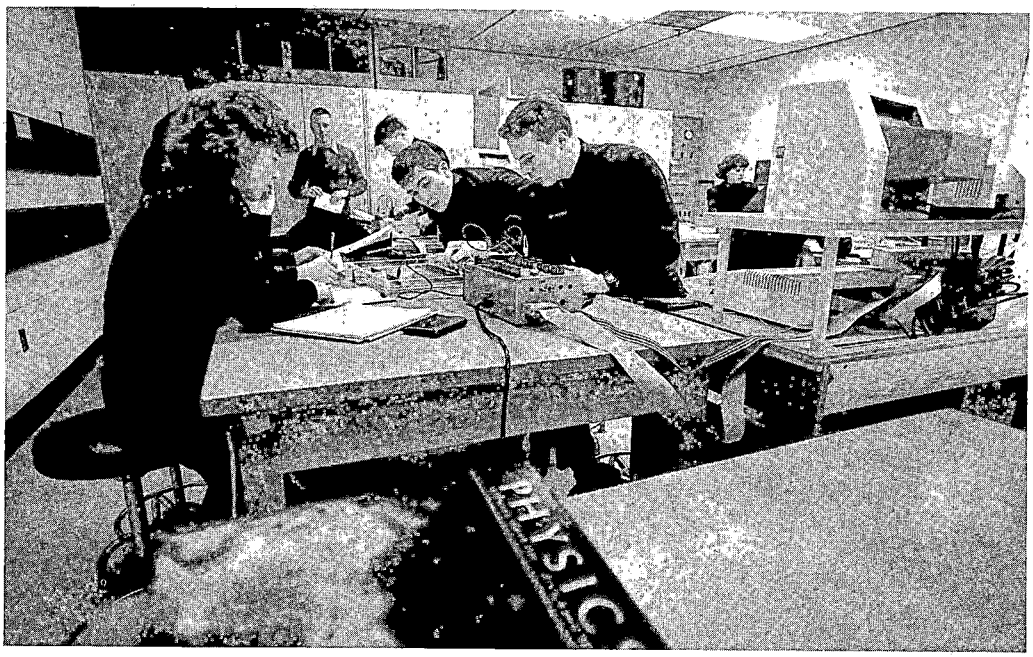
SO471 Chemical Oceanography (2-2-3). The modern approach to the ocean as a chemical system. Laboratory instruction emphasizes principles with appropriate methods. Classical concepts are discussed, as well as newer trends. Not offered every year. *Prereq: SO313, SO221, or SO211.*

SO472 Environment Applications and Issues (2-2-3). A capstone course for oceanography majors. This course focuses on fundamental technical issues created by regional environments, assesses the impact of the environment on operational systems, and exposes the student to issues of national management policy with an environmental aspect or impact. Guest lecturers. *Prereq: 1/C oceanography major.*

SO486A Concepts in Hydrography (3-0-3). Offers a general presentation of the fundamentals of hydrographic surveying. Course objectives are familiarization of the student with the elements of hydrography including geodesy; precise positioning afloat; depth measurement; tidal observations; and shoreline mapping. The course will include practical demonstrations of hydrographic surveying methods. *Prereq: SO211, SO221, SO313 or permission of the instructor.*

SO486B Remote Sensing of Ocean Currents (3-0-3). Satellite oceanography. Ocean current systems around the world are examined using visible and infrared scanning radiometers as well as altimeters. Phenomena such as El Nino, the Charleston "Bump," equatorial longwaves and mesoscale eddies are investigated in detail allowing work on department's image processing system. Guest speakers and field trips are featured. *Prereq: SO211, SO221, or SO313 or permission of instructor.*





Department of Physics

Physics Major

The major program in physics presents fundamental physical concepts and principles in such a way as to emphasize their general usefulness, and lays a strong foundation for further work in a broad range of technical fields. The challenge of physics lies in uniting its laws and definitions, expressed through algebra, trigonometry and calculus, with the integrative reasoning so essential in solving new problems. A bachelor of science degree is awarded.

Some of the topics treated in the sequence of courses are the origin, propagation and reception of waves of all kinds; field concepts; theory of relativity; basic theory of quantum mechanics; and statistical mechanics. All are studied with the object of developing an open-minded and creative approach to the physical world -- an approach increasingly important to those who will be leaders in the modern Navy. The physics major is particularly suitable for those midshipmen entering the nuclear power program, but many recent physics majors have opted for Navy air, surface line and Marine Corps as well. Advanced degrees are available to qualified physics majors prior to graduation, immediately after graduation, and later in their careers.

Students in physics will have access to eight laboratories for regular coursework and special facilities in acoustics, nuclear physics, laser optics and solid state physics. There are also four faculty research laboratories, two photographic darkrooms and well-equipped machine and electronics shops. Major instruments include a Van de Graaff accelerator, a 16-inch Cassegrainian reflecting telescope, an anechoic chamber, electron spin resonance and nuclear magnetic resonance facilities, high resolution spectographs, a helium dilution refrigerator and sixty Apple IIe computers for student use in data collection and processing.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, ES400, NL300*, NL400;
Mathematics: SM211, SM212, SM311;
Humanities/Social Sciences: HE300*, HH206 and five elective courses;
Major: SP221, SP222, SP226, SP324, SP327, SP333, SP342, SP425, SP444, plus two physics electives and one elective from engineering, science, or mathematics.

*Taken during second-class summer

Physics Courses

SP211 & SP212 General Physics I & II (3-2-4, 3-2-4). Emphasizes the fundamental principles of classical physics; however, contemporary applications are introduced as appropriate. The topics covered are mechanics, electricity, magnetism, wave motion, sound, and light. *Prereq: Calculus II for SP211; SP211 for SP212.*

SP221 Physical Mechanics I (3-2-4). The first course in physics for majors in physics. This course provides the basic classical mechanics for further study in physics. *Prereq: SM111 or approval of department chairman.*

SP222 Electricity and Magnetism I (3-2-4). A first course in electricity and magnetism with emphasis on the concepts of fields and potential. The course culminates in the formulation of Maxwell's equations. *Prereq: SP221 or SP211.*

SP226 Heat, Sound, and Light (3-2-4). Develops the basic concepts in heat, sound, and light. This course completes the three-course sequence in physics, SP221, SP222, and SP226. *Prereq: SP211 or SP221.*

SP301 Modern Physics (3-0-3). An introduction to relativistic mechanics and the particle aspects of electromagnetic radiation. Emphasis on the decay of unstable nuclei and nuclear reactions. *Prereq: SP212 or SP226.*

SP310 Astronomy (3-0-3). The fundamentals of astronomy as a physical and mathematical science, covering the solar system, stellar and galactic astronomy, and cosmology. *Prereq: SP212 or SP226.*

SP324 Physics of the Atom I (3-2-4). The development of the wave mechanics of Schrodinger, its probabilistic interpretation, and its application to problems of barrier penetration, the harmonic oscillator, and the structure of the atom. *Prereq: SP333, SM 212; Coreq: SM311 or permission of the instructor.*

SP327 Twentieth Century Physics (3-0-3). A comprehensive study of the development of physics in the current century, with particular attention being given to relativity theory, quantum theory, atomic structure and modern particle physics. *Prereq: SP222 and SP226.*

SP328 Fluid Physics (3-0-3). A first course in classical fluid mechanics which addresses the fundamentals of inviscid, incompressible flow dynamics, circulation, vorticity, and turbulent flow. *Prereq: SP212, SM311, and SO313 or permission of department chairman.*

SP333 Physical Mechanics II (4-0-4). A first course in physical mechanics at the intermediate level. Newtonian and Lagrangian mechanics with special emphasis on the central force problem and noninertial reference frames. *Prereq: SP221 or SP211; SM212.*

SP342 Electricity and Magnetism II (4-0-4). A course in electromagnetic theory required for all majors in physics and electrical engineering. Maxwell's equations are formulated in the notation of vector analysis and applied to various situations. *Prereq: SP222; Coreq: SM311.*

SP411 Underwater Acoustics and Sonar (3-0-3). A fundamental study of sound propagation in the ocean environment as it relates to the design and operation of sonar. *Prereq: SP212 or SP226.*

SP425 Physics of the Atom II (3-2-4). The formalism of quantum mechanics. Quantum theory of angular momentum; application to specific heats of gases, hydrogenic atoms. Quantum treatment of multi-electron atoms; applications to atomic and molecular spectra, solids, quantum statistics. *Prereq: SP324, SM311.*

SP434 Nuclear Physics (3-2-4). A study of the basic static and dynamic properties of the nucleus and of the interaction of particles and radiation with matter. Emphasis on the experimental techniques. Where appropriate, quantum mechanical interpretations of the phenomena are given. *Prereq: SP425.*

SP436 Acoustics (3-2-4). An introduction to modern boundary-value problems; discrete Fourier transform; radiation, transmission, and detection of sound waves; electro-acoustics; physcho-acoustics, architectural acoustics, and underwater acoustics. *Prereq: SP211 or SP221 and SM212.*

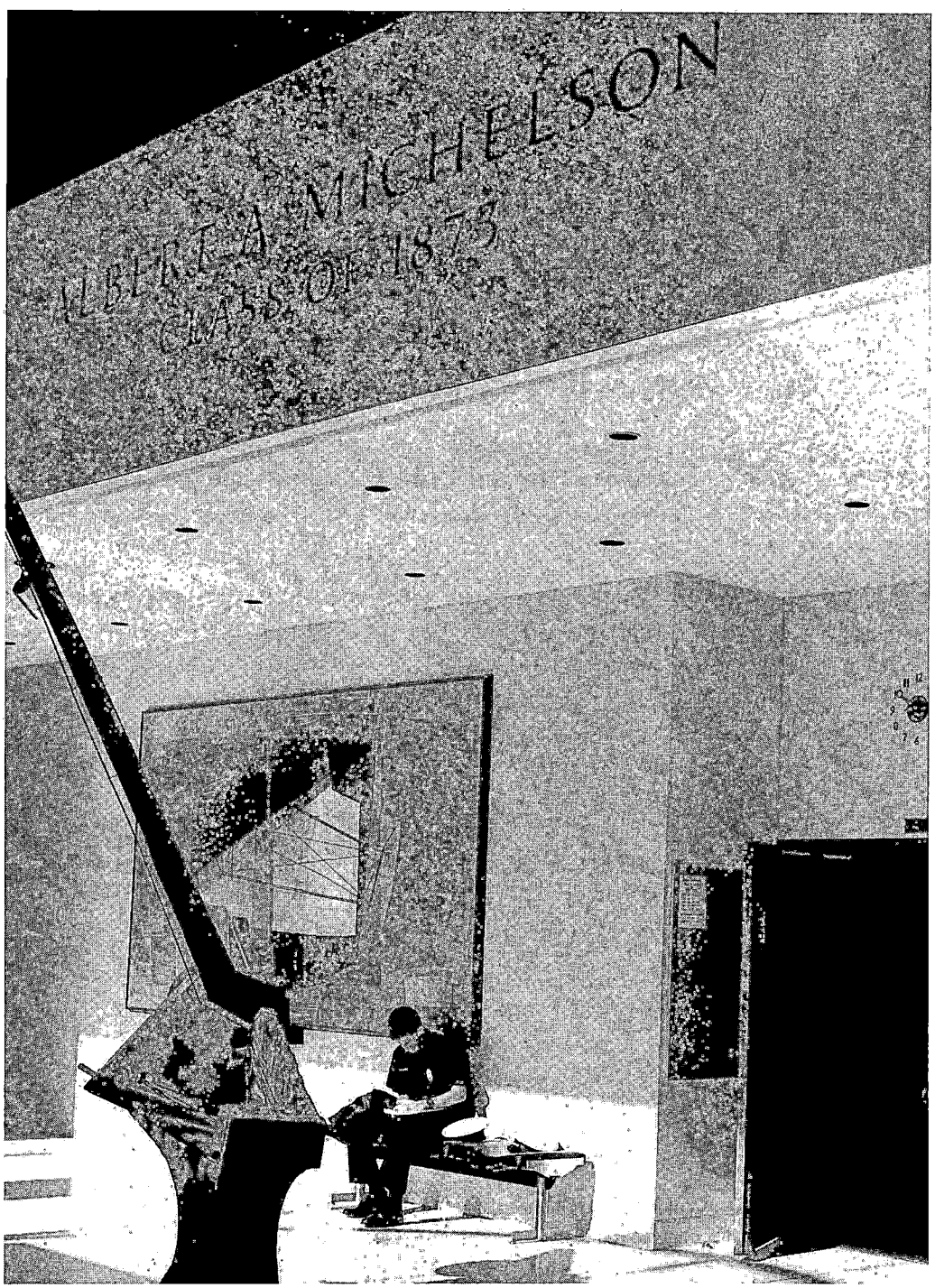
SP438 Optics (3-2-4). An introduction to modern optics. The topics included are polarization, interference, coherence, diffraction, Fourier transforms, holography,

optics of solids, and basic laser physics. *Prereq: SP341.*

SP442 Solid State Physics (3-2-4). An introductory course in physics of the solid state. The topics included are crystal structures, thermal properties, free electron model, band theory, magnetism resonance, and semiconductors. *Prereq: SP324.*

SP444 Thermal Physics (3-0-3). A presentation of topics in thermal physics from the statistical viewpoint. *Prereq: SP425 or permission of the department chairman.*

SP445 Stellar Astrophysics (3-0-3). A study of basic physics of stellar properties or processes: mass, luminosity, stellar spectra, chemical composition, stellar energy sources, nucleosynthesis, stellar models and stellar evolution. *Prereq: SM212, SP301, or SP324; SP310 or permission of instructor.*



Division of English and History

Department of English
Department of History

Department of English

English Major

The majors program in English offers study of the most significant and influential writings of civilization from ancient times to the present as well as the opportunity for independent study and for creative writing projects. A special feature of the program is that the literature of virtually all major countries and cultures is considered in contrast to traditional offerings which are normally restricted to British and American literature. A bachelor of science degree is awarded.

An honors program with a designated honors degree is available for selected students. Built on the premise that students wishing to excel will do so within the framework of the regular major, the honors program requires rigorous concentration in literary period courses, through special seminars focusing on literature and the fine arts, and on special topics studied in depth.

In addition to the honors program, midshipmen may take advantage of the Trident Scholar program, study abroad, a poetry competition and the English Majors' Club. The department of English also arranges a full schedule of trips to cultural centers in Washington and Baltimore to take advantage of musical and dramatic offerings. For those inclined to be on the stage themselves, the highly regarded drama group, the Masqueraders, offers a major production each year.

Choosing a major in English will not limit career selection in a highly technical Navy or Marine Corps. The qualities of a superior officer must include creativity, communication skills and independent thinking, all of which are strongly encouraged in English classrooms.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, SN300*, NL303, NN302, EN300, ES300, EE311, EE312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and three elective courses;
Language: Four semesters of a modern language;
Major: Ten approved major electives.

*Taken during second class summer

English Courses

HE101 Practical Writing (3-0-3). The study and practice of grammatically correct and rhetorically effective expository prose, supplemented by the analysis of essays by professional writers. For students selected by English department.

HE111-112 Rhetoric and Introduction to Literature I & II (3-0-3, 3-0-3). Stresses the writing of rhetorically effective and grammatically correct expository prose. During the first semester, students read essays, short stories and plays, and they write brief essays. During the second semester, students read novels and poetry and write longer essays.

200-Level Courses:
General Description

The literary content of courses on this level is eclectic. These courses offer wide surveys of materials from different cultures, historical periods, literary types, and issues. In each course, substantial practice in writing is to be expected. If a term paper is required, prior to the submission of such a paper there will also be several essays or written exercises to test and evaluate the student's writing competence. There are no prerequisites for any course in the 200 group. They may be taken at any class level, including the fourth class year.

HE219 The Literature of Classical and Christian Ideas (3-0-3). The study of the foundations of modern literature through classical Greek, Roman and medieval European works. Readings in mythology, philosophy, the epic, drama, and poetry. Attention will be given to the traditions, ideas, and conventions which have shaped the development of western literature.

HE220 Renaissance to Revolution (3-0-3). Examines leading movements of the 14th through 18th centuries in Europe and America which fostered the revival of interest in antiquity and learning, and the growth of the industrial age. Examines how the anarchic tendencies of the Renaissance spirit were moderated by the Enlightenment quest for reasoned consensus to ensure the common good.

HE222 The Bible and Literature (3-0-3). The Bible and its influence on European and American literature. Emphasis will be placed on modern biblical literary-critical methodology and on the symbolic richness of derivative literature from Dante to Nikos Kazantzakis.

HE223 Modern World Literature (3-0-3). A study of continental, British, and/or American literature of the 19th and 20th centuries, focusing on themes and movements. The course will explore the cultural assumptions of modern life that emerge from a close reading of major western authors and texts.

HE224 Literature and Science (3-0-3). The inter-relationships among science, technology, and literature since the Renaissance. The impact of science on literature and the implications of science as reflected in literary responses.

HE240 American Black Literature (3-0-3). Provides a generic survey of representative American black literature. Major figures including Toomer, Hughes, Wright, Ellison, Baldwin, Baraka, Brooks, Hayden, and Morrison are stressed. The genres of short fiction, poetry, drama, and the novel are covered.

HE250 Literature of the Sea (3-0-3). Study of the principal genres of the literature of the sea (epic, novel, short fiction, and poetry). Emphasis on literary qualities, man's relationship with the sea, and problems of command.

HE260 Introduction to Mass Media (3-0-3). An introduction to the mass media, their history, freedoms and responsibilities, operations and functions, trends, audiences, and effects on the individual and society. Major media and various ancillary functions are examined.

300-Level Courses:
General Description

These courses build on the foundations of literary analysis, comprehension, and writing acquired in HE111-112. The HE301-306 series goes more deeply into each of the basic literary types; the HE313-333 series approaches literature in its historical and cultural dimensions while focusing on a limited historical period; the HE343-344 series offers extensive practice in a variety of writing forms. All courses, however, have a writing requirement intended to further the student's opportunity to improve skills. Prerequisites for all 300- level courses are HE111-112.

HE300* Public Communication (1-0-1). Introduction to the junior officer's role in Navy public affairs. Practice in speaking in various situations. Taken during second-class summer.

HE301 Patterns in Drama (3-0-3). Reading, viewing, and analysis in a variety of dramatic experiences for the purpose of exploring the relationships among language, action, and form.

HE302 Forms of Poetry (3-0-3). An examination of the variety of techniques by which language is shaped into poetry. The focus is on analytic methods for understanding poetry.

HE306 Types of Fiction (3-0-3). Ideas and issues of modern fiction, with particular emphasis on the conventions, techniques, forms, and innovations of the novel and short story.

HE313 Chaucer and His Age (3-0-3). The literary and philosophical traditions within which Chaucer and his contemporaries worked. Readings in Chaucer's works, the Gawain poet, and others, including early and late medieval writers from England and the continent.

HE314 The Renaissance Mind (3-0-3). Literature and thought of the period bracketed by the two great English epics, Spenser's "Fairie Queene" and Milton's "Paradise Lost." The course includes a continental perspective, with readings from such authors as Machiavelli, Rabelais, Cervantes, Montaigne, and Castiglione.

HE315 Satire and Sensibility in the Age of Reason (3-0-3). The literature of the Enlightenment (1660-1780). Reading in the prose and poetry of Dryden, Swift, Pope, Addison and Steele, Johnson, and Boswell as well as selected novels and such continental writers as Voltaire.

HE317 The Romantic Vision (3-0-3). Concentrates on how writers from 1798 to 1837 responded to the growth of industrialism, religious skepticism, nationalism, and a host of other problems associated with modern life. Readings in representatives of the Romantic period. Reading in such continental writers as Goethe and Novalis may be included.

HE318 Modern British Literature (3-0-3). The literature of Great Britain and Ireland of the past hundred years. The novels of Hardy, Conrad, Joyce, Lawrence, Golding, and Lessing; the plays of Shaw, Synge, O'Casey, and Pinter; the poetry of Yeats, Eliot, Auden, and Dylan Thomas.

HE319 The Victorian Frame of Mind (3-0-3). A study of the literature of England written during the last seven decades of the 19th century. Emphasis on writings that deal with the growth of religious skepticism, the rise of the middle class, general education, and the increasing dehumanization of the individual in a society caught up in a new wave of scientific discovery and technological progress. Readings from representative figures such as Dickens, George Eliot, Hardy, Tennyson, Browning, Arnold, Ruskin, Carlyle, and Darwin.

HE326 Literature of the American Dream, 1620-1860 (3-0-3). A survey of American literature from the time of the Pilgrims to the outbreak of the Civil War. Emphasis is on the relationship between the emerging culture and literature.

HE328 America's Literary Coming of Age (1860-1920) (3-0-3). A study of American literature from the Civil War to the development of the United States as a major industrial and military political power after World War I. Focus is on the American writer's response to his or her own culture and to that of the broadening world.

HE329 Modern American Literature: The 20th Century Challenge (3-0-3). A study of American literature from 1910 to 1945 with emphasis on the writer's interpretation of the complexities of 20th-century life.

HE330 Contemporary American Literature: World War II to the Present (3-0-3). Concentrates on responses of contemporary writers to the idiosyncratic problems and themes of the post-World War II era such as the nuclear age, computer technology, television, the Vietnam experience, racial questions, the debasement of the language, and environmental issues.

HE333 Shakespeare and His Contemporaries (3-0-3). A study of Elizabethan and Jacobean ideas and attitudes through the investigation of a representative sample of Shakespeare's tragedies, histories, and comedies as well as

a few plays by contemporaries of Shakespeare.

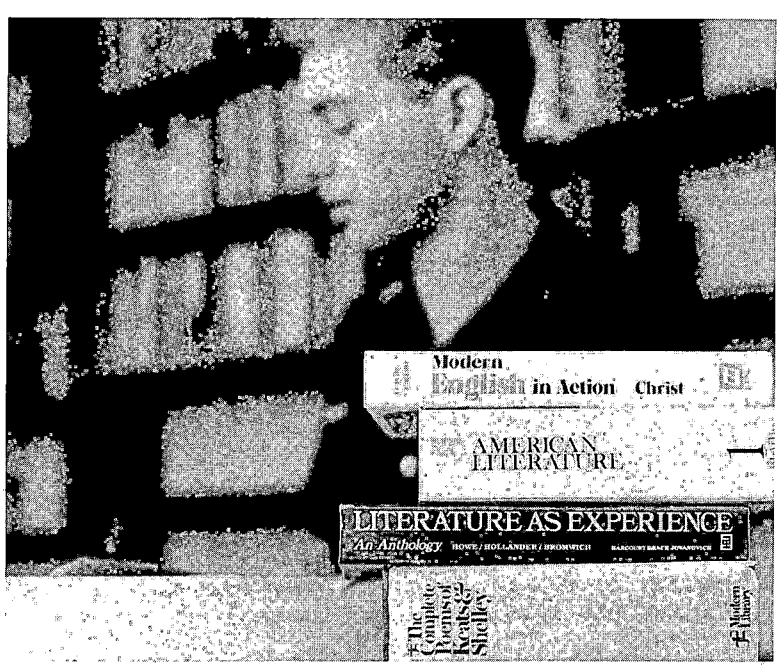
HE343 Creative Writing (3-0-3). After completing initial problem-solving exercises in prose, poetry, and drama, students embark upon an approved workload of their own design. Criticism of students' work is accomplished through classroom workshops and individual conferences with the instructor.

HE344 Professional Writing (3-0-3). Designed for students interested in advanced methods of preparing, writing, and presenting articles and reports. After initial study and analysis of the form and style in a wide variety of prose writing and practice in various prose forms, students will design and present independent projects.

HE360 Special Topics in Literature (3-0-3). An open-topics literature course. Topics vary from semester to semester and include such offerings as myth and fantasy, literature of American minorities, science fiction, and images of women in literature.

400-Level Courses: General Description

The HE400 series allows students and English department faculty members with special expertise to pursue together an intensive study of a restricted literary subject. Emphasis in each course will be upon extensive and intensive reading in a limited body of material, techniques of research, and the development of independent critical judgment. Prerequisites for these courses are at least one 300-level English course and permission of the chairman.



HE442 Introduction to Literary Criticism (3 0-3). The theory and practice of literary criticism. Concentrates on what critical approach can yield to the reader in the way of deeper understanding and satisfaction from the work of art. Required of all honors English majors.

HE461 Studies in a Literary Period (3-0-3). In-depth study of a limited period in literary history. For example: Pope and his literary contemporaries, the beginnings of Romanticism, the American Renaissance (1830-1860), the 1920s in American literature.

HE462 Studies in a Literary Problem (3-0-3). Cutting across traditional divisions of nationality, historical period or genre, the materials of this course will be selected to focus on some timeless problem of literature and the human existence it reflects. For example: myth and symbol in literature, literature and science, the concept of the hero.

HE463 Studies in Literary Figures (3-0-3). Extensive reading in the works, biography, and criticism of major figures in world literature. For example: Milton, Wordsworth, Dickens, Joyce, D.H. Lawrence, Melville, Twain, Faulkner, Dostoevsky, Thomas Mann. No more than three such writers will be considered in any one semester.

HE467 Studies in a Literary Genre (3-0-3). Study in a special genre. For example: the epic, the autobiographical novel, science fiction, imagist poetry.

HE506 Seminar in Arts and Literature (3-2-4). This interdisciplinary course introduces students to western art and music, showing how the arts in any age reflect the corresponding philosophical and scientific theories and mirror the ideals and realities of their representative cultures.

HE507 Advanced Topics (3-2-4) This course for English honors students offers concentrated exploration of individual literary masterpieces or issues.

Department of History

History Major

The major in history provides an opportunity to examine the evolution of past civilizations, and to evaluate and understand the institutions, achievements and values of mankind through the ages. History majors learn to evaluate ideas critically: to sift evidence, to draw conclusions and to express their conclusions clearly and concisely. A clear understanding of the events of the past provides a more acute awareness of contemporary issues and problems, as well as a context and a process for evaluating those problems. The program includes introductory courses on the values and ideas of western civilization and on the historical role of the U.S. Navy. Majors will select upper-division courses from the field of American, European, non-western and naval and military history. A bachelor of science degree is awarded.

In addition to the two history courses in the core curriculum (HH104 and HH206), each history major takes Perspectives on History, which introduces the student to historiography and the techniques of historical research and writing. The department also requires each history major to take two American history courses, two European history courses, one cross-national history course and one regional history course from among the courses listed below.

The honors program in history offers a student with above-average ability and ambition an opportunity to pursue a more challenging curriculum and to earn a distinguished degree. Those who are accepted for the program will follow the normal history major, with the following exceptions: they will take HH507 (Honors Colloquium) in the fall of 2/C year; HH509 (Honors Research Seminar) in the fall of 1/C year; and HH510 (Honors Philosophy of History) in the spring of 1/C year.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, EE311-312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and three elective courses;
Language: Four semesters of a modern language;
Major: HH262, and nine history electives.

*Taken during second-class summer

History Courses

HH104 American Naval Heritage (3-0-3). This course examines the antecedents, origins, and development of the United States Navy within the framework of America's growth as a continental and, eventually, global power, with particular emphasis on the development of naval and maritime strategy.

HH205 The Western Cultural Heritage to 1815 (3-0-3). Analyzes patterns of human thought and action from ancient times to 1815. Adopting the premise that the cultural products of a people express the values and aspirations of its members, this course approaches the development of western civilization to 1815 through a study of its ideas and institutions.

HH206 Civilization and the Atlantic Community Since 1776 (3-0-3). Pursues the study of human ideas and institutions from 1776 to the present -- focusing primarily on the United States and Europe. The course seeks to expose patterns of human thought and behavior in a cultural context.

HH223 Ancient Empires (3-0-3). Surveys the foundations of western civilization in the lands bordering on the Mediterranean. Begins with the Greek city states and continues to the fall of the Roman Empire.

HH224 Medieval Society: Princes, Priests and Peasants (3-0-3). Surveys the development of western civilization from the fall of Rome through the Middle Ages, Renaissance, and Reformation to the Age of Absolutism. It traces the development of the medieval synthesis, the rise of secular culture, commercial capitalism, and national government.

HH225 Renaissance, Reformation & Revolution (3-0-3). Focuses on the emergence of western civilization from the discoveries and rediscoveries of the Renaissance, the sweeping changes brought by the Reformation and Counter-Reformation, and the excitement of both scientific and political revolution.

HH241 Survey of American History (3-0-3). A survey of American history from discovery to the present, emphasizing the political, diplomatic, social, and economical developments that explain the nation's rise from settlement to superpower.

HH262 Perspectives on History (3-0-3). A methodology course in which majors acquire the basic technical skills required for research and writing in subsequent courses in history and other humanities and social sciences disciplines. *Prereq: history major, 3/C.*

HH317 Radicals and Revolutionaries in Modern Europe (3-0-3). A study of those individuals and groups who challenged and, in some instances, transformed European society from the 17th to the 20th centuries. Emphasis is placed on both the origins and consequences of radicalism and revolution.

HH318 War and European Society Since 1870 (3-0-3). A study of the origins and consequences of war on European society. The societal response to both total and cold war is assessed. War is examined as a force promoting change, including responses ranging from fascism through European economic unity.

HH319 Diplomats and Statesmen in Modern Europe (3-0-3). A study of the major governmental figures of modern Europe who helped shape the diplomatic history of the modern world as seen through their contributions to the art of international political decision-making.

HH321 Muscovite and Imperial Russia (3-0-3). A study of Russian history from the founding of Moscow to 1917, examining the domestic and external forces responsible for shaping the structure of Russian society and culture.

HH322 Revolutionary and Soviet Russia (3-0-3). An examination of the Revolution of 1917 and the development of the Soviet Union, emphasizing the institutions and policies adopted to meet domestic and foreign problems.

HH327 Germany and the Nazi Experience (3-0-3). Focuses on the antecedents of national socialism, including the Second Reich and World War I eras, the Nazi experience itself, and the legacy it bequeathed to today's two existing German states.

HH329 Modern France: Napoleon to DeGaulle (3-0-3). This course examines

France from the revolutionary upheaval of the late 18th century through its role in the western world since World War II. Roughly the first half of the course will deal with the revolutions of 1789 and 1792 and their impact upon 19th-century France. The second half of the course will consider the experience of France in the 20th century and the changes forced upon the nation by two world wars fought on French soil.

HH330 Imperial Britain (3-0-3). Great Britain from 1750 to the present. Begins with an analysis of Britain's political and social institutions. It then examines the changes brought about by industrialization at home, revolutions abroad, and expansion of the empire. At its end, the course highlights the simultaneous eclipse of Britain as a world power and the increasing prosperity of the masses of the British people.

HH345 Colonial America (3-0-3). The origins of American civilization from the Age of Discovery to 1776. Emphasis is placed upon the founding of the colonies and their institutional development.

HH346 Revolutionary America and the Early Republic (3-0-3). Traces the revolutionary movement and the subsequent development of the new nation, emphasizing the coming of the revolution, the institutionalization of the revolutionary ideal, and the dual development of nationalism and sectionalism.

HH347 Civil War and the Emergence of Modern America (3-0-3). An examination of the political, economic, and social developments from the beginning of the Civil War to World War I, including the wounding of the nation in a civil war and the reunification that made the United States a great power.

HH348 Recent American History (3-0-3). An examination of the political, social, and economic developments from the progressive era to the Cold War, including World War I, the era of normalcy, the New Deal, and World War II and its aftermath.

HH353 American Social History (3-0-3). An examination of American life and culture and the forces that have shaped them, emphasizing mass media, popular entertainment, religious movements, and technological advances.

HH354 American Diplomatic History (3-0-3). An examination of American foreign relations from the War for Independence through the Cold War. Particular attention is paid to the policies of presidents and secretaries of state, and to the combination of forces that affected their conduct of the nation's foreign relations.

HH357 History of Ethnic America (3-0-3). A survey of the experiences of various ethnic groups in the United States from colonial times to the present -- their arrival and adaptation to America and opposition to them in the form of both nativism and racism. Offered in alternate years.

HH358 American Constitutional and Legal History (3-0-3). An examination of the American constitutional and legal systems from their pre-colonial background to the present. The course emphasizes the legal system as a product of American society during the particular era under consideration.

HH359 U.S. Sectional History: The West (3-0-3). Deals with the opening of the trans-Mississippi frontier. Topics emphasized include land policy, railroads, Indian wars, and water policy.

HH360 U.S. Sectional History: The South (3-0-3). Tracks the development of distinctive regional subcultures within the American experience and focuses on unique regional contributions to the nation.

HH361 Modern History of China and Japan (3-0-3). An analysis of contemporary Asian problems which considers their cultural and institutional origins, their 19th century development under the impact of western influence, and their culmination in contemporary Asian nationalism.

HH362 History of the Middle East (3-0-3). A long-range historical approach to the Middle East's role in world affairs and the development of its cultural, political, and military institutions. Emphasis is placed on strategic and diplomatic considerations.

HH363 History of Latin America (3-0-3). The impact of Europe in the colonial period, the independence struggle, the rise of national states, and the interplay of world forces upon the shaping of 20th century Latin American life.

HH364 History of Africa (3-0-3). A survey of social, cultural, and political developments on the African continent from the era before European colonization to the present.

HH365 History of South Asia (3-0-3). A survey of the history of modern India and her adjacent areas, such as Pakistan, Burma, and southeast Asia. Concentrates on developments in this locale from the 19th century to the present.

HH373 War in the Western World: The Martial Heritage to 1648 (3-0-3). Examines the development of tactics, strategy, and military organizations from the Greek hoplite armies through the Thirty Years War. Places these developments in their social and economic context.

HH374 War in the Western World: The Rise of Modern Warfare, 1648-1945 (3-0-3). Examines the dimensions of warfare since the Thirty Years War and civil-military relations in a broad social context.

HH375 Recent Military and Naval History (3-0-3). Surveys recent military from 1945 to present. Conflicts dealt with include the Chinese Civil War, the Korean War, Vietnam, and the Battle of the Falklands.

HH377 Art, Ideas and Society Since 1750 (3-0-3). Explores the transformation of culture in the modern world. Examines how artists and intellectuals reacted to the long-range impacts of the democratic and industrial revolutions. Emphasis is placed on development of the fine arts in relation to pivotal ideas from 1750 to present. *Prereq: HH206.*

HH380 History of Science and Technology (3-0-3). A cross-cultural survey of the history of scientific discoveries and their practical applications, from the early natural philosophers to the present, with emphasis on the scientific revolution of the 17th century, the Industrial Revolution, and the information explosion of the 20th century.

HH382 Biography in History (3-0-3). Deals with historically significant men or women through the medium of biography. Typical sections might cover great naval leaders, women in antiquity, or 19th century engineers.

HH470 History of Military Thought (3-0-3). A study of warfare and military institutions through the views of the military leaders most influential in formulating and changing them, from ancient times to present. *Prereq: HH373, HH374, HH375, or permission of instructor.*

HH507 Honors Colloquium (3-2-4). This course focuses on a particular event or problem in history and then on the interpretive debates surrounding it. The student scrutinizes primary and secondary texts critically and discerns the role of ideologies in the formation of historical interpretations. The student learns to discriminate between conflicting interpretations and to judge the merits of historical analysis. *Prereq: Admission to the honors program in history.*

HH509 Honors Research Seminar (3-2-4). Under the guidance of a faculty advisor, students prepare a major research paper on a historical topic of their choice. Each student makes an oral presentation of the finished paper before the Honors Committee, honors students, and faculty members. *Prereq: HH507.*

HH510 Honors Philosophy of History (3-2-4). This course examines the nature of historical awareness and thus serves as a capstone course for the undergraduate, honors program. It examines the subjective qualities of historical research and considers the ways in which individual historians handle their own biases and those of the age in which they lived. *Prereq: HH507, HH509.*

HH520, HH521 Enhanced Honors (1-0-1). An enhanced elective is an independent, guided study undertaken by honors students in conjunction with a history elective they are taking. In this way the student receives both the experience of the regular history major program and the enrichment that is a part of the honors program. Each honors student takes two such enhanced electives. *Prereq: Permission of instructor.*

Philosophy Courses

HP230 Introduction to Philosophy and Logic (3-0-3). A survey of western secular philosophy based on readings in representative philosophers; the basic problems of philosophical inquiry and a variety of solutions to them; principles of logic.

HP232 Ethics (3-0-3). A critical examination of systems of values and standards, with a discussion of current moral issues.

HP336 Philosophy of Religion (3-0-3). A philosophical analysis of the central concepts and problems of the Judeo-Christian tradition. The nature of religion, faith, God, evil and immortality examined from Plato through the death-of-God theologians. *Prereq: 1/C or 2/C only, or permission of instructor.*

HP340 Philosophy of Science (3-0-3). An examination of the impact of science on 20th century society, the values assumed by science and the nature of scientific discovery and experimentation. *Prereq: 1/C or 2/C or permission of instructor.*

Division of U.S. and International Studies

Department of Language Studies
Department of Economics
Department of Political Science

Department of Language Studies

The department offers courses at all levels in Chinese, French, German, Russian, and Spanish. Midshipmen majoring in economics, English, history, or political science must complete or validate a total of four semesters of a given language and may continue with one or two advanced language courses. In other majors, midshipmen who validate a year or more of a language may take language courses at the 200, 300 or 400 levels in that language as humanities or social science electives. All midshipmen may take language courses at the 100 level as free electives. The department also offers minors in French, German, Spanish, Russian, and Chinese. In French, German, and Spanish, the minor consists of twelve credit hours at the 300/400 level taken or validated at the Naval Academy. In Russian and Chinese, students may count the 200 level towards the minor.

Among the special features of foreign language study at the Naval Academy are state-of-the-art interactive computer-video and audio laboratories for intensive practice with native-speed speech in the target language and outstanding satellite reception facilities for viewing television programs from Latin America, Europe and the Soviet Union. There are also extraordinary opportunities for summer overseas language study under the auspices of the Captain Marshall H. Cox Fund.

French Courses

FF101 & FF102 Basic French I & II (3-0-3, 3-0-3). Emphasizes the spoken language.

FF201 & FF202 Intermediate French I & II (3-0-3, 3-0-3). Continues development of oral, reading, and writing skills. Includes area and cultural topics. *Prereq: FF102.*

FF301 & FF302 Advanced French with Civilization Readings I & II (3-0-3, 3-0-3). Develops fluency in conversation and facility in reading and writing. Topics emphasize main aspects of French civilization. *Prereq: FF202.*

FF411 Development of French Civilization (3-0-3). From the origins to World War II. *Prereq: FF302 or approval of department chairman.*

FF412 Modern France (3-0-3). Contemporary French society, institutions, and national policies. *Prereq: FF302 or approval of department chairman.*

FF421 & FF422 Representative Readings in French Literature I & II (3-0-3, 3-0-3). Analysis and discussion of works of leading writers of various periods. *Prereq: FF302 or approval of department chairman.*

German Courses

FG101 & FG102 Basic German I & II (3-0-3, 3-0-3). Emphasizes the spoken language.

FG201 & FG202 Intermediate German I & II (3-0-3, 3-0-3). Continues development of oral, reading, and writing skills. Includes area and cultural topics. *Prereq: FG102.*

FG310 Introduction to Contemporary West Germany (3-0-3). An introduction to the geography and political, economic, and social systems of the Federal Republic of Germany, in German. Stresses development of advanced German language skills. *Prereq: FG202.*

FG320 Introduction to German Literature (3-0-3). In German. Stresses development of advanced German language skills. *Prereq: FG202.*

FG411 Development of German Civilization. (3-0-3). Contemporary German society, institutions, and national policies. *Prereq: FG310 or approval of department chairman.*

FG421 & FG422 Representative Readings in German Literature I & II (3-0-3, 3-0-3). Analysis and discussion of works of leading writers of various periods. *Prereq: FG320 or approval of department chairman.*

Chinese Courses

FC101 & FC102 Basic Chinese I & II (3-0-3), 3-0-3). Emphasizes the spoken language. Provides introduction to writing system.

FC201 & FC202 Intermediate Chinese I & II (3-0-3, 3-0-3). Continues development of oral skills. Includes exercises in character recognition and reading of graded cultural texts. *Prereq: FC102.*

FC301 & FC302 Advanced Chinese I & II (3-0-3, 3-0-3). Further development of audio-linqual skills and competence in reading. Emphasis on Chinese cultural patterns. *Prereq: FC202.*

FC401 & FC402 Reading and Discussion in Modern Chinese I & II (3-0-3, 3-0-3). Selected texts on major aspects of Chinese areas, civilization, and culture. *Prereq: FC302.*

Spanish Courses

FS101 & FS102 Basic Spanish I & II (3-0-3, 3-0-3). Emphasizes the spoken language.

FS201 and FS202 Intermediate Spanish I & II (3-0-3, 3-0-3). Continues development of oral, reading, and writing skills. Includes area and cultural topics. *Prereq: FS102.*

FS301 Advanced Spanish with Civilization Readings (3-0-3). Develops fluency in conversation and facility in reading and writing. Topics emphasize main aspects of Hispanic civilization. *Prereq: FS202.*

FS304 Advanced Conversational Spanish (3-0-3). Develops fluency through discussions based largely on literary selections and articles on life in Hispanic countries. Program includes naval dialogues and terminology. *Prereq: FS202.*

FS412 Contemporary Latin American Civilization (3-0-3). Current social, economic, cultural, and political patterns and problems. *Prereq: FS304 or approval of department chairman.*

FS413 Spanish Civilization (3-0-3). Cultural history, contemporary institutions and society. *Prereq: FS304 or approval of department chairman.*

FS421 Spanish Literature (3-0-3). Representative works such as "The Cid" and "Don Quixote" reflecting the culture and civilization of Spain and its major literary periods. *Prereq: FS304 or approval of department chairman.*

FS422 Spanish American Literature (3-0-3). Novels, stories, essays, poetry, and plays reflecting the characteristics and civilizations of major Spanish American countries from modernism to the present. *Prereq: FS304 or approval of department chairman.*

Russian Courses

FR101 & FR102 Basic Russian I & II (3-0-3, 3-0-3). Emphasizes the spoken language.

FR201 & FR202 Intermediate Russian I & II (3-0-3, 3-0-3). Continues development of oral, reading, and writing skills with the emphasis on spoken Russian. Includes area and cultural topics. *Prereq: FR102.*

FR330 Writings from Twentieth Century Russia (3-0-3). Further development of communicative skills in Russian. Emphasizes listening, speaking and reading. Knowledge of contemporary Soviety society and culture. *Prereq: FR202.*

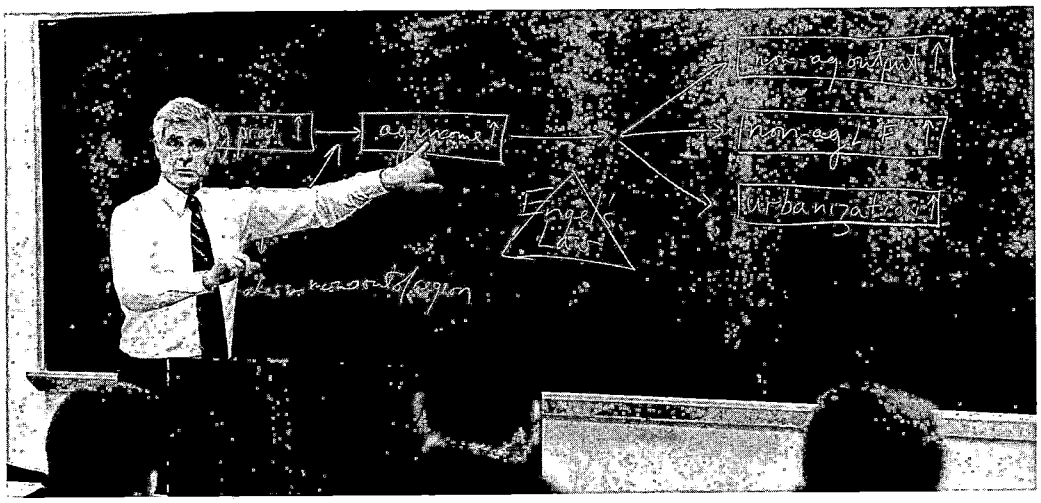
FR340 Writings from Post-Stalin Russia (3-0-3). Continues emphasis on spoken Russian. Discussions of Soviet civilization and culture, including naval and military topics. *Prereq: FR202.*

FR411 Development of Russian Civilization (3-0-3). From the 10th century to World War II. *Prereq: FR340 or approval of department chairman.*

FR412 Modern Russia (3-0-3). The Soviet Union since World War II; social, cultural, economic patterns; technology, armed forces; national policies. *Prereq: FR340 or approval of department chairman.*

English Course

FX101 & FX102 English for Non-Native Speakers I & II (3-0-3, 3-0-3). Alternative to common plebe year courses HE111 & HE112. *Prereq: approval of department chairman.*



Department of Economics

Economics Major

The major in economics is designed to acquaint prospective naval officers with both macro- and micro-economic theory, quantitative methods in economics, economic problem-solving in an institutional context, and international economic relations of the United States. A bachelor of science degree is awarded. An honors program with a designated honors degree is available for selected students.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300, ES300, EE311&312, ES400, NL300*, NL400;
Mathematics: SM201 or SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and three elective courses;
Language: Four semesters of a modern language;
Major: FE210, FP210 or FP230 or FP438, FE312, FE331, FE341, FE486, and five elective courses in economics with at least two at the 400-level.
Restricted elective: one.

*Taken during second-class summer

Economics Courses

FE210 Basic Economics (3-0-3). An introductory course in elementary economic theory and its application to contemporary problems. Topics include income determination, monetary policy and institutions, public finance, price theory, and international trade.

FE220 Accounting (3-0-3). An introductory course in the basic principles of accounting. Cannot be taken for HUM/SS credit.

FE301 Financial Analysis (3-0-3). A study of the theory and techniques of financial analysis applied in the federal government and industry. *Prereq: FE210 and FE220.*

FE310 Economic Geography (3-0-3). Provides a systematic understanding of economic growth and the issue of finite limits to improved living standards around the world. Studies population growth, the resources of the principal nations of the world, industry location, international trade, commodity cartels, and the requirements for continued technological advances. *Prereq: FE210.*

FE311 History of Economic Thought (3-0-3). Traces the evolution of economic doctrine from the ancients to modern day with emphasis on the period since the 18th century. Reviews the contributions to economic knowledge by Smith, Malthus, Ricardo, Marx, Mill, Marshall, Keynes, and others. Various schools of thought,

including mercantilism, classical, neo-classical, historical, institutionalism, and Keynesianism are examined. *Prereq: FE210.*

FE312 Macroeconomics (3-0-3). The significance and determinants of the aggregate levels of income and employment, the price level, consumption, interest rates, investment, alternative monetary and fiscal policies. *Prereq: FE210.*

FE315 Economics of Developing Nations (3-0-3). Study of the economic characteristics, problems, and policies of developing nations, covering economic growth patterns in Third World nations, their changing role in the international economic order, and the different economic routes being employed toward economic progress. *Prereq: FE210.*

FE320 Cost Accounting (3-0-3). A study of concepts and techniques of cost accounting. Primarily concerned with the derivation of produce cost arising from materials, labor, services employed, and overhead. Cannot be taken for HUM/SS credit. *Prereq: FE220.*

FE321 Comparative Economic Systems (3-0-3). An introduction to the study of alternate forms of economic organization, with emphasis on comparing the ideological basis, structure, and performance of capitalist, socialist, and mixed economic systems. *Prereq: FE210.*

FE331 Economic Statistics (2-2-3). Survey of descriptive and inferential statistical techniques involving more than one variable. Strong emphasis on regression analysis and use of computers. *Prereq: FE210.*

FE335 Economics of National Defense (3-0-3). The application of economic analysis to defense decision-making, and the consequences of defense decisions for weapons; volunteers vs. conscription; leaders vs. resource managers; Soviet vs. U.S. spending; competive vs. monopoly contractors; pay vs. non-pay factors in reenlistment. *Prereq: FE210.*

FE341 Microeconomics (3-0-3). Theories of the economic behavior of consumers and producers, the determination of final good and factor prices, market structures, and general economic equilibrium. The application of price theory to business problems and public-policy issues. *Prereq: FE210.*

FE345 Environmental Economics (3-0-3). Economic evaluation of policies involving conflicting public and private uses of natural resources. Topics include environmental benefit and cost measurement, causes and consequences of pollution, management of depletable and renewable resources, and the economics of energy. Not offered every year. *Prereq: FE210.*

FE354 Development of the U.S. Economy (3-0-3). Economic theory is used to analyze the evolution of the U.S. economy; among topics considered are the American Revolution, westward expansion, slavery, industrialization, market concentration and the Great Depression. *Prereq: FE210.*

FE361 Urban Economics (3-0-3). Study of economic growth and structure and economic problems of cities, with attention to poverty, transportation, housing and racial discrimination. Not offered every year. *Prereq: FE210.*

FE362 The Economics of Technology (3-0-3). An analysis of productivity growth, characteristics of invention and innovation, determinants of research and development activities of government and business; the economic impact of automation, and reindustrialization. *Prereq: FE210.*

FE400 Advanced Microeconomic Theory (3-2-4). Advanced topics in modern microeconomics with particular emphasis on dynamic analysis, the role of risk and uncertainty in economic decision making, general equilibrium analysis, and welfare economics. *Prereq: FE331, FE341 and FE412 or FE422 or FE431 or FE434 or FE460.*

FE401 Quantitative Economic Techniques (3-0-3). Quantitative approach to theoretical and applied economic problems. Methods taught include order quantity models, linear programming, network models, microeconomic resource allocations, macroeconomic models, life cycle cost problems, and cost-benefit analysis. *Prereq: FE341.*

FE405 Advanced Macroeconomic Theory (3-2-4). Advanced topics in modern macroeconomics, including supply-side,

post Keynesian and atheoretical macroeconomics, and expectation formation. Introduction to macrodynamics, business cycle and growth models. Emphasis on empirical macromodels. *Prereq: FE312, FE331, FE341 and FE412 or FE422 or FE431 or FE434 or FE460.*

FE412 International Trade and Finance (3-0-3). Study of international economic relations, especially trade and protectionism, multinational enterprise, the world monetary system, and regional integration. Primary emphasis on relations between the developed nations of North America, Europe, and the Pacific Basin. Case studies of current issues cover OPEC, commodity cartels, and relations with socialist nations. *Prereq: FE312 or FE341.*

FE422 Economics of Labor Relations (3-0-3). A study of the distribution of income with emphasis on the demand for and supply of labor services; the choice-theoretic behavior of firms and individuals in the determination of wages and the employment level. Topics analyzed include human capital theory, occupational choice, the unemployment-inflation relationship, and the wage effects of discrimination and unions. Union history, labor laws, and institutions are discussed. *Prereq: FE341.*

FE431 Public Finance (3-0-3). The use, in a market economy, of government expenditures and taxation to change the allocation of resources and to modify the distribution of income. Examination of the economic effect of government budgetary policy. Microeconomic theory and Federal tax and budgetary institutions are emphasized. *Prereq: FE341.*

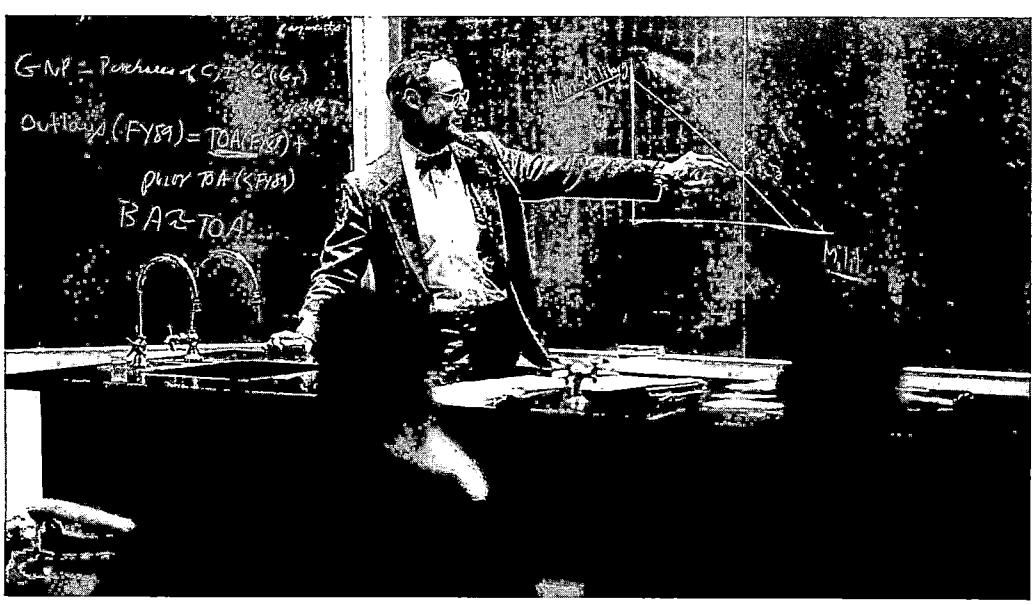
FE434 Money and Banking (3-0-3). A consideration of central and commercial banking institutions; an investigation of the demand for money and its role as a focal point for monetary policies designed to obtain full employment, price stability, and international monetary equilibrium. *Prereq: FE312.*

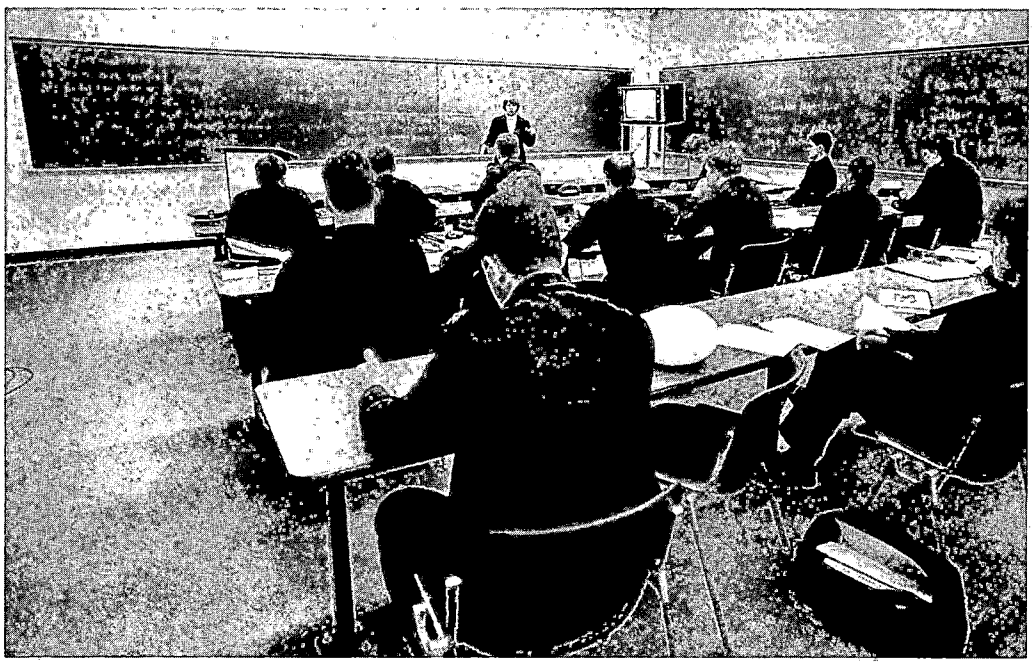
FE445 Econometrics (3-0-3). Quantification of basic economic theory; multiple regression, correlation, and identification techniques for the construction and testing of economic models, and a study of selected alternative models of particular economic interest. *Prereq: FE331, FE341 and Calculus I & II.*

FE460 Public Policies Toward Business (3-0-3). An examination of public regulation of private enterprise in the U.S. with emphasis on the rationale for and application of antitrust policy and direct regulation. *Prereq: FE341.*

FE500 Honors Research Seminar I (2-0-2). Examination of techniques and methodology of social science research; students will choose topics for development in FE506. *Prereq: 1/C honors economics major.*

FE506 Honors Research Seminar II (3-2-4). Directed independent research on topics chosen in FE500. Emphasis on empirical work using microcomputers. *Prereq: 1/C honors economics major.*





Department of Political Science

Political Science Major

The political science major is designed to provide prospective naval officers with an understanding of the structure and functions of domestic and international political systems and with a framework for the analysis of politics. The wide-ranging, interdisciplinary program develops political science skills sequentially by first requiring foundation courses in United States government, emphasizing familiarity with the Constitution each midshipman has sworn to defend. Introductory courses in international relations are also required.

Upper-level courses offer the opportunity to explore law, political theory, policy analysis and area studies of Europe, the Soviet Union, Latin America and Asia. The major is enhanced with courses in economics and foreign languages. There are summer internship programs in Washington and overseas and the possibility of graduate work in intelligence or national security affairs.

Each spring the political science department and the Division of U.S. and International Studies sponsor the Naval Academy Foreign Affairs Conference (NAFAC), which is run by midshipmen. NAFAC has become one of the foremost undergraduate conferences in the country, drawing professors and students from more than 140 colleges and universities in the U.S. and abroad, in addition to senior diplomats, military leaders, journalists and leading representatives from various other fields.

A bachelor of science degree is awarded. An honors program with a designated honors degree is available for selected students.

Curriculum Requirements (In addition to the requirements of plebe year)
Professional: NN203, EN200, NS252, NS300*, NL303, NN302, EN300,
Mathematics: SM201 or SM211, SM212;
Science: SP211, SP212;
Humanities/Social Sciences: HE300*, HH206, and three elective courses;
Language: Four semesters of a modern language;
Major: FP210, FP220, FP230, FE210, and six approved political science courses plus one approved history or economics course.

*Taken during second-class summer

Political Science Courses

FP210 Introduction to International Relations (3-0-3). Introduction to the various approaches to international relations; the nature of the international political system; foreign policy analysis; the principles, theories, machineries, and major problems of international relations.

FP220 Political Science Methods (3-0-3). A discussion of the philosophy of science for the political scientist; instruction in research methods with emphasis on quantitative techniques.

FP230 United States Government and Constitutional Development (3-0-3). Areas of study include the basic concepts of American democracy, the Constitution and its development, the political process, and the structure and functions of the national government and the factors which influence its operation.

FP311 Public Policy and Administration (3-0-3). An analysis of the formulation and administration of public policy in the United States. Examines political issues and policy alternatives relating to budget, defense, health care, energy, education, regulatory, and other governmental problems. *Prereq: FP230.*

FP312 Communism: Theory and Practice (3-0-3). Provides an understanding of the philosophical, historical and political evolution of communist ideology; its relevance to American interests; and its application and currency in today's world.

FP313 Science Technology and International Relations (3-0-3). The effects of science and technology on both the national and international political systems. The role of the scientist; development and research in national and world decision-making. Special emphasis is given to nuclear non-proliferation, space cooperation and environmental control. *Prereq: FP210.*

FP314 Formulation of U.S. Foreign Policy (3-0-3). The formulation and execution of the various American foreign policies to include: constitutional roles, the decision-making structure, military input to policy-making, the administration of foreign policy; agencies, procedures and practices. Substantive policy is analyzed in light of decision-theory, ends-means and capability analysis. *Prereq: FP210 or FP230.*

FP322 Comparative European Politics (3-0-3). Using a contemporary and comparative approach, this course focuses on the structures and functions of the political systems of some of the principal European nations. *Prereq: FP210.*

FP323 Comparative Latin American Politics (3-0-3). An analytical treatment of the structure and dynamics of independent Latin American political systems, individually and in comparison; parties, interest groups, the military, the church, revolution, foreign policy, and political thought. *Prereq: FP210.*

FP324 Latin American International Politics (3-0-3). The inter-American system; patterns of inter-Latin American and extrahemispheric relations; the Latin American policy of the United States *Prereq: FP210.*

FP325 American Political Theory (3-0-3). A detailed analysis of the currents of American political theory from the 18th century to the present. Traditional concepts are critically analyzed in world perspective. *Prereq: FP230.*

FP326 The American Presidency (3-0-3). The growth and evolution of the Office of the President; executive agencies, their function, control, and problems. Special attention is given to the president's role as commander-in-chief, and his relations with the legislative and judicial branches. *Prereq: FP230.*

FP328 The Legislative Process (3-0-3). A comparative examination of the legislative process at all levels of American government with special emphasis on congressional-military relations. *Prereq: FP230.*

FP341 Political Behavior (3-0-3). An analytical treatment of political behavior from psychological, sociological, and cultural perspectives. Focuses on the formation of attitudes through socialization and personality development.

FP355 Civil-Military Relations (3-0-3). An interdisciplinary approach to the complex nature of civil-military affairs. *Prereq: FP230.*

FP357 Chinese Politics (3-0-3). An examination of Chinese political and military systems from 1927 to the present. Emphasis is placed on economic, political, and foreign policies of the Chinese communist regime. *Prereq: FP210.*

FP358 Ideology, Religion and Terrorism (3-0-3). Analytical approach to the mechanics and theory of religious ideology, mass movements, and terrorism. Emphasis is placed on the investigation of current and evolving methods necessary to counter threats to democratic governments. *Prereq: FP210 or FP230.*

FP364 Vietnam: Perspectives on The Conflict (3-0-3). A study of the strategic, tactical and political decision making aspects of the Vietnam War. Special emphasis is placed on strategic and tactical issues. *Prereq: FP210 or FP230.*

FP365 African Politics (3-0-3). An introduction to the political trends and constitutional developments of present day African governments; their relations with one another and the rest of the world. Attention is directed to the U.S. security aspects of African national growth.

FP367 Soviet Politics (3-0-3). The development of the Soviet system of government. Leninism and Stalinism, structure and functions of the central government, Council of Ministers, the Supreme Soviet, Presidium, Central Committee and Defense Ministry.

FP368 Comparative Asian Politics (3-0-3). A systematic comparative approach to the study of Asian governments, their political, economic and military development, regional relationships and problems. *Prereq: FP210.*

FP369 Middle Eastern Politics (3-0-3). A comparative analysis of politics and institutions, including foreign policy of Middle Eastern nations. The conflict of nations within this system and the world-wide effects are emphasized. *Prereq: FP210.*

FP370 Soviet Foreign Policy (3-0-3). Analysis of the geopolitical, ideological, institutional, cultural and economic factors affecting the formulation and conduct of Soviet foreign policy in relation to the United States, Europe, China and the Third World. *Prereq: FP210.*

FP371 Asian International Politics (3-0-3). An examination of the Asian nations' political relationships with each other and the rest of the world, with special emphasis on U.S.-Asian relations. *Prereq: FP 210.*

FP372 Political Parties and Pressure Groups (3-0-3). A study of the dynamics of group politics in the American system of government. Emphasizes the roles played by parties, interest groups, public opinion and elections in the American political process. *Prereq: FP230.*

FP394 Political Theory (3-0-3). A study of political philosophy, with emphasis on the roots of democracy; the works of the major writers from Plato to the present.

FP397 Criminal Law and Justice (3-0-3). The nature of the criminal justice system and criminal law are analyzed with emphasis on leading Supreme Court decisions and the system's key actors and institutions -- police, the accused, defense and prosecution attorneys, judges and juries, incarceration and parole. *Prereq: FP230.*

FP407 Intelligence and National Security (3-0-3). Examines the nature, significance, and development of intelligence including collection, counterintelligence, clandestine and covert action, and evaluation. Contemporary issues facing the intelligence community and case studies are included. *Prereq: FP210, FP230, 2/C standing and U.S. citizenship.*

FP408 International Law (3-0-3). A survey of the public law of nations, including the law of peace, the law of war, and law of the sea. Problems and case studies are used extensively. *Prereq: FP210 and FP230.*

FP413 Constitutional Law: The Federal System (3-0-3). Theories of constitutional interpretation, judicial review, separation of the powers among the branches of federal government, and allocation of power between the federal and state governments. *Prereq: FP230.*

FP414 Constitutional Law: Civil Liberties (3-0-3). Due process, equal protection, free speech, freedom of religion, rights of the criminally accused, and other guarantees of the Bill of Rights. *Prereq: FP230.*

FP421 National Security Policy (3-0-3). Stresses the interaction of domestic, foreign, and military considerations in the making and execution of national security policy. Case studies and national strategic estimates highlight the course.

FP437 International Organizations (3-0-3). A study of the expanding role of international organizations (particularly in the security field) since the end of World War II. Special attention is given to the U.S. in major regional systems, and to the U.S. role in multilateral diplomacy. *Prereq: FP210.*

FP438 Comparative Government and Politics of Developing Areas (3-0-3). Governmental and political problems, institutions, and behavior in developing areas. Political thought, impact of change, leadership, and organization in Africa, Asia and Latin America. *Prereq: FP210.*

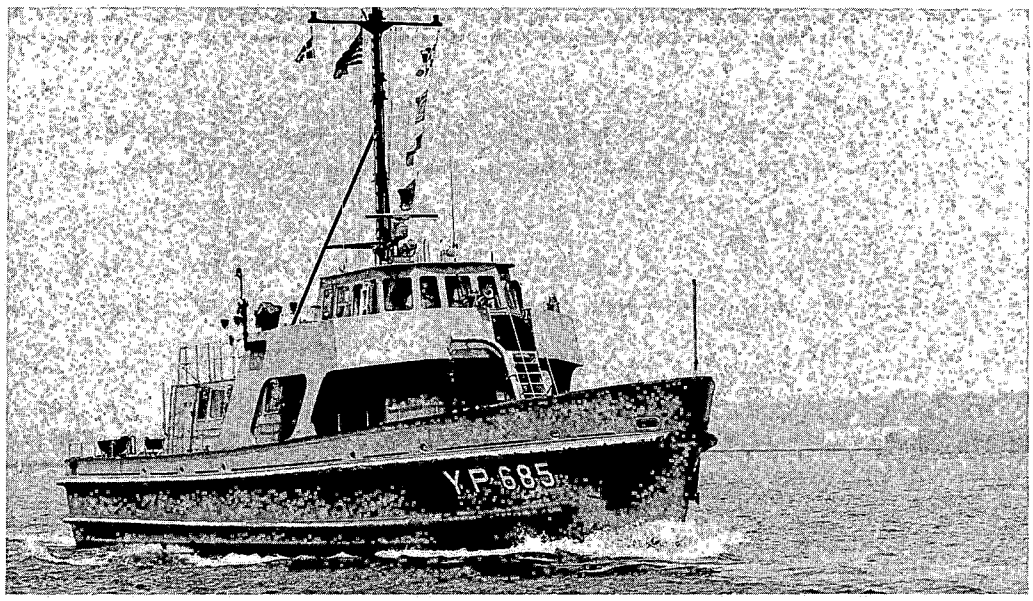
FP506 Honors Independent Research (3-2-4). Carrying out an independent research project based on a research design developed in FP220 (Political Science Research Methods). *Prereq: FP220 and acceptance into honors program.*

FP507 Honors Internship Research (3-2-4). Carrying out an independent research project inspired by the experiences of a summer internship. Students will draw on the research resources and personnel of their internship to develop a research paper on a relevant topic. Participation involves pre-and post-internship seminar. *Prereq: acceptance and participation in an approved summer internship and acceptance into the honors program.*

FP508 Honors NAFAC Research (2-2-3). Using their assigned topic as a Naval Academy Foreign Affairs Conference delegate, students carry out independent research which will be used as the basis for their discussions at NAFAC, but would also stand alone as significant research. *Prereq: acceptance as a NAFAC delegate and acceptance into the honors program.*

FP509 Honors Senior Seminar (3-2-4). An advanced research seminar introducing students to practical hints for designing and carrying out research culminating in research design which will serve as the basis for their senior theses. *Prereq: acceptance into the honors program and 1/C standing.*

FP510 Honors Senior Thesis (3-2-4). Carrying out independent research using a wide variety of data collection and analysis methods. The final paper will be presented orally and evaluated by a team of faculty members. *Prereq: acceptance into the honors program, FP509 and 1/C standing.*



Division of Professional Development

The Division of Professional Development prepares midshipmen to be professional officers in the naval service. The courses offered by its academic departments, leadership and law and seamanship and navigation, develop skills in the classroom environment including extensive laboratory time on the water in yard patrol training craft and in the academy's tactical training facilities. Through the other two professional development departments, professional programs and sail training, each midshipman moves out of the classroom to experience actual life in the Navy and in the Marine Corps -- at sea, in the air, and on the ground. In short, the primary goal of the division is to "prepare midshipmen to excel in the fleet."

Department of Leadership and Law
Department of Seamanship and Navigation
Department of Professional Programs
Department of Sailing

Department of Leadership and Law

The department of leadership and law offers a core of four required courses, two in leadership and two in law, with four electives available in leadership and psychology. All have the common objective of preparing midshipmen to lead as officers by providing a grounding in the necessary principles and practical information to develop effective, personal leadership styles. Law courses arm prospective junior officers with the practical legal information they will need in the fleet regarding discipline and military justice; psychology courses help midshipmen understand what motivates others and themselves. Leadership courses tie everything together by focusing on developing good leadership practices that will result in mission accomplishment and high morale of the unit.

Leadership and Law Courses

All midshipmen, regardless of major, must complete the following courses:

NL102 Leadership I: Fundamentals of Naval Leadership (1-2-2). An introductory course to instill in midshipmen a professional sense of purpose and personal honor. Military leadership traits and techniques which involve the communication of ideas and the action of command are explored.

NL300 The Law of Armed Conflict (1-0-1). This course endeavors to acquaint

midshipmen with the historical development, sources and purposes of the law of armed conflict; and to develop an understanding of humanitarian principles embodied in the law, the rules governing the conduct of hostilities, and the rights, obligations and responsibilities of naval personnel under international and domestic laws during time of conflict.

NL303 Leadership III: Application (3-0-3). A culminating course to reinforce the practical aspects of leadership in the naval service, utilizing the case-study process to aid midshipmen in formulating their own styles of leadership. *Prereq: NL102.*

NL400 Law for the Junior Officer (2-0-2). A survey of the major aspects of military justice and the law of war relevant to the junior naval officer. *Prereq: 1/C standing.*

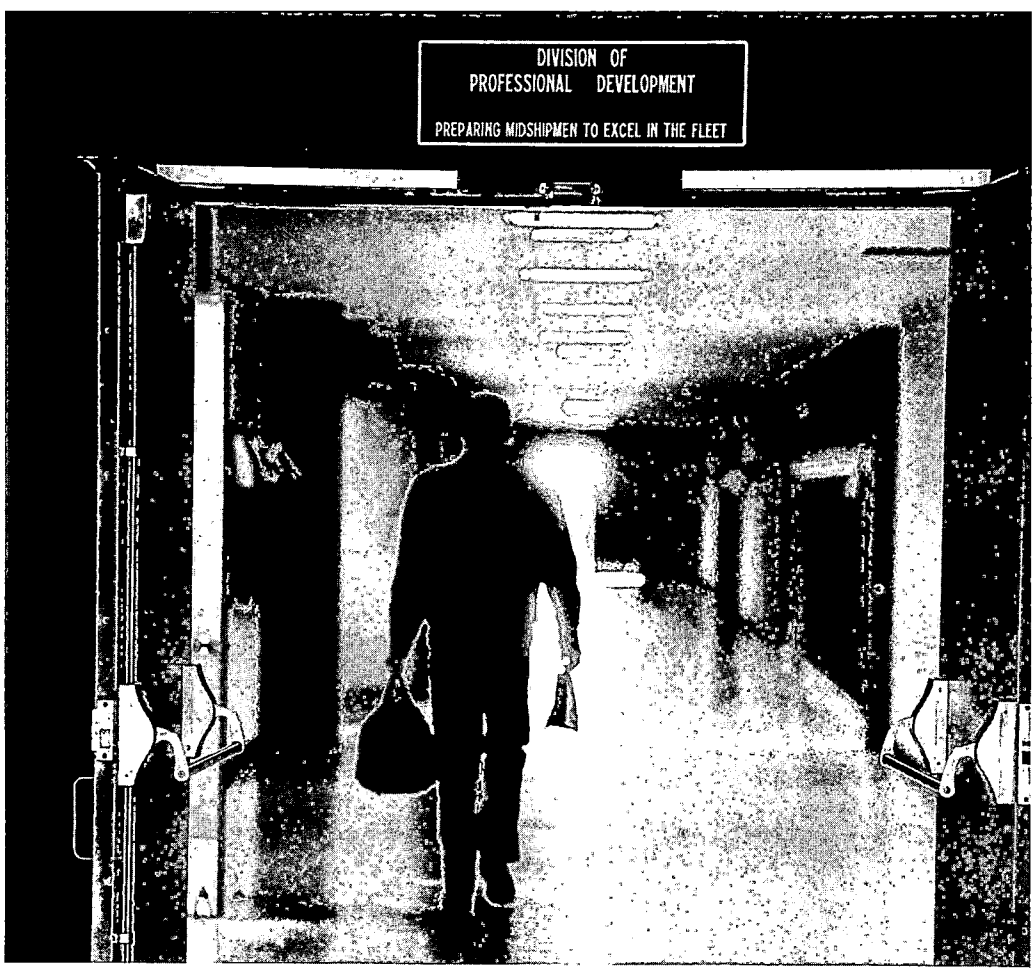
The following courses are offered as electives.

NL200 Leadership II: Human Behavior (3-0-3). This is a basic introduction to general psychology. The course presents the theories and principles of individual and group behavior, and their relationships to effective leadership in the naval service. *Prereq: NL102.*

NL211 Social Psychology (3-0-3). Examines individual and group behavior with special focus on such phenomena as terriorism, propaganda, brainwashing, group dynamics, and formal and informal power. *Prereq: NL200*

NL306 Personality Theory (3-0-3). Exploration of major personality theory to provide an understanding of individual unique behavior, especially while under stress and in positions of leadership. Each midshipman will examine his or her own personality variables, and construct a theory of personality. *Prereq: NL200 or validation of same.*

NL485 Leadership/Morals and Ethics (3-0-3). A problem solving seminar based on the theoretical constructs of previous leadership education, with a focus on issues of morals and ethics in the naval service. *Prereq: 1/C standing and permission of instructor.*



Department of Seamanship and Navigation

The department of seamanship and navigation provides introductory and advanced-level courses in seamanship and navigation to prepare officers for a broad-based naval career. The department's core curriculum spans the midshipman's first three years at the Naval Academy and is designed to teach theoretical foundations of seamanship and navigation as well as to enhance the midshipman's practical summer training. During first-class year, additional electives are available which are tailored to the individual's service selection.

Seamanship and Navigation Courses

All midshipmen, regardless of major, must complete the following courses:

NS101 Fundamentals of Naval Science (2-2-3). Introduction to the basic concepts of seamanship and shiphandling, including laboratories on yard patrol craft, minesweepers (light), an outdoor damage control trainer, and an indoor seamanship trainer. Instruction includes operational and administrative organization, communications, damage control, and basic weapons systems and rules of the road.

NN203 Navigation I (2-2-3). Terrestrial navigation, including piloting and navigation systems for surface navigation, basic meteorology. Labs include practical exercises, yard patrol craft drills afloat, and exercises in CIC trainers. *Prereq: NS101.*

NS252 Shiphandling and Tactics (1-2-2). The art and science of shiphandling, ship control, multi-ship operations, basic warfare tactics, special seamanship, and operational evolutions emphasizing the development of midshipmen as capable mariners. Includes labs on yard patrol craft and in combat information center simulators. *Prereq: NS101, 3/C cruise.*

NS301 Operations and Tactics (0-2-1). Develops the midshipman's proficiency in advanced shiphandling, tactics, and piloting during extended underway periods. Midshipmen form the nucleus of a ship's organization aboard a yard patrol craft and function in leadership and administrative roles similar to those aboard fleet units. *Prereq: NS101, NN203, NS252.*

NN302 Navigation II (2-2-3). Celestial and electronic navigation, with instruction in star identification, theory and plotting; practical exercises; labs and lectures in the Naval Academy planetarium. *Prereq: NN203.*

The following courses are offered as electives:

NN412 Air Navigation Systems and Air Traffic Control (3-0-3). An advanced study and application of air navigation, including electronic, celestial, and airways navigation methods and procedures. *Prereq: NN302.*

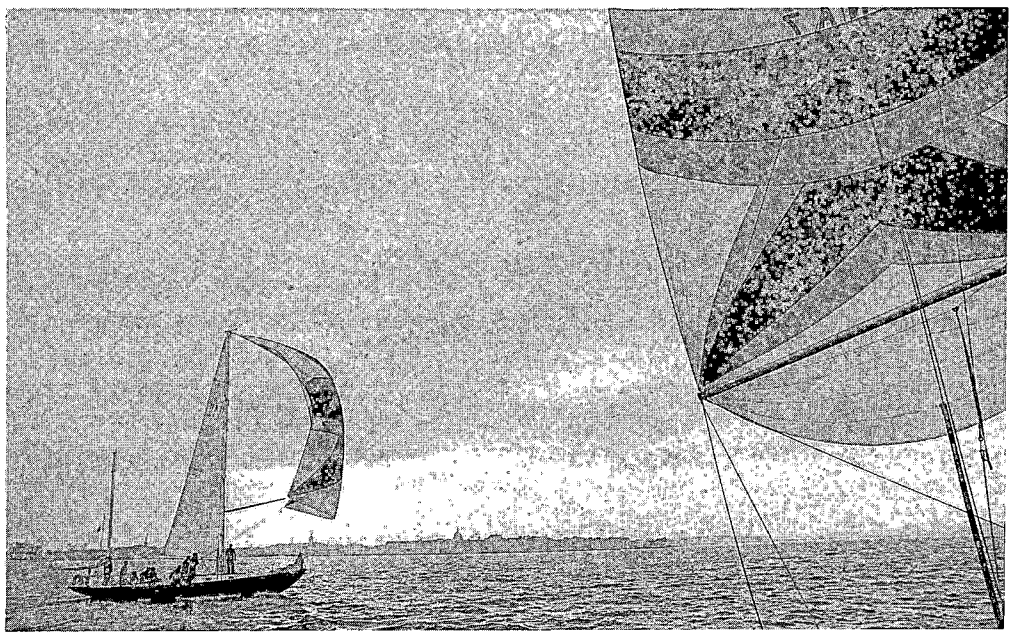
NN422 Advanced Navigation (1-2-2). The advanced study and application of surface and submarine navigation, including electronic, radar and celestial navigation, and advanced technologies. *Prereq: Grade of "A" or "B" in NN203 and NN302.*

Department of Professional Programs

The department of professional programs encompasses several key programs which insure midshipmen develop requisite professional knowledge as well as "hands-on" training while on summer cruises. An innovative summer training program affords first and third class midshipmen realistic experiences on a four week fleet cruise in addition to four weeks of elective training in numerous billets at warfare schools (jump school, survivial training, etc.) summer school, research internships, sailing and open ocean yard patrol craft cruise. They also direct such key programs as the Service Selection Information Program, U.S./Soviet Strategy and Tactics Seminar (NS302), Navy ship visits, Professional Competency Review (PCR) and Plebe Professional Indoctrination. These ensure that each midshipman develops a basic understanding of U.S. Navy/U.S. Marine Corps missions, tasks and capabilities so that he or she can make sound career decisions.

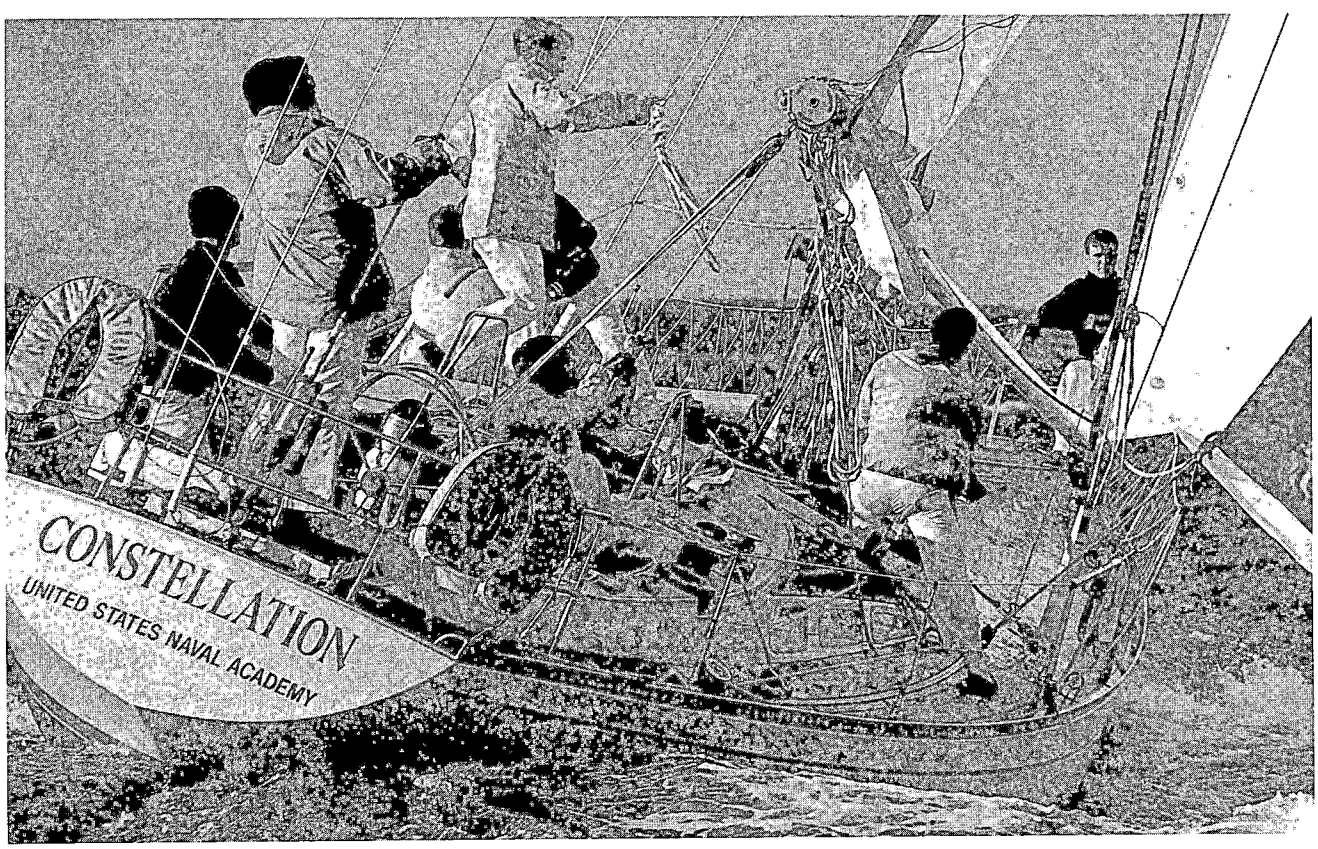
Professional Program Course

NS302 U.S./Soviet Strategy and Tactics Seminar (0-3-1). Midshipmen second class receive instructional exposure to operational information depicting Soviet and U.S. naval force tactical concepts, conducted in a seminar format. The instruction of computer wargaming, utilizing the 16H3B Naval Tactical Gaming (NAVTAG) trainer, graphically introduces the midshipmen to the weapon and platform capabilities of both the Soviet and U.S. naval forces as well as demonstrating the complexities of tactical planning. In addition, midshipmen receive exposure to the development of modern maritime strategy as it relates to the current applications of the United States global and general maritime strategic doctrines.



Department of Sailing

The department of sailing is responsible for providing all midshipmen at the Naval Academy with basic instruction in marlinspike seamanship, small boat handling and sailing. In addition, advanced training in practical meteorology, oceanography, seamanship and leadership is provided through summer elective training under sail in the Command/ Seamanship Training Squadron.



Academy-Wide Seminars, Research Projects and Interdisciplinary Courses

Academic departments may offer seminars and individual research projects to upperclassmen on the following basis:

Seminars:

XX 481 and XX 482 1-0-1
XX 485 and XX 486 3-0-3 Advanced topics

Research Projects:

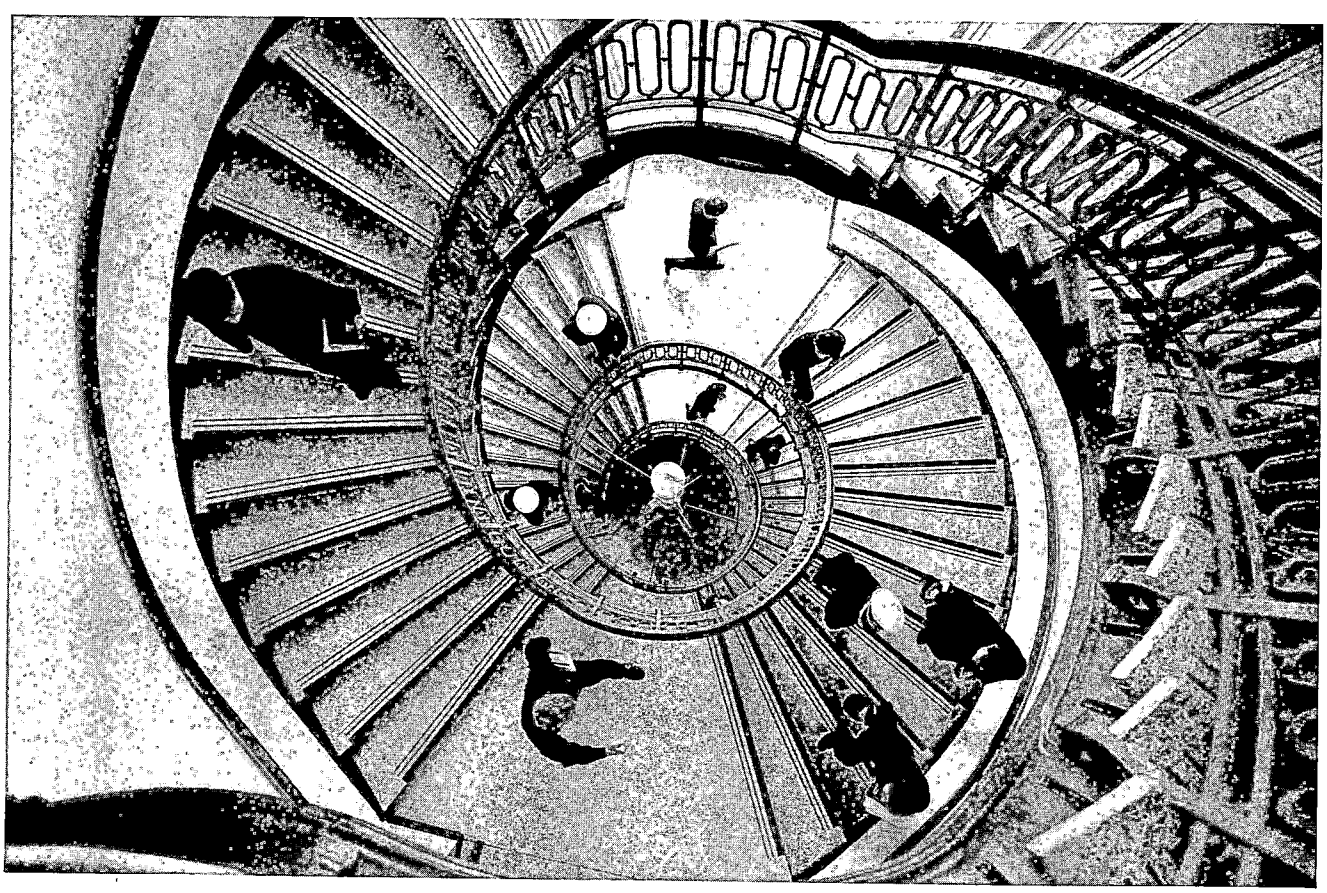
A creative project in the student's field of interest. A faculty adviser must approve and monitor each project.

Prerequisite: approval of department chairman.
XX 491 and XX 492 0-2-1
XX 493 and XX 494 0-4-2
XX 495 and XX 496 0-6-3

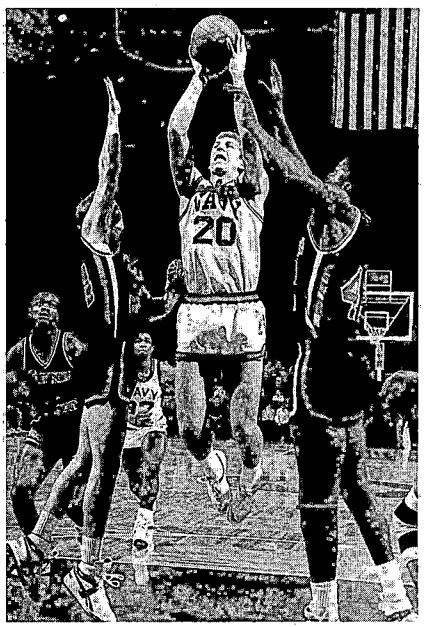
Note: XX represents the departmental designator.

Interdisciplinary Courses:

Subject areas which do not fall within any single discipline or academic department. Courses are administered by the Interdisciplinary Course Committee.



Chapter 5



Athletics

Just as the Naval Academy maintains a responsibility for the professional and intellectual development of midshipmen, so also must it fulfill its responsibility for each midshipman's physical development. This is met through an intercollegiate sports program -- with 23 men's and 10 women's varsity teams, one of the broadest in the nation -- and an equally ambitious intramural program. All midshipmen are required to participate in these programs, either at the varsity or intramural level.

Nearly all midshipmen are enthusiastic athletes, and some are truly exceptional. Names like Roger Staubach, Joe Bellino, Phil McConkey, Napoleon McCallum and David Robinson have made the sports pages around the country. Many other well-known Americans have excelled in sports at the Naval Academy. They include Admiral Stansfield Turner, a former director of the Central Intelligence Agency who played Navy football; Rear Admiral Richard Byrd, the polar explorer who captained the Navy gymnastics team, and Astronaut Alan Shepard, the first American in space and a member of the heavyweight crew.

In 1987, David Robinson won every player of the year award in collegiate basketball and national respect as a member of Navy's basketball team and

HOPKINS
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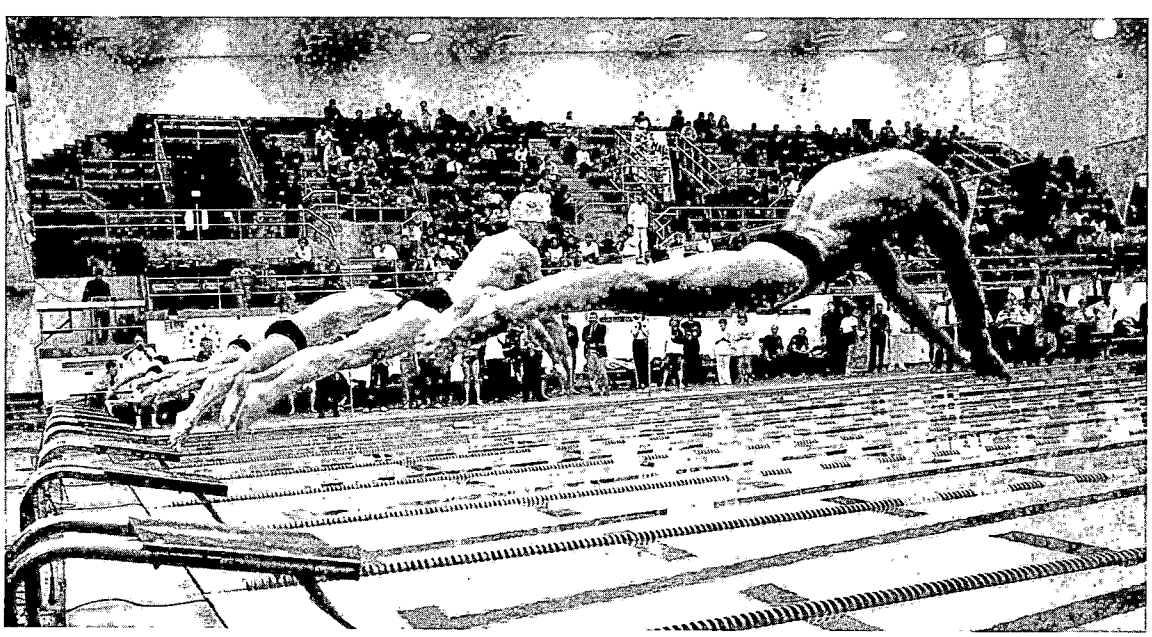


a contender in the NCAA Division I national tournament for three straight years. He was one of five Naval Academy graduates to participate in the 1988 Olympics in Seoul, Korea.

Thirty-one Navy varsity student-athletes were accorded All-America honors in 1987-88. One, Leanne K. Fielding of the women's swimming team, was awarded an NCAA postgraduate scholarship.

Over the years, Navy teams have been successful in both national and international arenas. Midshipmen football teams have participated in the Rose, Sugar, Cotton, Orange, Holiday, Garden State and Liberty Bowls, and Navy's rivalry with Army has become something of a national pastime.

Navy heavyweight crews captured the Olympic gold medal for eight-oared shells at Antwerp, Belgium, in 1920, and in Helsinki, Finland, in 1952. Navy's heavyweight crew has won the Jim Ten Eyck Trophy at the Intercollegiate Rowing Association Championships three times in this decade, and the midshipmen have been four-time winners of the Head-of-the-Charles Regatta in recent years.

In 1976, a Naval Academy graduate, Captain Lloyd Keaser, USMC, won a silver medal in Olympic wrestling. A member of the Class of 1983, Leo Williams, was a four-time All-American in indoor track and a two-time All American in track and field in the high jump.

Navy's pistol team completed its fifth straight unbeaten season in 1987-1988, winning national titles in free and air pistol. This marked the 13th

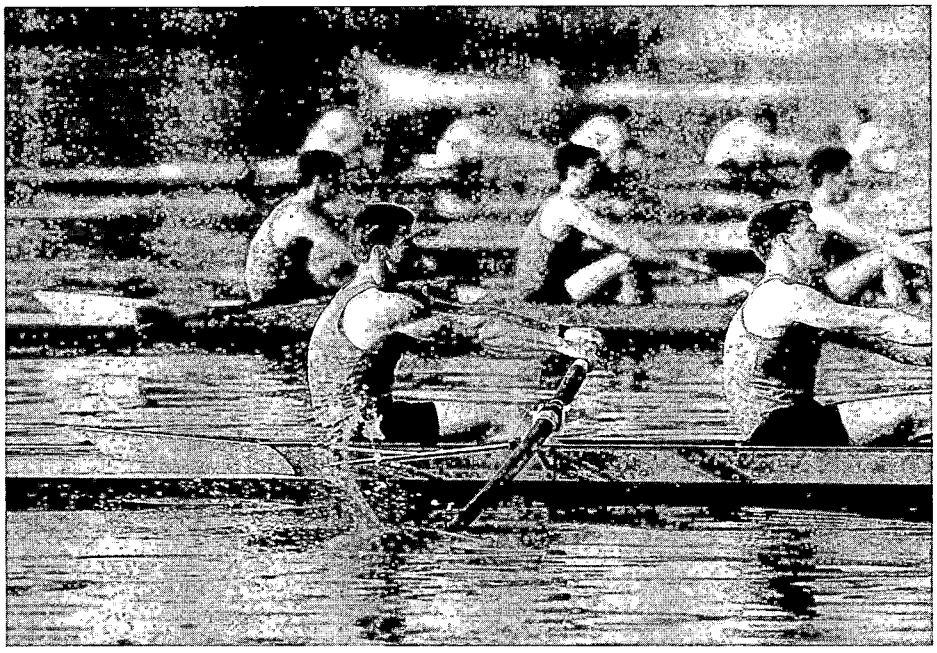
When she was ten years old, Midshipman Second Class Lisa Kirkpatrick came to the Naval Academy with her father, an All-American fencer, to attend an alumni homecoming fencing meet. Intrigued by the romance of the sport, Kirkpatrick tried out for the fencing team as a plebe. An oceanography major from Arlington, VA, Kirkpatrick has earned a varsity letter in fencing.

"In high school, I lettered in soccer and track, so freshman year here I played soccer, ran track and fenced. While fencing is a winter sport, I found out that I couldn't just pick it up and drop it again to play something else. It requires a lot of concentration and almost year-round practice.

"Fencing is 99 percent mental -- trying to fake out the competitor, seeing what moves she is making and how she is responding to your moves. A match is like playing Stratego on a fencing strip. The sport requires lots of endurance and leg strength and helps train your mind. You tell yourself to stay calm and stay cool, and you have to control your temper. It's also a good way to get rid of a lot of frustrations.

"Having goals like making the team and winning matches really helped me a lot. Best of all, though, was the support of the team. You need something besides professional training and academics, and a sport is a good way to get away from the professional arena. You also get to sit at the team table and relax a little; being part of a team helps you take the good with the bad.

"The overall athletic program at the academy is great for women because there are lots of sports and not very many women. A lot of the guys think that women just get issued varsity letters, but it's not true. We work hard for our letters -- and we have many opportunities."



time in the past 14 years that the midshipmen have earned one of the three national titles in this sport.

The Naval Academy's sailing team gives midshipmen opportunities to develop leadership and seamanship skills through competition in numerous intercollegiate and private regattas. Competition ranges from single-handed Lasers to 50-foot ocean racers with a crew of 14. The academy sponsors many of these regattas, including the McMillan Cup and the John F. Kennedy Memorial Regatta in yawls. There are dinghy regattas almost every weekend. From 1977-1983, the Naval Academy won the Fowle Trophy, emblematic of overall intercollegiate sailing supremacy in North America, an unprecedented feat in this sport. The trophy was won again in 1987.

Men's Varsity Sports

Baseball
Basketball
Crew, heavyweight
Crew, lightweight
Cross country
Fencing
Football
Golf
Gymnastics
Lacrosse
150-lb. football
Pistol
Rifle
Sailing
Soccer
Squash
Swimming
Tennis
Track, indoor
Track, outdoor
Volleyball
Water polo
Wrestling

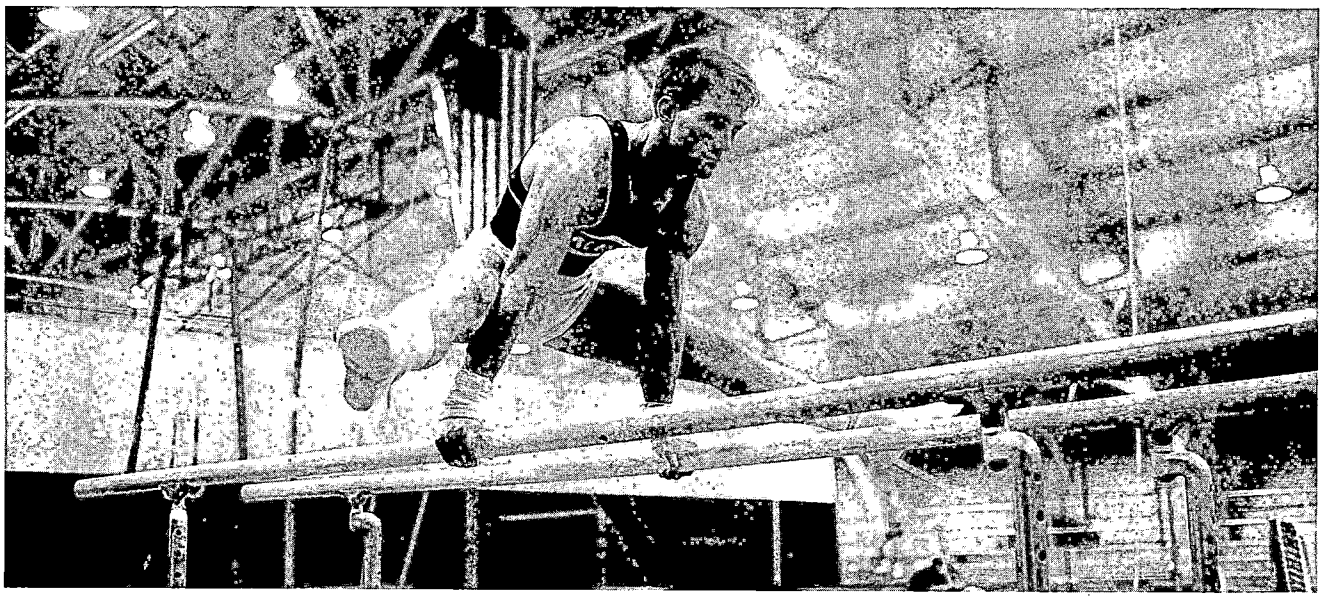
Women's Varsity Sports

Basketball
Crew
Cross country
Fencing
Gymnastics
Sailing
Swimming
Track, indoor
Track, outdoor
Volleyball

Intramural Sports Program

An equally exciting intramural sports program is organized by the Naval Academy for other midshipmen student-athletes. Competition at the intramural level is spirited and sometimes intense, generally at the junior college level in competitiveness. Women may participate in all but football, fieldball, lacrosse, boxing, rugby and wrestling. Company and battalion teams compete in a variety of sports including:

Basketball
Boxing
Crew
Cross country
Fencing
Fieldball
Football
Lacrosse
Powerlifting
Racquetball
Rugby
Sailing
Soccer
Softball (fast- and slow-pitch)
Squash
Swimming
Team handball
Tennis
Touch football
Track
Volleyball
Water polo
Wrestling



Athletic Facilities

A look around the academy gives you an idea of the importance we attach to athletics and physical conditioning. The facilities for intercollegiate and intramural sports, physical education and personal fitness are unsurpassed and not reserved for just a few athletes. All midshipmen have access to these facilities, for team sports or individual workouts:

- the 30,000-seat Navy-Marine Corps Memorial Stadium.

- Lejeune Hall, built in 1982, containing an Olympic-sized pool with seating for 1,000; a diving platform and tank; 600-seat wrestling arena and personal conditioning areas.

- a modern 400-meter synthetic-surfaced outdoor track.

- Macdonough Hall, recently renovated, with facilities for gymnastics, boxing, volleyball, fencing, swimming, water polo, racquetball, basketball and personal conditioning.

- Halsey Field House, surfaced throughout with Tartan, including a 220-yard track, basketball courts and weight-training facilities.

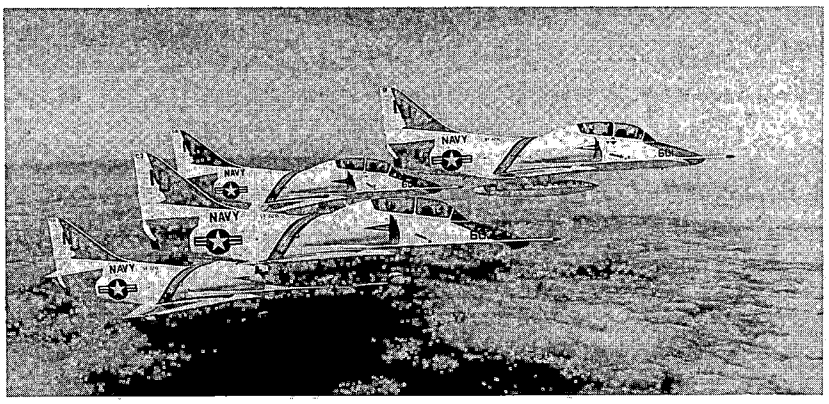
- synthetic-surfaced field for all-weather practice of football, lacrosse and soccer.

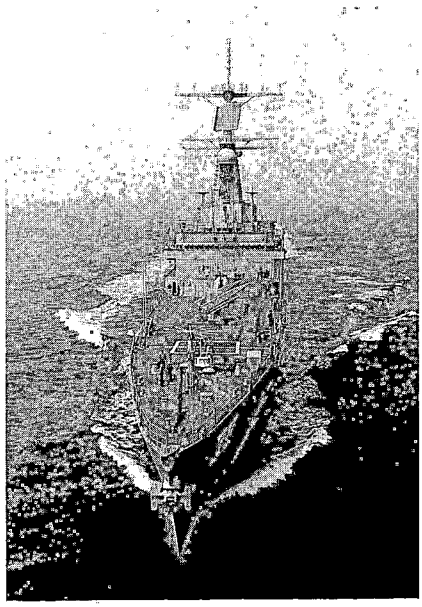
- indoor ice rink for hockey and recreational skating.

- a 5,000-seat baseball field.

- challenging 6,217-yard golf course.

The athletic program is administered by the Naval Academy Athletic Association, a non-profit organization with headquarters in Ricketts Hall at the Naval Academy. The association arranges varsity schedules and provides coaching staffs and equipment.





Career Opportunities After Graduation

Graduation from the Naval Academy brings new opportunities for leadership, learning, professional advancement, travel and excitement. From your very first assignment as an officer in the naval service, you will have more responsibility and challenge on the job than almost any civilian just out of college. Also, naval officers have key roles in implementing the nation's maritime strategy, a forward-based and multi-service strategy designed to deter aggression, support allies and protect U.S. interests overseas.

Your five-year service commitment begins at graduation, when you are commissioned as an ensign in the Navy or a second lieutenant in the Marine Corps. All physically qualified graduates are commissioned into the unrestricted line of the Navy or Marine Corps. Midshipmen who graduate but are physically ineligible to serve in the unrestricted line are commissioned in a restricted line specialty such as intelligence, supply corps or civil engineer corps.

Service Selection

The career options available to Naval Academy graduates are the broadest offered by any of the nation's service academies. You can:

•specialize in surface warfare, with assignments in ships ranging from minesweepers and hydrofoil patrol gunboats to guided missile cruisers and battleships.

•enter the submarine service, with duty in nuclear-powered attack and ballistic missile submarines.

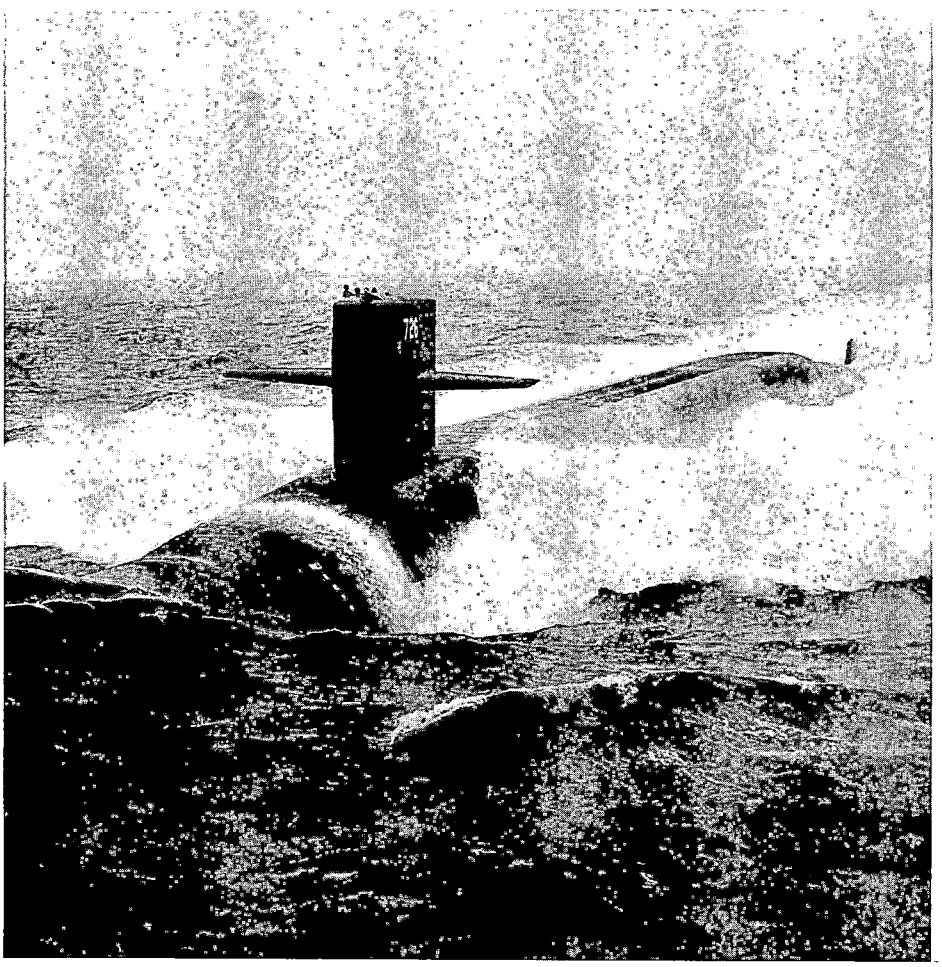
•fly a variety of aircraft from helicopters and shore-based patrol planes to supersonic, aircraft carrier-based jet fighters.

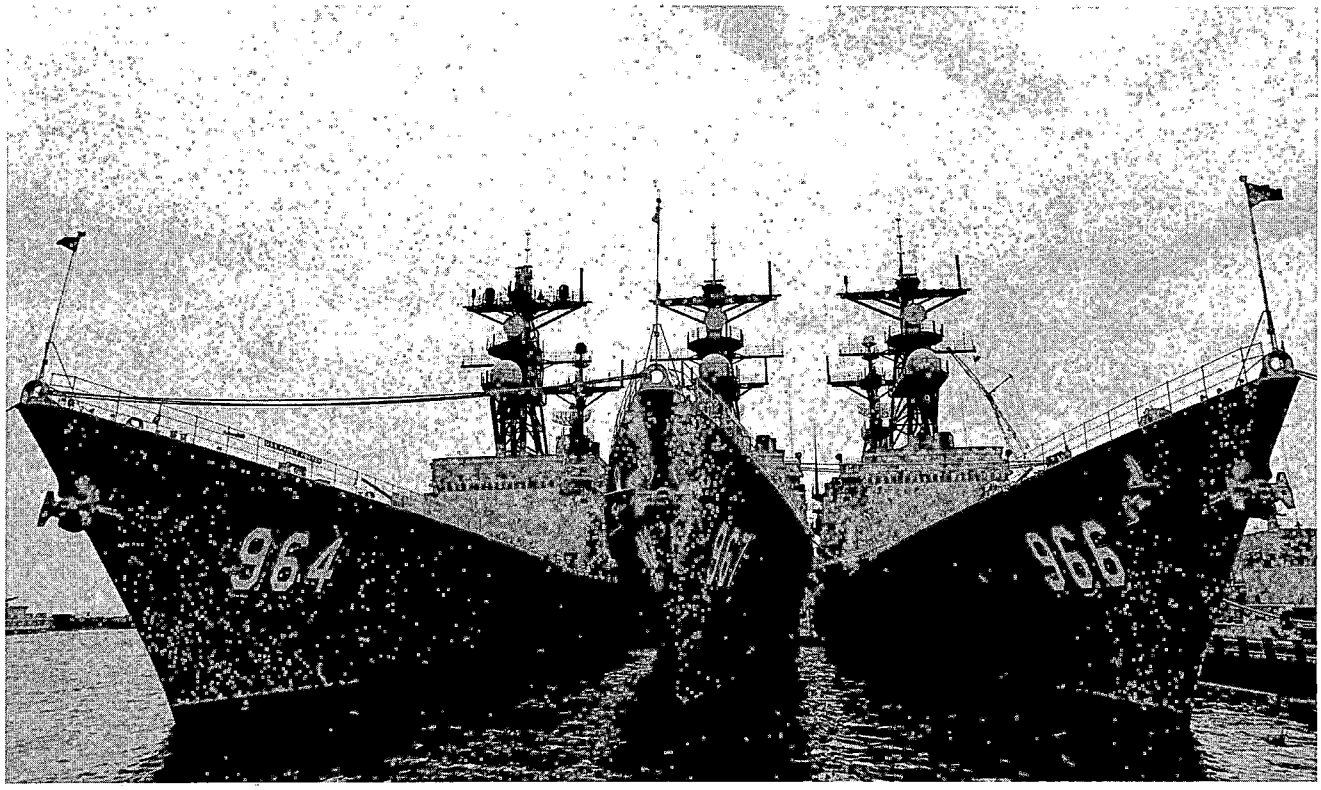
•work with nuclear propulsion systems, powerful computers and sophisticated weapons systems in locations around the world.

•command infantry, armor, artillery or aviation units as a Marine Corps officer.

•lead the most talented and highly motivated sailors and Marines in the world, no matter what career path you choose.

You choose your Navy or Marine Corps career field at the beginning of the second semester of your senior year or about five months before graduation. Midshipmen with the highest class standing have first choice, so options and choices of assignment may be affected by class rank as well as by personal and physical qualifications. However, every attempt is made to grant you the duty and location you request.





Surface Warfare

Surface warfare officers serve in every type of surface ship in the Navy. When you select surface warfare, you have the opportunity to choose the type of ship and home port of your first duty assignment. Then, after graduation from the academy, you attend a four-month Surface Warfare Officer School in Newport, RI, or Coronado, CA, before reporting to your ship. Your first tour of duty lasts about 30 months.

A new ensign typically serves as a division officer, with responsibilities for leading 12 to 50 enlisted personnel and directing a portion of the ship's equipment and operations. Typical positions include those of anti-submarine warfare officer, gunnery officer, communications officer and damage control officer. In addition, you are expected to work toward qualification as combat information center watch officer, officer of the deck, and Navy surface warfare officer.

Submarine Force

Those choosing the silent service begin by studying Navy nuclear propulsion after graduation as described below. You then go to Navy Submarine School in New London, CT, for the 10-week submarine officers basic course. Your first tour of duty with an attack or fleet ballistic missile submarine lasts about 36 months.

In a nuclear submarine, junior officers lead divisions of 15 to 20 men. You have responsibilities in a vital area of operations such as engineering, weapons or communications. You also stand watches and work to qualify as engineering officer of the watch, diving officer and officer of the deck -- all steps towards earning the gold dolphins of a Navy submarine officer.

Nuclear Propulsion

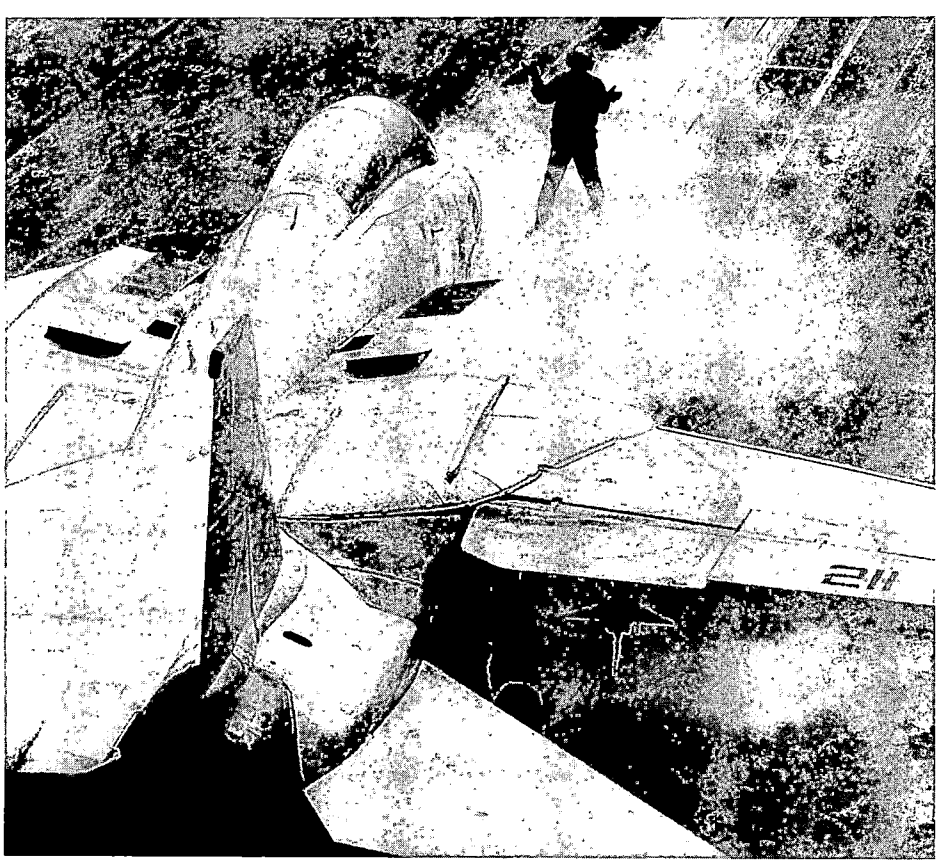
The Navy's demanding and highly technical nuclear power training program is among the best in the world. Those chosen for the program usually rank high in their class and have a solid background in scientific and technical courses, though not necessarily majors in these areas.

Midshipmen who choose surface warfare can join those choosing submarines in pursuing a sub-specialty in nuclear propulsion systems. If you are accepted into the nuclear power program, you report to Nuclear Power School in Orlando, FL, for six months of schooling following graduation from the academy. You then train for six months at one of several nuclear reactor prototype sites located throughout the country before reporting to your first ship.

Nearly all of the Navy's submarines are nuclear-powered. Nuclear surface ships include guided missile cruisers and aircraft carriers, and nuclear-trained surface warfare officers alternate between these and conventionally powered ships as they advance in their careers.

Navy Aviation

Whether it's landing an F/A-18 Hornet on the deck of an aircraft carrier, hunting a Soviet submarine in the North Atlantic or maneuvering a helicopter in a rescue operation, Navy aviators are constantly called upon to perform under pressure. When you choose this career path, you can select training as a pilot or a naval flight officer. Pilots fly aircraft while naval flight officers serve as bombardiers, navigators, radar and electronic intercept officers and antisubmarine warfare systems specialists.



After graduation from the academy, all those choosing aviation report to Pensacola, FL, for basic flight training. Then pilot trainees move on to Meridian, MS; Corpus Christi, TX; or Beeville, TX; depending on the type of aircraft they've chosen. Naval flight officers remain in Pensacola for their training. You receive your wings after an 18- to 24-month training period. You are assigned to your first squadron after a six- to eight-month indoctrination tour in a replacement air group.

Besides flying, Navy aviators have significant collateral responsibilities from their very first duty assignment. New officers typically are charged with leading a group of aviation enlisted personnel and overseeing an aspect of the aircraft squadron's operations, administration, personnel management or aircraft maintenance.

Marine Corps

Up to one-sixth of each graduating class may elect to be commissioned as second lieutenants in the Marine Corps. After graduation from the academy, you attend the Basic School, a 23-week course for officers at Quantico, VA. This school gives all Marine officers a common background in the tactical study of land warfare. Then you go on to advanced training in a particular occupational specialty based on your qualifications and preferences.

Marine Corps career fields include those in the two basic categories of ground and air. Ground career choices include infantry, armor, artillery, logistics, engineering, data processing and communications. Aviation choices include pilot, naval flight officer, air command and control, anti-air warfare, aviation maintenance and aviation supply.

In their first assignments, Marine Corps second lieutenants generally are assigned as platoon commanders with leadership responsibilities for 20 to 25

As second regimental commander, Midshipman Commander Dondi Edwards is responsible for leading half the Brigade of Midshipmen. The 21-year-old math major from Charlotte, NC, is also president of the Midshipmen's Black Studies Club, a member of the Gospel Choir, the Protestant Choir and the Glee Club, the parade announcer and, for three and a half years, an honor representative.

"Considering my desire to be a naval flight officer (NFO), I spent part of last summer on the aircraft carrier USS Forrestal in the Gulf of Oman. In fact, we were 150 miles from the Persian Gulf when the Iranian Airbus was shot down. Both the flying experience and the personal experiences I had made me more determined than ever to be an NFO. I had contemplated Marine air for the majority of plebe year, but after my first summer cruise, Navy air took first place.

"Since this is our last year and service selection is coming up, we're all paying a lot more attention to what we will be doing in the future. I can see myself staying in the Navy longer than five years; I've had a chance to talk to more senior officers this year who have told me about all the opportunities available to me. I've been able to get to know some senior officers on cruises and here at the academy. They make a sincere effort to help all of us make good career decisions.

"First thing after graduation, though, I want to go to Paris, temporary duty, to study French for a couple of months before reporting to Pensacola for flight school. It looks like I may have the chance, and I can't think of a better way to begin my life as a naval officer!"

enlisted Marines. You often have a role in a Marine air/ground task force, with Marine light infantry capable of opposing much more heavily equipped forces. Meshing of air and ground officers in these task forces and individual units gives officers the opportunity later to command combined units, not just within career specialties.

Restricted Line Specialties

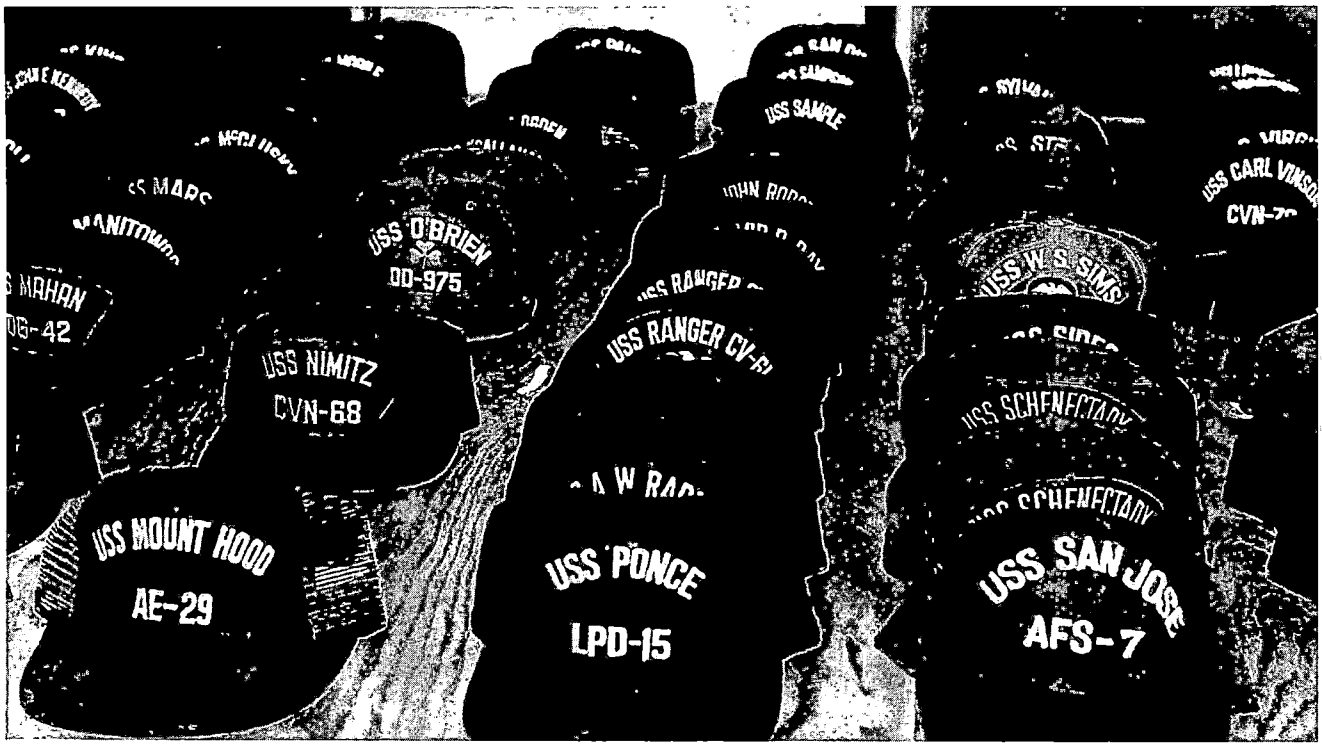
If you are not physically qualified to serve in the unrestricted line but still are physically qualified to be an active duty officer, you can choose from a wide variety of alternatives and pursue a career all the way to the flag officer ranks of admiral and general. Restricted line and staff corps officers make careers in the fields of intelligence, cryptology, oceanography, geophysics, medicine, engineering, supply, aviation maintenance, salvage and rescue, and public affairs. They serve aboard ships, with aircraft squadrons and at shore bases around the world.

Assignments for Women Officers

As a woman officer in the Navy and Marine Corps many options are open to you to serve in assignments vital to our national defense. You may fly planes as a pilot or naval flight officer, or drive ships as a surface warfare officer. Following training, you would be assigned aboard a variety of Navy support ships including combat logistics ships such as oilers, tenders and supply ships or in aircraft that would not be expected to perform combat missions. Women officers are also eligible for temporary assignments (up to six months) to any ship, including combatants, if a combat mission is not envisioned during the temporary duty period.

Many women graduates are commissioned in the general unrestricted line and choose U.S. and overseas shore duty assignments in communications, cryptology, administration, public affairs, personnel, education and training, international relations or other areas. Women may also enter restricted line or staff corp specialties such as diving operations, oceanography, intelligence, supply or civil engineering.

You also may choose to enter the Marine Corps. Women Marine Corps officers can be assigned to all career fields available to male officers except those that could place them in combat situations. Occupational specialties open to women include supply, administration, communications, public affairs, law, data processing and air control.



Career Choices of the Class of 1988

The 1,062 members of the Class of 1988 chose the following service and warfare specialties to enter after graduation and commissioning:

Marine Corps: 174 men, 4 women

General Unrestricted Line: 2 men, 27 women

Surface Warfare: conventional, 259 men and 12 women; nuclear power, 42 men

Submarine warfare: 119 men

Navy Special Warfare (SEAL): 20 men

Special Operations (diving, salvage and explosive ordnance disposal): 7 men and 1 woman

Navy Aviation: Pilot training -- 230 men and 7 women; Naval Flight Officer training -- 76 men and 4 women

Unrestricted/Oceanography option: 2 men

Navy Restricted Line and Staff Corps: 62 midshipmen (37 men and 25 women), including men not physically qualified for the unrestricted line duties above, elected specialization in aviation maintenance duty, cryptology, intelligence, supply, Civil Engineer Corps and oceanography

Medical Corps: 8 men, 1 woman

Interservice transfers to U.S. Air Force: 5 men

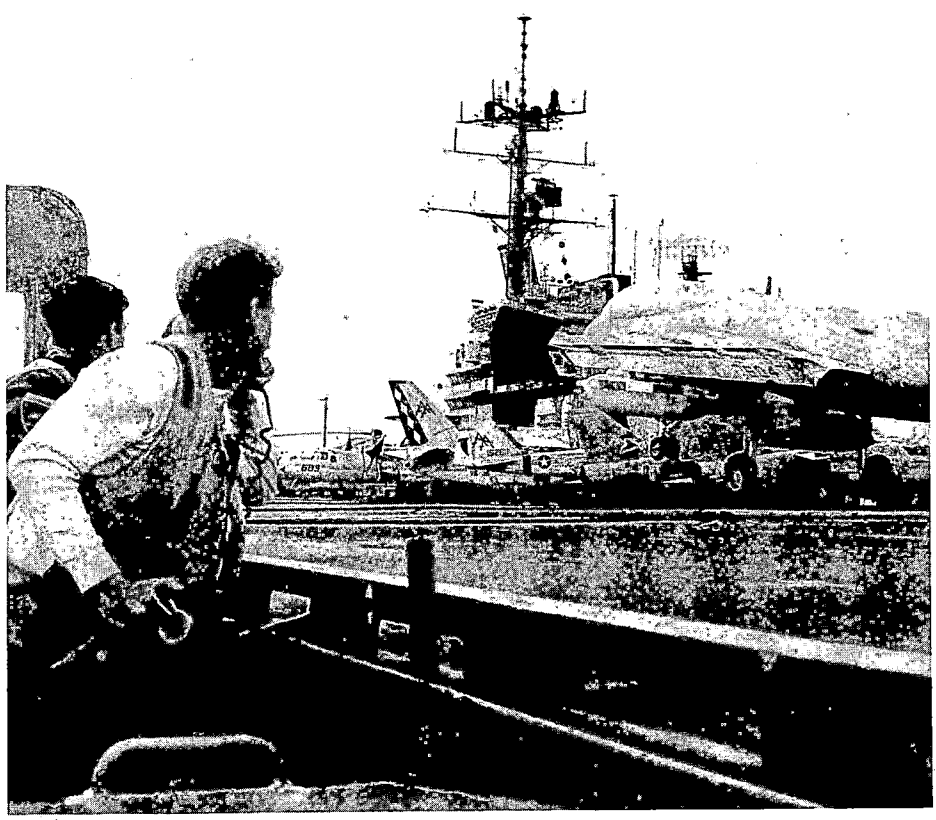
Typical Pay and Allowances for Junior Naval Officers

This table shows the approximate pay and allowances of Navy and Marine Corps junior officers. Promotion to Navy lieutenant (junior grade) or Marine Corps first lieutenant normally comes two to three years after commissioning. The next promotion, to Navy lieutenant or Marine Corps captain, normally comes four to five years after commissioning. All of these figures, including cost-of-living increases, are subject to change.

Monthly Pay and Allowances

	ENS/2nd LT	LTJG/1st LT	LT/CAPT
Base Pay	$ 1,286.10	$ 1,481.70	$ 1,699.20
Subsistence	$ 112.65	$ 112.65	$ 112.65
Housing Allowance	$ 258.30 (single)	$ 301.20 (single)	$ 373.80 (single)
	$ 350.10 (family)	$ 390.60 (family)	$ 455.40 (family)
Flight Pay*	$ 125.00	$ 125.00	
Submarine Pay*	$ 130.00	$ 175.00	$ 125.00
Aviation Incentive*	$ 9-10,000 per yr		$ 265.00
Nuclear Power Incentive*	$ 6,000 upon completion of nuclear power training		$ 9,000 per year after the 5th year

**Amounts shown are approximate and will increase with each year in service.*



After Your First Tour of Duty

By the time you complete your first tour of duty, you'll probably have a pretty good idea about your career goals, and the Navy and Marine Corps will give you every opportunity to achieve them. You will have assignments to prepare you for advancement and command of a surface ship, submarine, aircraft squadron, Marine Corps unit or an organization ashore.

Naval officers alternate between tours of duty with shore-based units and operational commands that deploy overseas in support of our nation's maritime strategy. You also have the opportunity for postgraduate study, advanced technical training in your specialty, and coursework at military service colleges in leadership, management, tactics, strategy, politico-military affairs and international relations. You never stop learning, even as your responsibilities for people, operations and policy-making increase.

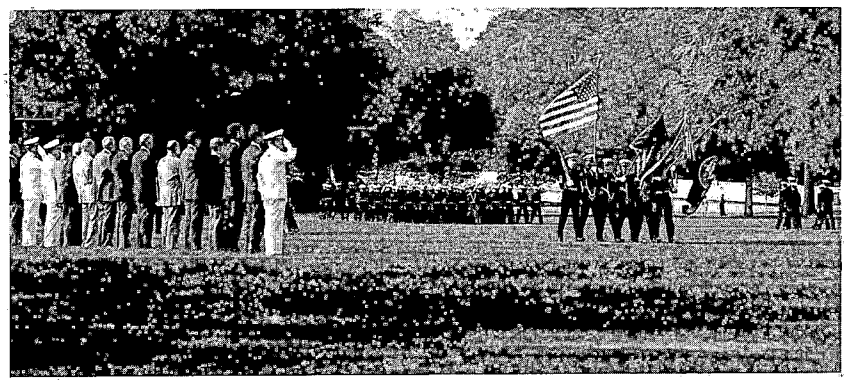
H. Ross Perot left his home town of Texarkana, TX, in 1949 to become a midshipman at the U.S. Naval Academy. As a midshipman, he was president of his class, chairman of the Honor Committee and a battalion commander. After graduation and commissioning in 1953, Perot served four years aboard ship -- first in a destroyer, then an aircraft carrier. He left the Navy in 1957 to work for IBM as a computer salesman. He now heads The Perot Group.

"I don't think there's any way you can appreciate the value of the experience and the education you receive here. I don't think any of my classmates did and certainly I did not. Again and again and again, people have asked me how I could be successful in business without any business training because after all, I went to the Naval Academy.

"I explain to them that I received something far more valuable than the technical aspects of business training, which I could learn quickly on the job. One of the great blessings is that nobody ever taught me how to manage people. Instead, for four years, I was taught and shown by example how to lead people. There's a fundamental difference.

"You can manage things, you can manage inventory, but if you hope to tap the full potential of your people, you must lead them. And I suggest that's the most valuable lesson you can take from this great institution."

Chapter 7



Organization

The Naval Academy is organized much like a civilian college. A board of visitors, similar to a college board of trustees, makes major policy decisions. The academy's superintendent, a Navy rear admiral, is the equivalent of a college president in that he oversees all of the school's functions.

The superintendent's principal deputies include a civilian academic dean, who oversees the academic program and the faculty, and the commandant of midshipmen, a Navy captain who serves as dean of students and supervisor of all military and professional training.

The superintendent, commandant, academic dean and academic division directors sit on the academic board, which sets the academy's academic standards. The Naval Academy's 600-member faculty is composed of about equal numbers of civilian scholars and experienced military officers. The civilian professors give the academic program continuity and a foundation of scholarship and teaching experience. The officers, who rotate every two or three years, bring fresh experiences and ideas from operational and staff assignments in the Navy and Marine Corps.

Director of the Division of Engineering and Weapons for four years, Captain Karl M. Klein, USN, sits on the academic board and is chairman of the admissions board. Klein, an engineering duty officer, graduated from the Naval Academy in 1964 and earned advanced degrees in engineering from the Massachusetts Institute of Technology.

"All five academic division directors, the academic dean, the commandant, the superintendent and one non-voting member, the dean of admissions, sit on the academic board. The academic division directors and the dean of admissions are also members of the admissions board, making those six responsible both for bringing in the midshipmen and for separating some of them academically. That system is unique to the Naval Academy. Being on both boards has helped me make better decisions on admissions and vice versa -- having seen thousands of applications, I know the quality of our kids, and I have much more confidence in giving them a second chance. We have no desire to lose good midshipmen. As long as they are still working and still doing their best, we will help them.

The academic board is best known for its role in deciding the future of academically deficient midshipmen. A midshipman who appears before the board has already 'fulfilled requirements for separation,' to quote regulations. In each case, the questions we have to ask are: will he or she make a good officer?; and is this midshipman a good risk for further expenditure of taxpayer money? Finally, if we decide to keep the midshipman, we can dictate extraordinary remedial action. The midshipman's case is presented by one member to the entire board, after which the midshipman appears with his or her company officer. The company officer acts as advocate and resource -- I think it is a hallmark of our program that each wants most to help save the young man or woman.

The Naval Academy is not attempting to produce 1,000 clones every year. There is tremendous variety among midshipmen in athletic, physical and academic abilities. We have rigorous standards that must be met, but we encourage midshipmen to follow their interests and bring to us, and to the Navy, their unique capabilities and their own points of view."

The Board of Visitors

The board of visitors meets twice each year to consider the curriculum, instruction, fiscal affairs, academic matters, physical equipment and state of morale and discipline. Their membership includes the chairman of the U.S. Senate Committee on the Armed Services or his designee; three other U.S. senators, two of whom are members of the Committee on Appropriations, appointed by the vice president of the United States; the chairman of the U.S. House of Representatives Committee on Armed Services or a designee; four other U.S. representatives, two of whom are members of the Committee on Appropriations; six other citizens designated by the president of the United States. The president of the United States receives a written report of the board's findings and recommendations.

The Board of Visitors

Appointed by the president of the United States

James M. Cannon
Political Advisor

C. Fred Chambers (Chairman)
President, Chambers Exploration, Inc.

Frederick G. Hale Sr.
Businessman

George F. Will
Journalist, National Syndicated Columnist

Lynn S. Wyatt
Arts and Humanities

Appointed by the vice president

Senator Phil Gramm
Texas

Senator Mark O. Hatfield
Oregon

Senator Barbara A. Mikulski
Maryland

Senator Paul S. Sarbanes
Maryland

Appointed by the speaker of the House

Representative Helen D. Bentley
Second District of Maryland

Representative C. Thomas McMillen
Fourth District of Maryland

Representative Norman Sisisky
Fourth District of Virginia

Representative Joseph R. Skeen
Second District of New Mexico

Representative Charles Wilson
Second District of Texas

The Academic Advisory Board

The academic advisory board was formed by the secretary of the Navy to advise the superintendent concerning the academy's academic program. Meetings are held periodically during the year.

The Academic Advisory Board

Admiral James L. Holloway III USN (Retired), Chairman
President, The Council of American Flag Ship Operators

Mr. Peter Braestrup
Editor, Wilson Quarterly, Smithsonian Institution

Mr. Stephen W. Comiskey
Attorney at Law

Mr. Shelby Foote
Author/Historian

Admiral Robert L.J. Long, USN (Retired)
President, Long Associates, Inc.

Mr. Carnes Lord
Analyst, National Institute for Public Policy

Dr. Dennis O'Brien
President, University of Rochester

Mr. Paul H. Robinson Jr.
Chairman, Robinson Inc.

Major General Stuart H. Sherman Jr., USAF (Retired)
Vice President, Syllogistics Inc.

Vice Admiral James B. Stockdale, USN (Retired)
Senior Research Fellow, The Hoover Institute, Stanford University

Colonel Harry G. Summers, USAF (Retired)
Senior Military Correspondent, U.S. News and World Report

Dr. Eric A. Walker
President Emeritus, Pennsylvania State University

Supporting Organizations

Several private, not-for-profit organizations support the Naval Academy in important ways. One of them is the Naval Academy Foundation, which awards scholarships to promising midshipmen candidates (see page 26). Others are described below.

U.S. Naval Academy Alumni Association

The 30,000-member Alumni Association has chapters around the world. Its national headquarters is Alumni House, a block and a half from the Naval Academy. All current and former midshipmen are eligible for membership. Associate membership is open to selected friends of the academy.

The Alumni Association serves its members through such activities as publishing the monthly alumni magazine, Shipmate, and an annual Register of Alumni, supporting class and chapter organizations and offering group life insurance, medical, investment and travel programs. The association also coordinates and supports midshipmen parents clubs around the country.

Members of the Alumni Association are very active in assisting young men and women who are interested in attending the Naval Academy. Chapters often sponsor events for candidates and their parents, and many alumni serve as Naval Academy Information (Blue and Gold) Officers.

The Alumni Association also is a channel and major source of private funds to support Naval Academy and brigade needs that can't be satisfied with federal funding.

Naval Academy Athletic Association

The Naval Academy Athletic Association (NAAA) promotes and finances the academy's intercollegiate athletic program, which is one of the largest athletic programs of any college or university in the United States. The NAAA is responsible for the coaching, equipping, travel and lodging, promotion, ticketing and administrative support of all 33 varsity sports. The NAAA also operates and maintains Navy-Marine Corps Memorial Stadium, a golf course and other athletic facilities for the academy.

As another service, the NAAA operates the Naval Academy Visitors Center and Tour Guide Service. Any profits from these operations go to the Naval Academy's Memorial Fund, which supports special events and activities of the brigade. The NAAA works actively with outstanding high school student-athletes who are interested in applying to the Naval Academy. NAAA coaches recruit young men and women according to the rules and regulations of the National Collegiate Athletic Association (NCAA).

Membership in the NAAA is open to all Navy sports fans. NAAA's main offices are in Ricketts Hall, next to the Visitors Center.

The Naval Academy Sailing Foundation

The Naval Academy Sailing Foundation was organized in 1973 to support the academy's sailing program. Through the foundation, yachts can be donated for use in midshipmen sail training and competition. Such donations also have created an endowment which helps support the sailing program. The executive director of the foundation has an office in the Naval Academy's Robert Crown Sailing Center.

U.S. Naval Institute

With its headquarters in Annapolis, the Naval Institute aims to advance professional, literary and scientific knowledge in the naval service. Formed in 1873, the institute serves as the Naval Academy's university press, publishing texts on professional subjects, training guides and manuals, scientific and technical works and studies in naval history. The Naval Institute occasionally publishes fiction such as the recent best-sellers "Hunt for Red October" and "Flight of the Intruder."

More than 100,000 dues-paying members of the Naval Institute receive the monthly professional journal, Proceedings, and are entitled to purchase books at reduced prices. The institute's main offices, bookstore and research library are located in Preble Hall, which is open to the public.

Naval Academy Museum

Located in Preble Hall, the museum has more than 50,000 items relating to naval history up to the present day of space exploration. Exhibits include the table used aboard the battleship USS Missouri for the signing of surrender documents ending World War II. The museum also has one of the world's finest displays of sailing ship models, artifacts relating to the life of John Paul Jones and a large number of naval and maritime paintings and prints. The museum also maintains the other historical items and works of art displayed in various locations around the Naval Academy.

Appendix A: Medical Considerations

The Department of Defense Medical Examination Review Board (DODMERB) in Colorado Springs, CO, schedules your medical examination and evaluates your medical condition very carefully before you are considered for an appointment to the Naval Academy. This is to determine whether you have a medical or physical condition that might interfere with, or be aggravated by, the academy's rigorous program or bar you from unrestricted service as a naval officer.

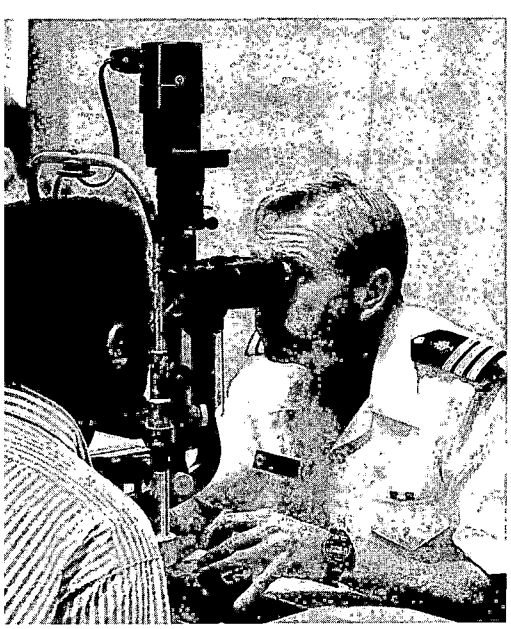
Medical considerations are summarized here so that you and your physician and dentist can estimate whether you meet the basic requirements for admission to the academy. This is NOT a comprehensive listing of all disqualifying conditions, but rather a brief and general guide for your convenience.

Waivers

Some medical requirements can be waived for candidates who otherwise are very promising. The report of your medical examination is reviewed carefully and you receive a written summary of the results. If you have a disqualifying condition but would like us to consider your application further, you may request a waiver of the standard by writing to the admissions board. DODMERB then may ask you to provide amplifying information on the condition or to undergo evaluation by a medical specialist. DODMERB reviews all of the available information and may seek independent review and an advisory opinion from the staff of the Naval Medical Command in Washington. If your condition may be waived, and not all conditions may, your entire record is reconsidered by the admissions board. The board grants a waiver if your record suggests you have greater potential for success as a midshipman and a naval officer than do competing candidates who are physically qualified.

Medical History

DODMERB will review your medical history for information on illnesses, injuries, surgery, familial diseases and other factors which could affect your physical condition. You might be asked to submit additional reports from physicians or hospitals. Correctable problems, including dental defects, should be taken care of before your examination for the Naval Academy.



Eyes and Vision

This is the most common problem area for candidates. Our basic requirement for admission is normal (20/20) uncorrected visual acuity in each eye. The admissions board automatically considers waiver of the visual acuity standard for candidates who are otherwise physically qualified, who have exceptional scholastic and leadership potential, and who meet the following additional requirements:

- vision corrects to 20/20 in each eye with eyeglasses (not contact lenses).
- refractive error does not exceed 6.00 diopters in any meridian in either eye.
- astigmatism is 3.00 diopters or less in both eyes.

• the difference in refractive error between the two eyes does not exceed 3.50 diopters.

Again, if the *only* problem is that your *uncorrected* visual acuity is not normal, the Admissions Board will automatically consider waiver of this standard; you need not request this.

Color perception *must* be normal. Color vision is retested on Induction Day.

Keratoconus is disqualifying. Radial keratotomy, keratomileusis, epikeratophakia, orthokeratology and all other surgical or mechanical procedures performed to correct visual acuity are disqualifying, and waivers are not considered.

If you wear glasses or contact lenses, take them with you to your examination. If you wear soft contact lenses, do not use them during the three days preceding your examination. Do not use hard or gas-permeable contact lenses for 21 days before your examination.

HEIGHT AND WEIGHT STANDARDS				
Height (inches)	Men		Women	
	MIN	MAX*	MIN	MAX*
60	--	--	94	131
61	--	--	96	135
62	103	148	98	138
63	104	152	100	142
64	104	157	102	145
65	106	162	104	149
66	107	167	106	153
67	111	172	109	156
68	115	176	112	160
69	119	182	115	163
70	123	187	118	167
71	127	192	122	171
72	131	197	125	175
73	135	202	128	178
74	139	208	132	181
75	143	213	136	185
76	147	219	139	189
77	151	224	143	192
78	153	230	147	196

**If your weight exceeds that shown for your height, you will be asked to provide measurements from which DODMERB will estimate body fat percentage.*

Height and Weight Standards

The minimum qualifying height is 62 inches for men and 60 inches for women, and the maximum qualifying height for all candidates is 78 inches. Waivers may be granted by the Admissions Board to a limited number of exceptional candidates whose height falls either above or below these standards.

The minimum qualifying weight (by height) standards are listed in the table below. Because of substantial variation in candidates' body composition, we have discarded the maximum weight (by height) standards formerly used. Instead of maximum weight, the qualifying standard is now body fat percentage: no more than 26 percent for men and 36 percent for women. To facilitate processing for most candidates, however, we have adopted a table of maximum screening weights which will approximate a body fat percentage slightly less than the maximum acceptable. If your weight is at least the minimum and not more than the maximum shown for your height on the table on the next page, we will assume that your body fat percentage is acceptable.

If your weight exceeds that shown in the table as the maximum for your height, DODMERB will ask you to provide several measurements (if these were not recorded at the time of your initial physical examination) from which your body fat percentage will be estimated. DODMERB will provide clear instructions for these simple measurements, and you may ask your gym teacher (perhaps when you take your Physical Aptitude Examination), your Blue and Gold Officer, a coach, or your school nurse to take the measurements.

In exceptional cases, either the minimum weight or the maximum body fat percentage may be waived by the admissions board. Obesity will not be waived, and if you exceed the standards on Induction Day and have not been granted a waiver, you should expect to be disqualified.

Heart and Vascular System

These conditions are disqualifying: uncorrected septal defects; congenital, rheumatic, or other disease of the heart valves; abnormal heart rate or rhythm; blood pressure predominantly in the range of 160/90 or greater; severe or symptomatic varicose veins; and mitral valve prolapse which has either caused symptoms or been associated with rhythm disturbance or regurgitation.

Ears and Hearing

Both ears must be free of tympanic perforation and acute or chronic disease. The average of the hearing loss at 500, 1000, and 2000 Hz in either ear may not exceed 30 decibels (ISO), and the loss at any one of these three frequencies may not exceed 35 decibels. The maximum acceptable loss in either ear at 3000 Hz is 45 decibels and at 4000 Hz, 55 decibels.

Respiratory System

Asthma, recurrent asthmatic bronchitis, exercise-induced bronchospasm, or reactive airway disease by any other name is disqualifying. Nasal polyps, severe hay fever, and tuberculosis (if active within two years) will also result in rejection. Nasal septal deviation, hypertrophic rhinitis, and other conditions which cause significant reduction of flow through either airway or which interfere with drainage of a sinus are disqualifying; after surgical repair of a deviated septum, waiver may be possible. Allergy immunotherapy, unless established at maintenance for at least two years and expected to be discontinued within two years of matriculation, is disqualifying.

Musculoskeletal System

Ununited fractures, history of surgery to a major joint within six months, history of derangement of any major joint not corrected by surgery or evidence of instability subsequent to surgery, certain retained orthopedic fixation devices, arthritis, severe scoliosis, symptomatic structural abnormalities of the spinal column, and herniated nucleus pulposis or history of surgery to the spine for this or any other condition are disqualifying.

Genitourinary System

Persistence of protein (except benign orthostatic proteinuria), sugar, or red or white blood cells in the urine is disqualifying, as are bedwetting continuing into adolescence and a history of recurrent or bilateral kidney stones. Severe congenital or developmental anomalies, hormonal disorders, neoplastic conditions, persistent or recurrent infections, and certain complications of infections are cause for rejection. An undescended testicle is disqualifying, as are pregnancy and severe dysmenorrhea.

Gastrointestinal System

History of peptic ulcer, gall bladder disease, regional enteritis, or ulcerative colitis is disqualifying.

Neuropsychiatric Disorders

Seizure disorders (except febrile convulsions in childhood), degenerative conditions, vascular or other kinds of recurrent or severe headaches, and severe motion sickness susceptibility are disqualifying. History of psychosis or affective illness, personality disorder or immaturity, stammering or stuttering, eating disorders such as bulimia and anorexia, learning disabilities, and sleepwalking persisting into adolescence also are disqualifying.

Skin

Chronic diseases such as psoriasis and eczema are cause for rejection. Severe acne is disqualifying until successfully treated. If a course of Accutane is undertaken, this must be completed, with documentation of a favorable outcome, prior to acceptance. Pilonidal sinus, if evidenced by a discharging mass, is cause for rejection unless repaired successfully.

Other Disqualifying Conditions

Some other disqualifying conditions include abdominal wall hernia, until repaired; removal of the spleen for most reasons except trauma; anemia; abnormal bleeding states; diabetes mellitus or a history of diabetes in both parents; sickle cell disease (sickle cell trait and glucose-6-phosphate dehydrogenase deficiency are *not* disqualifying); any active communicable infection; generalized reaction to stinging insect venom; allergy to common foods requiring special dietary considerations; drug abuse or alcohol dependence evidenced in a urine drug test and a breath or blood alcohol test performed at the time of your physical examination; and exposure to the virus associated with AIDS (Acquired Immune Deficiency Syndrome). Testing for the presence of AIDS virus antibodies is performed in both the initial medical examination and on Induction Day at the Naval Academy. A confirmed positive result in either test leads to disqualification without possibility of a waiver.

Dental Standards

Except for minor or questionable areas, you should have all required dental treatment completed before your medical examination. Missing teeth causing reduced masticatory or incisal efficiency must be replaced by well-designed bridges or partial dentures in good condition. If you are undergoing active

orthodontic treatment, you will be disqualified but you may request an individual waiver.

Other disqualifying dental conditions are:

- infections or chronic diseases of the soft tissue of the oral cavity;
- marked malocclusion that requires early or prolonged treatment, that involves tissue impingement on either the facial or lingual/palatal gingiva, or that in some other way jeopardizes dental health;
- unsatisfactory restorations, bridges, or dentures;
- severe or extensive apical or periodontal infection;
- perforations from the oral cavity into the nasal cavity or maxillary sinus;
- tumors or cysts of the oral tissues which can be expected to require treatment in the foreseeable future.

Concluding Comments

As you will realize from the foregoing summary, the physical examination for admission to the Naval Academy is comprehensive and the medical and dental standards are exacting. This is necessary because our goal is that every midshipman will be able to anticipate unrestricted opportunities for commissioned service after graduation. For most candidates, the physical examination process will require no more than a single visit to a physician's and a dentist's office. For others, questions will arise which may necessitate a variety of additional evaluations. We know this can become time-consuming, but we hope you will understand the reason for concern. The questions resolve favorably for the majority of candidates. Staff members at DODMERB and in the admissions office will assist in every way possible.

Appendix B: Administration, Faculty and Staff

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B.S., U.S. Naval Academy

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Deputy for Operations
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M.S., The American University

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Deputy for Management
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M.A., City University of New York

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Staff Judge Advocate
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J.D., University of North Carolina

Assistant Staff Judge Advocate
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J.D., University of Baltimore

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Public Affairs Officer
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Deputy Public Affairs Officer
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A.B., Rutgers University

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B.A., San Diego State University

Media Relations Director
James A. Kiser

Visit Services Officer
J.J. Brennan, Lieutenant, USN
B.S., U.S. Naval Academy

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Photography Director
David Eckard

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Deputy Director of Computer Services
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M.S.E.E., Naval Postgraduate School

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M.S., Naval Postgraduate School

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Sam W. Mills

Associate Director for Academic Support
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Dean of Admissions
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B.S., U.S. Naval Academy
Dudley C. Williams, Lieutenant, USN
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Coordinator, Western Area Regional Office
Thomas A. Teshara

Naval Academy Preparatory School Coordinator/Enlisted Accessions
Jimmy W. Watts, Senior Chief Yeoman
Surface Warfare, USN

Medical Records Liaison
Saundra L. Stowe

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R. Nancy Parsons

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M.A., Pepperdine University

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M.A.H.L., Hebrew Union College, Jewish Institute of Religion
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Ph.D., Union Theological Seminary
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M.S., DeSales Theological Center
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M.Div., Interdenominational Theological Center

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Robert J. Brennan, Lieutenant, USN
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Charles Mulligan, Major, USMC
B.A., Buena Vista College
Lawrence G. Myers, Associate Professor (Soccer)
Ed.D., West Virginia University
Patrick H. Nicholas, Ensign, USNR (Men's Volleyball)
B.S., George Mason University
John C. Officer, Assistant Professor (Tennis)
M.Ed., Boston University
Kerry J. O'Shanick, Lieutenant (Junior Grade), USNR
Lacrosse
B.S., State University of New York at Cortland
Dudley W. Purdy Jr., Associate Professor
Women's Swimming
M.Ed., University of North Carolina
Tom Riebe, Captain, USMC (Junior Varsity Football)
M.S., U.S. Sports Academy
William A. Savering, Assistant Professor
M.Ed., Pennsylvania State University
Robert J. Schoeneck, Lieutenant, USN
Junior Varsity Lacrosse
B.S., U.S. Naval Academy
Michael W. Schofield, Lieutenant (Junior Grade), USNR
Water Polo
B.S., University of Pittsburgh
Peter B. Schuyler, Instructor (Wrestling)
B.S., Lehigh University
Joseph Suriano, Associate Professor (Diving)
M.A., Eastern Michigan University
Reginald P. Wicks, Associate Professor (Wrestling)
M.S., Mankato State College
Becky Vautier, Lieutenant, USN
(Women's Basketball)
B.S., U.S. Naval Academy
James Vautier, Lieutenant, USN (Soccer)
B.S., U.S. Naval Academy
Gerry Wright, Ensign, USN (Basketball)
B.A., University of Iowa

Athletic Association Coaches

Thomas Amstutz, Football (Outside Linebackers, Place Kicker)
M.Ed., University of Toledo
Gary R. Bodie III, Intercollegiate Sailing
B.S., California Institute of Technology
Bernard Bohince, Women's Gymnastics
M.A., Jacksonville State University
Emmett Davis, Men's Basketball
M.Ed., St. Lawrence University
Andre R. Deladrier, Head Coach, Fencing
M.A., Columbia University
David Garlow, Football (Recruiting Coordinator)
B.S., University of Michigan
Peter F. Herrmann, Head Coach, Basketball
B.S., State University of New York at Geneseo
David A. Magazu, Football (Offensive Line)
B.S., Springfield College
Greg R. Mattison, Football (Defensive Line)
M.A., University of Illinois
R. Dean Pees, Football (Defensive Secondary)
B.A., Bowling Green State University
Rodney Pratt, Plebe Heavyweight Crew
Ph.D., Cambridge University
Larry R. Ringer, Golf
B.S., Murray State University
Moes Rison, Football (Receivers)
M.S., Central Michigan University
Kevin S. Rogers, Football (Running Backs)
M.A., Ohio State University
Greg W. Seamon, Football, (Quarterbacks)
B.S., Marion College
Elliot Uzelac, Head Coach Football
B.S., Western Michigan University
Milan Vooletich, Football (Defense Coordinator, Inside Linebackers)
M.Ed., Miami University of Ohio

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Calendar for Candidates Class of 1994

1989

Spring of junior year. Write your U.S. representative and two U.S. senators requesting a nomination. Although many congressmen will accept later requests, some into the early months of your senior year, others select their nominees much earlier. Write the vice president for a nomination (very competitive) if you believe you are highly qualified for admission. Request a Precandidate Questionnaire from the Candidate Guidance Office and submit to the Naval Academy, or call toll free 1-800-638-9156.

***April 15.** ACT test. Register by March 17.

***May 6.** SAT test. Register by March 31.

June 1. Prospective candidates commence taking scheduled medical examinations at designated medical examining centers. Each is individually notified by the Department of Defense Medical Examination Review Board (Colorado).

***June 3.** SAT test. Register by April 28.

***June 10.** ACT test. Register by May 12.

July 1 - February 15. If eligible (as explained in Chapter 2), write the superintendent, United States Naval Academy (Attn: Candidate Guidance Office) requesting presidential and/or other military service-connected nominations.

September 1. Beginning on this date, nominees and selected prospective nominees may expect to be contacted by a local representative of the Naval Academy information program.

***October 14.** SAT test (limited states). Register by September 22.

October 16. Beginning on this date, early offers of appointment are made by the Naval Academy to outstanding candidates. Offers continue into the following spring as admissions files on candidates are completed and additional well-qualified candidates are identified.

***October 28.** ACT test. Register by September 29.

November 1. Deadline for receipt by the vice president of requests for nominations. Use the letter format in Chapter 2 as a guide.

November 5. Academy Admissions Day.

***November 4.** SAT test. Register by September 29.

***December 2.** SAT test. Register by October 27.

***December 9.** ACT test. Register by November 10.

1990

***January 27.** SAT test. Register by December 22, 1988.

***February 10.** ACT test. Register by January 12. NOTE: This is the last test that can be accepted for Naval Academy Class of 1993.

***April 7.** ACT test. Register by March 9.

May 1. With few exceptions, all candidates will be notified on or before this date whether or not they have been accepted for entry.

May 8. Orientation Day at the Naval Academy for candidates who have been offered appointments as midshipmen with the Class of 1993.

***June 9.** ACT test. Register by May 11.

July 3. Class of 1993 reports to the Naval Academy and takes oath of office as midshipmen.

*See your guidance counselor for schedule confirmation and for additional information on testing and registration forms.

Note: Please insure that you request the applicable testing service(s) to forward the results of your examinations to the Naval Academy (SAT Code 5809, ACT Code 1742).

Tentative Calendar 1989-1990

1989

July 3	Monday	Class of 1993 enters.
August 11-13		Parents' Open House, Class of 1993.
August 21	Monday	Leave and summer training expire for three upper classes.
August 24	Thursday	First semester begins.
September 4	Monday	Labor Day, holiday.
September 25-29		Mid-term exams.
October 9	Monday	Columbus Day, holiday.
October 28	Saturday	Homecoming
November 13-17		Second marking period.
November 10	Friday	Veterans' Day, holiday.
November 23	Thursday	Thanksgiving Day, holiday.
December 9	Saturday	Brigade at Army-Navy game.
December 12-21		Examinations.
		Christmas leave begins after last scheduled examination or military duty, whichever is later.

1990

January 7	Sunday	Leave ends.
January 10	Wednesday	Second semester begins.
January 15	Monday	King's Birthday, holiday.
February 12-16		First marking period.
February 19	Monday	Washington's Birthday, holiday
March 10	Saturday	Mid-term leave begins after last scheduled class or military duty, whichever is later.
March 18	Sunday	Mid-term leave ends.
April 2-6		Second marking period.
April 13-16		Easter leave.
May 4-15		Examinations.
		Leave begins after last scheduled examination or military duty, whichever is later.
May 19	Friday	Orientation Day
May 21	Monday	Leave ends.
May 25	Friday	Commissioning Week begins.
May 30	Wednesday	Graduation.
July 3	Tuesday	Class of 1994 enters.

This catalog should not be considered a contract between the United States Naval Academy and any prospective candidate. The curriculum, policies and dates are subject to change to meet varying requirements of the Navy.

Traveling to Annapolis

When traveling from the north on Interstate 95 South, exit on 695 East in Baltimore, then take the Route 3 exit. Travel Route 3 South to Interstate 97. Exit to Route 50 east toward Annapolis.

From the south, Interstate 95 North, Route 2 North, and Route 3 North intersect Route 50. Travel east to Annapolis.

From Route 50, exit at Roscoe Rowe Boulevard. Turn left at the end of Roscoe Rowe Boulevard onto College Avenue. Turn right at King George Street, which will take you to the Main Gate of the Naval Academy.

Air

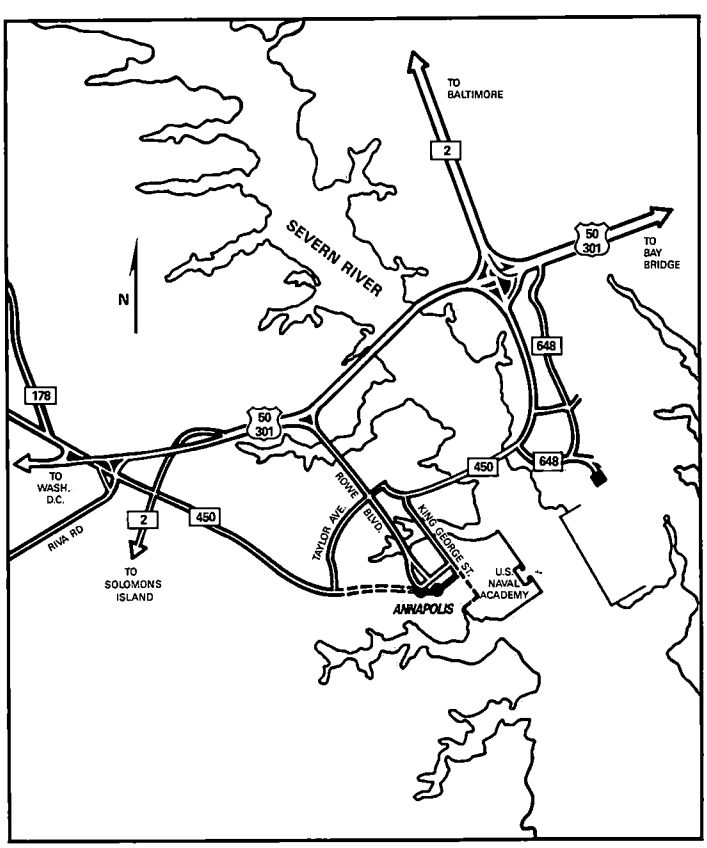
Baltimore-Washington International Airport (BWI) is convenient to Annapolis and serves most major airlines. A shuttle service runs regularly to the academy from BWI. Washington's National Airport and Virginia's Dulles International Airport are more than an hour's drive from Annapolis. Rental cars, taxicabs and limousine services are available at all three airports.

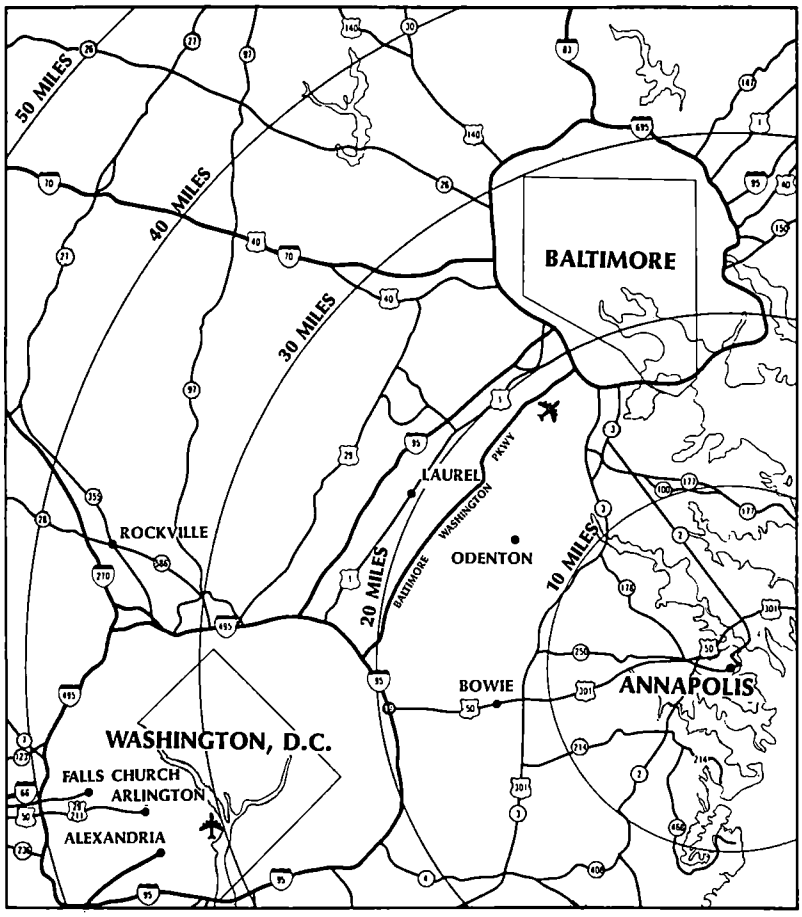
Rail

Amtrak serves Baltimore, MD, 30 miles away, New Carrollton, 17 miles away, and Washington, DC, 33 miles from Annapolis. Taxi service is available from all rail terminals.

Bus

Greyhound/Trailways have terminals in Washington and Baltimore. Local buses run regularly from Baltimore, and Greyhound/Trailways schedule three buses daily from Washington.

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BALTIMORE
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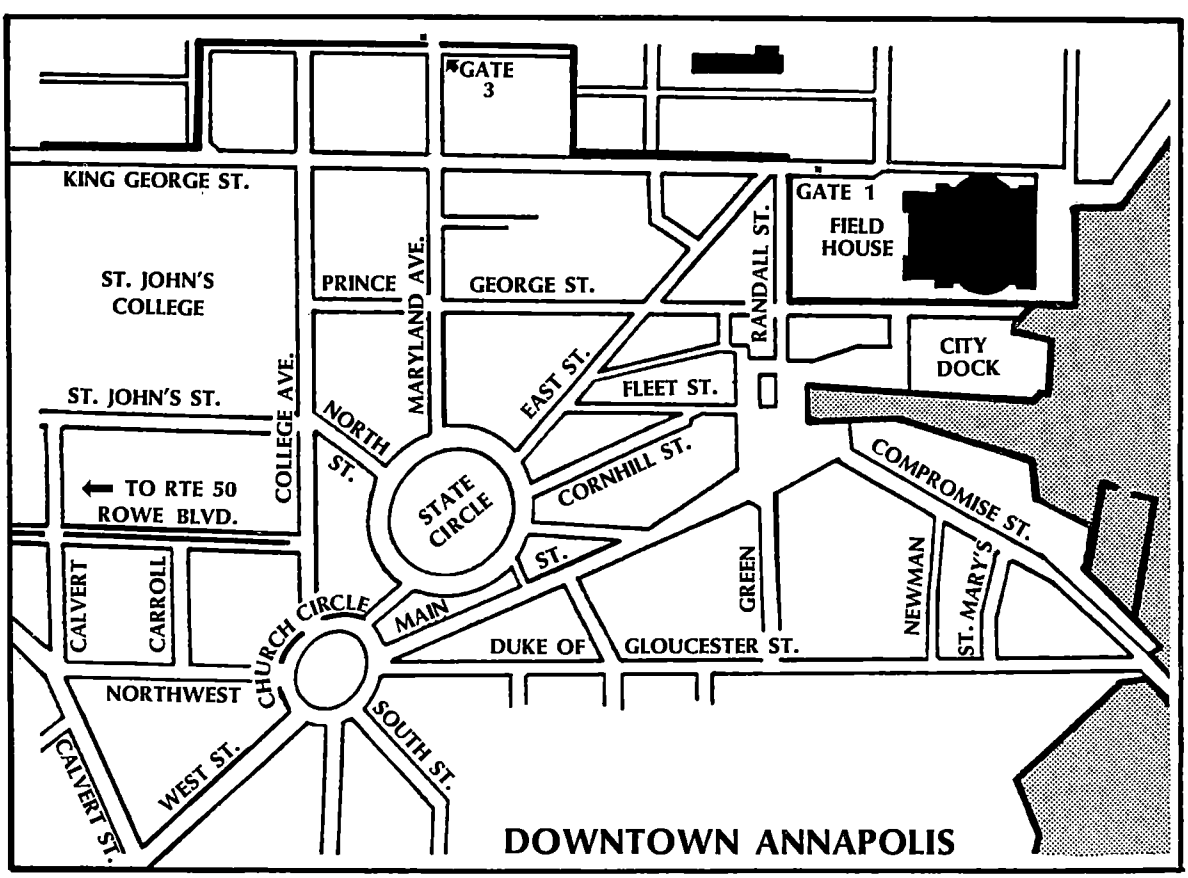
WASHINGTON PKWY
BALTIMORE
ROCKVILLE
ODENTON
BOWIE
ANNAPOLIS
WASHINGTON, D.C.
FALLS CHURCH
ARLINGTON
ALEXANDRIA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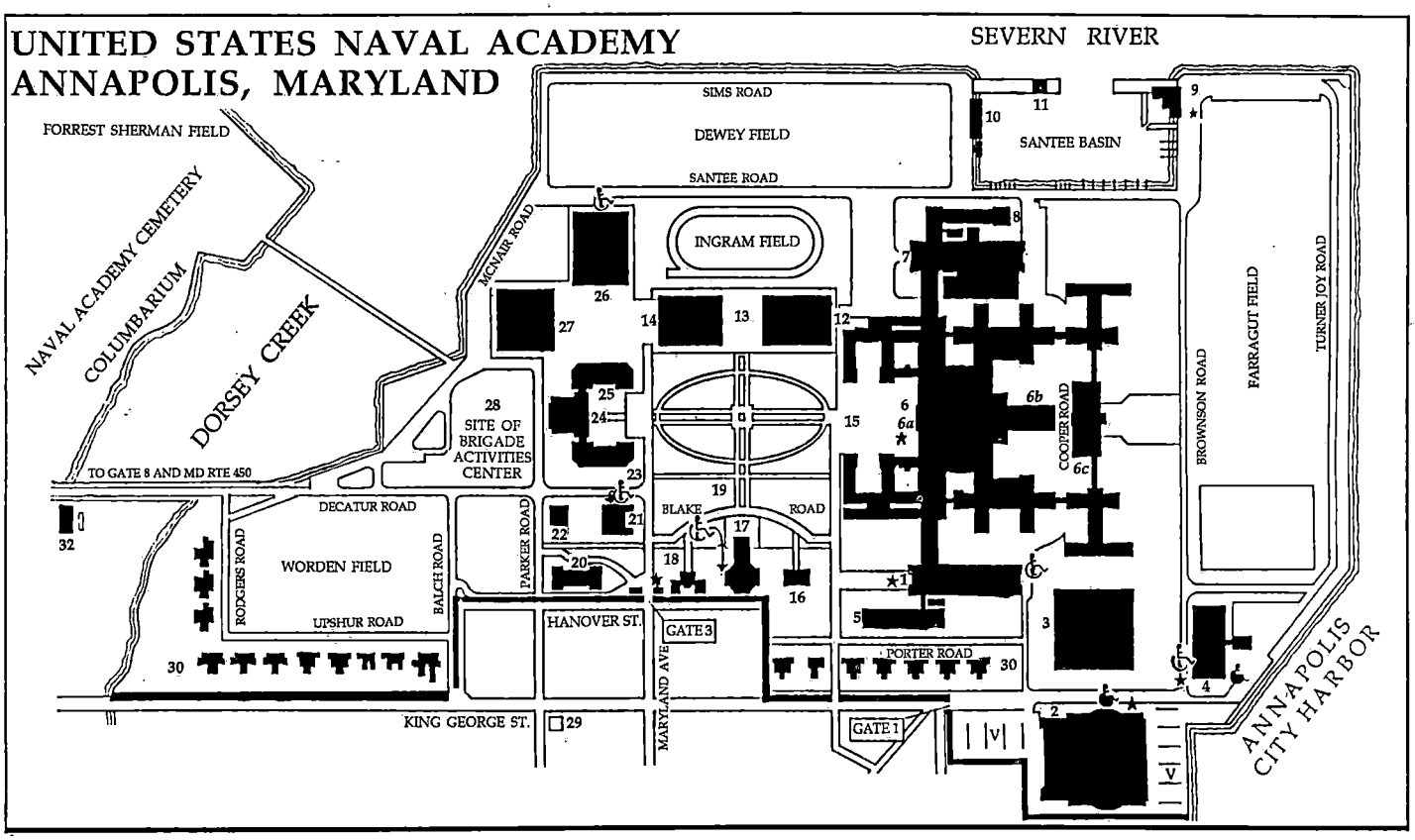
ST. JOHN'S COLLEGE
PRINCE
GEORGE ST.
MARYLAND AVE.
RANDALL ST.
GATE 1
FIELD HOUSE
CITY DOCK
ST. JOHN'S ST.
COLLEGE AVE.
NORTH
EAST ST.
FLEET ST.
TO RTE 50
ROWE BLVD.
ST.
STATE CIRCLE
CORNHILL ST.
COMPROMISE ST.
CALVERT
CARROLL
CHURCH CIRCLE
MAIN
ST.
GREEN
NEWMAN
ST. MARY'S
DUKE OF
GLOUCESTER ST.
NORTHWEST
WEST ST.
SOUTH ST.
CALVERT ST.
DOWNTOWN ANNAPOLIS



1. DAHLGREN HALL
   (Midshipmen Activity Center)
2. HALSEY FIELD HOUSE
3. LEJEUNE HALL
4. RICKETTS HALL
   (Visitors' Center Senior Enlisted Barracks)
5. WARD HALL
6. BANCROFT HALL
   6a. Rotunda and Memorial Hall
   6b. King Hall
   6c. Mitscher Hall (Chaplain's Center, Inter-Faith Chapel and Auditorium)
7. MACDONOUGH HALL
8. LUCE HALL
9. ROBERT CROWN SAILING CENTER
10. VANDERGRIFT CUTTER SHED
11. HENDRIX OCEANOGRAPHY LAB
12. CHAUVENET HALL
13. RADFORD TERRACE
14. MICHELSON HALL
15. TECUMSEH
16. BUCHANAN HOUSE
    (Superintendent's Quarters)
17. CHAPEL
18. ADMINISTRATION BUILDING
19. HERNDON MONUMENT
20. OFFICERS' & FACULTY CLUB
21. PREBLE HALL
    (Naval Academy Museum and Naval Institute)
22. LEAHY HALL
    (Candidate Guidance Office)
23. SAMPSON HALL
24. MAHAN HALL
25. MAURY HALL
26. RICKOVER HALL
27. NIMITZ LIBRARY
28. BRIGADE ACTIVITY CENTER
    (Under construction)
29. ALUMNI HOUSE
30. OFFICERS' HOUSING
31. HUBBARD HALL
32. NAVAL ACADEMY CEMETERY
    (Columbarium)

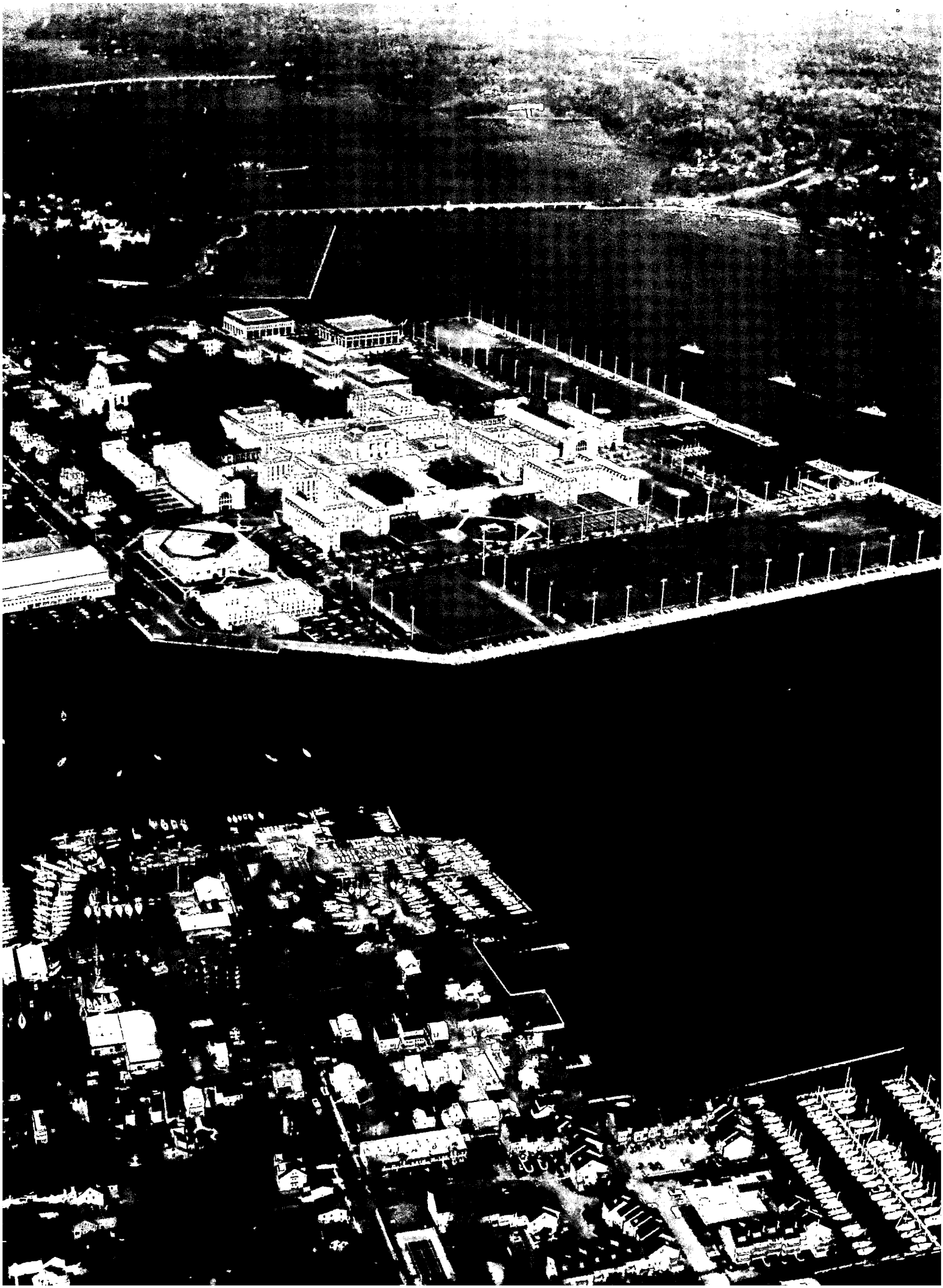
LOST & FOUND: GATE 3

★ REST ROOMS

REST ROOMS WITH FACILITIES FOR HANDICAPPED

ENTRANCE FOR HANDICAPPED

V VISITOR PARKING



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