from gathering too much information about our military operations. There are four main components to OPSEC.

Communications security. Measures taken—such as encryption and coding or methods of controlling the flow of message traffic—to prevent the disclosure of information by telephone, telegraph, radio, teletype, Internet, FAX transmissions, mail, and any other means of communicating.

Electronic security. This includes the prevention of giving away valuable information by means of radar, sonar, or any other noncommunicating electronic emission. For example, if you use your radar to search for aircraft, your radar signal can be detected by the enemy to let them know you are in the area.

Operational information security. This refers to the protection of plans, maps, photographs, documents pertaining to attack and defense tactics, and information regarding unit movements and locations.

Physical security. Guarding classified areas, equipment, buildings, and people from unauthorized access, sabotage, and other dangers.

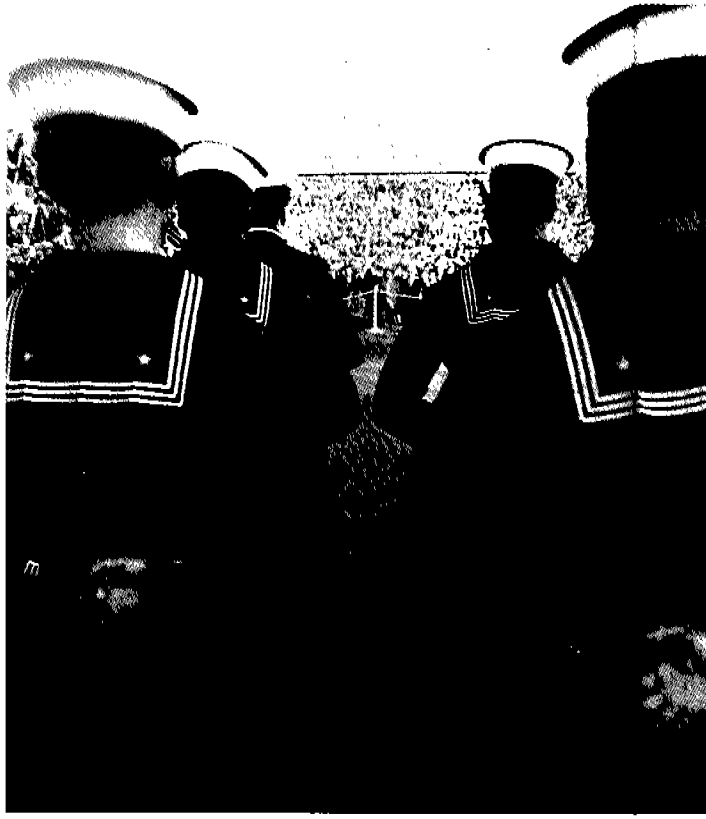
Physical Security

Protecting classified material is essential to a military organization, but there are other considerations in the security of a ship or other naval unit. Naval personnel assigned to ships—whether on watch or not—must always be security-minded and on the alert for any sign of danger to the ship. A ship can be threatened by any number of dangers, including hurricanes, tidal waves, flooding, fire, explosions, sabotage from within the ship, foreign saboteurs, sneak attacks, civil disorders, and riots.

External Security

Threats to security may originate outside the ship. Strangers approaching the ship should be regarded with suspicion, even though they appear to be ordinary visitors, salespersons, newspaper carriers, or delivery people. All individuals coming aboard must be identified by the OOD or his or her representative, and all items such as packages, parcels, briefcases, and toolboxes should be inspected. Persons standing gangway or quarterdeck watches assist the OOD in identifying approaching boats, screening visitors, and checking packages.

Sentries and guards posted for security purposes are guided by written instructions and must know how to challenge approaching

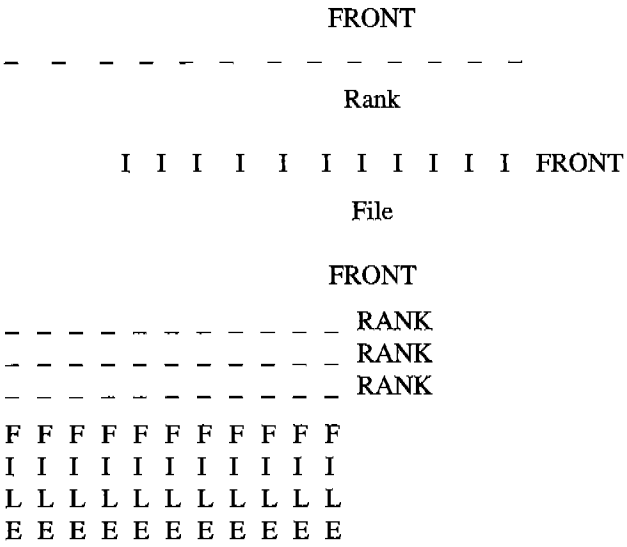


PHC Terry C. Mitchell

Figure 7.1. Sailors standing in a military formation at parade rest.

will encounter terms like "squad," "detail," "platoon," "section," "company," and "division," all referring to military formations. You will see military formations used for morning quarters, for personnel inspections, to welcome dignitaries, or for many other reasons. But no matter what the occasion and no matter what the units are called, some things are common to all military formations.

The two basic structures of all military formations are "ranks" (also called "lines"), where people are lined up side by side—in other words, everyone is standing uniformly next to one another—and "files" (also called "columns"), where people are uniformly lined up one behind the other. There can be a single rank (or line) or a single file (or column), or the two can be combined. Anytime you have more than one rank, you automatically have formed columns (and vice versa).



In a formation with several ranks and files, the front rank is referred to as simply the front or first rank. Subsequent ranks are called the second rank, third rank, and so on.

There are a number of other terms associated with formations that you should learn.

Interval

The space between individuals, from shoulder to shoulder, who are standing in a rank is called the interval. "Normal interval" is one arm's length.

Close Interval

This is used when space is limited and is determined by the individuals in the rank placing their left hand on their hip, fingertips down.

Distance

The space between individuals in a file (or column), measuring approximately 40 inches between the chest of one person and the back of the one directly in front.

Guide

In a formation, someone must serve as the reference point on which the others align themselves. This person is called "the guide." In a single file, the guide must be the person in the very front because it

would be impossible for you to guide on an individual behind you (unless you have the proverbial "eyes in back of your head"). In a single rank, the guide is *usually* (though not always) on the extreme right of the line. In a formation with several ranks and files, the guide is usually the person on the extreme right of the front rank.

Commands

The difference between a command and an order is in timing. Both must be carried out if given by a superior in a military organization, but a command is to be carried out at a precise moment, whereas an order need not be instantaneously executed. For example, if your recruit division commander in boot camp calls "Attention on deck" because the base commander has just entered the auditorium to deliver an address, this is a *command* and you must jump to your feet and assume the position of attention the instant you hear the words. If you are standing watch as a messenger aboard ship and the OOD tells you to sweep down the quarterdeck, this is an *order* and, while you certainly would not dawdle in carrying out the OOD's instructions, you would not be expected to begin sweeping instantaneously.

In military drill, commands are usually given in two parts. The first part is the "preparatory command," which serves to warn you what is coming so that when you hear the second part, known as the "command of execution," you will be able to carry it out instantaneously. No two military drill commands begin with the same preparatory command, so once you have learned the various commands you will know what is coming every time you hear a preparatory command. For example, the command to get the members of a squad moving along together is "Forward, march." The word "forward" is the preparatory command and, because this command is the only one that begins with the word "forward," all members of the squad know that the next word they hear will be the command of execution "march," and they will all begin marching the instant they hear it. This method ensures the precision that is essential in military drill.

Some commands have a "secondary command" that follows on to complete a move. For example, when you are told to salute while in formation, you will execute the hand salute and hold it until the secondary command "two" is given. On the command "two," everyone in the formation will end the salute together.

When *giving* military drill commands, you should always speak in a firm tone loud enough to be heard by everyone under your command. You should also develop the habit of giving the preparatory command, pausing briefly to allow everyone time to anticipate what

is coming, and then giving the command of execution with emphasis. You will quickly pick up this technique once you hear an experienced drill instructor giving commands.

Sometimes the preparatory command will be preceded by the name or title of the group concerned, for example, "First Division" or "Squad" or "Platoon." This is especially important for avoiding confusion if there are a number of groups in the vicinity.

Some military drill commands, such as "Fall in" and "At ease," cannot be carried out with the same precision that is normally expected. These commands do not have separate preparatory and execution commands and are simply given as one command.

If the person calling the commands gives a preparatory command and then decides to call back or revoke that command, he or she may cancel it by saying "As you were." For example, "Second Squad, FORWARD . . . As you were." The members of second squad would do nothing in this case, remaining as they were before the command began.

Most of the military drill commands you will encounter in the Navy are listed and explained below. In the section below, military drill commands will be indicated by **bold** letters. Preparatory commands will be indicated by *italics* and commands of execution by UPPERCASE LETTERS. For example, "*Forward* . . . MARCH."

Forming Up

A number of commands are associated with creating a formation.

"Fall in." (Given simply as one command: "FALL IN.") All personnel will immediately line up in the appropriate ranks and files using the standards of distance and interval discussed above.

"Dress right/left." (Given as "*Dress right* . . . DRESS" or "*Dress left* . . . DRESS".) If dressing to the right, the person on the right of each rank is the guide. The guide will extend his or her left arm straight out, parallel to the deck (floor), and the person to his or her left will move until the guide's fingertips are barely touching his or her shoulder. That second person will also extend his or her left arm to establish the interval for the next person in the rank, and so on. The last person in the rank will not extend her or his arm since there will be no one there to line up on it. The guide will look straight ahead, but everyone else in the rank will turn her or his head smartly to the right. If dressing to the left, the guide will be on the left, and everyone but the guide will look to the left, but it is still the left arm that is extended.

If there is not enough room for everyone to stand at a normal (arm's length) interval, a close interval may be ordered. (Given as "*At close interval, dress right . . .* DRESS.") In this case, your left hand is placed on your left hip, fingers pointed down, and the person next to you will use your elbow instead of your fingertips as the measure of interval.

At the command "*Ready . . .* FRONT," everyone smartly drops their arms to their sides and snaps their heads to the front, leaving them in the position of attention (see below).

Disbanding the Formation

Of the two methods of breaking up a formation, one is temporary and the other permanent.

"Fall out." (Given simply as "FALL OUT.") When this command is given, the formation is temporarily disbanded and everyone breaks ranks but remains nearby. When the command "FALL IN" is given, everyone should return to their original positions in the formation and stand at attention.

"Dismissed." (Given as "DISMISSED.") This signals the end of the formation. Everyone will break ranks and go about their business.

Basic Commands

Once the formation is set up, you will need to know a number of basic commands.

"Attention." (Given as "*A-ten . . .* SHUN" or "*A-ten . . .* HUT.") Your heels are brought together (smartly and audibly), and your feet are turned out to form an angle of 45 degrees, with hips level and body erect. Your weight rests equally on the heels and balls of your feet. Your shoulders are squared, chest arched, arms hanging down without stiffness so that the thumbs are along the seams of the trousers or skirt, palms and fingers relaxed. Draw your chin in and keep your head straight. Do not look around; keep your head still and your eyes looking straight ahead.

"Parade rest." (Given as "*Parade . . .* REST.") Move the left foot smartly 12 inches to the left of the right foot. At the same time, clasp the hands behind the back, palms to the rear, the right hand inside the left with thumbs interlocking. Despite the word "rest," you should be very still and silent with your eyes looking straight ahead. The only command that may be given after "Parade rest" is "Attention."

"At ease." (Given as "AT EASE.") You may move any part of your body (such as stretching or looking about) except your right foot (this

marks your place in the formation) and your mouth (meaning that you are not permitted to talk).

"Rest." (Given as "REST.") The same as "At ease" except that you may also talk.

"Hand salute." (Given as "*Hand* . . . SALUTE.") At the command "SALUTE," raise the right hand smartly in the hand salute. Hold the salute until you hear the follow-on command "TWO," then drop your arm to its normal attention position by your side in one brisk movement.

Facing Movements

Facing movements are used to turn everyone in the formation to face in a different direction.

"Right/left face." (Given as "*Right* . . . FACE" or "*Left* . . . FACE.") For a right facing movement, on the command "face," slightly raise the left heel and right toe. Face right (90 degrees), turning on the right heel, putting pressure on the ball of the left foot and holding the right leg straight. Then place the left foot smartly beside the right one so that you are standing at attention again. The exact opposite will cause you to execute a left face.

"About face." (Given as "*About* . . . FACE.") This command is used when the person in charge of the formation wants everyone to turn and face in the exact opposite direction. At the command "face," place the toe of the right foot about half a foot to the rear and slightly to the left of the left heel without moving the left foot. Put the weight of the body mainly on the heel of the left foot, left leg straight. Then pivot to the rear, moving to the right on the left heel and on the ball of the right foot. Place the right heel beside the left to complete the movement, ending up at attention. Remember, you always turn to the right when executing an about face, never to the left.

Marching Commands

Military formations are sometimes moved, either to get from one place to another or to put on a parade or what is called a "pass in review."

It will help to remember that all movements except "Right step" begin with the left foot.

"Forward, march." (Given as "*Forward* . . . MARCH.") At the preparatory command "Forward," shift the weight of your body to the right leg. At the command of execution "march," step off smartly with the left foot and continue marching with 30-inch steps taken straight forward without stiffness or exaggeration. Swing the arms

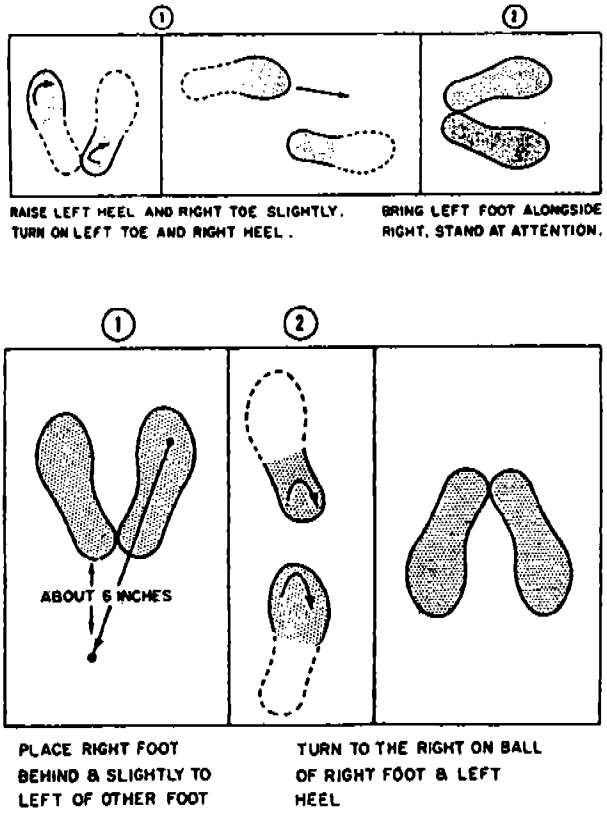
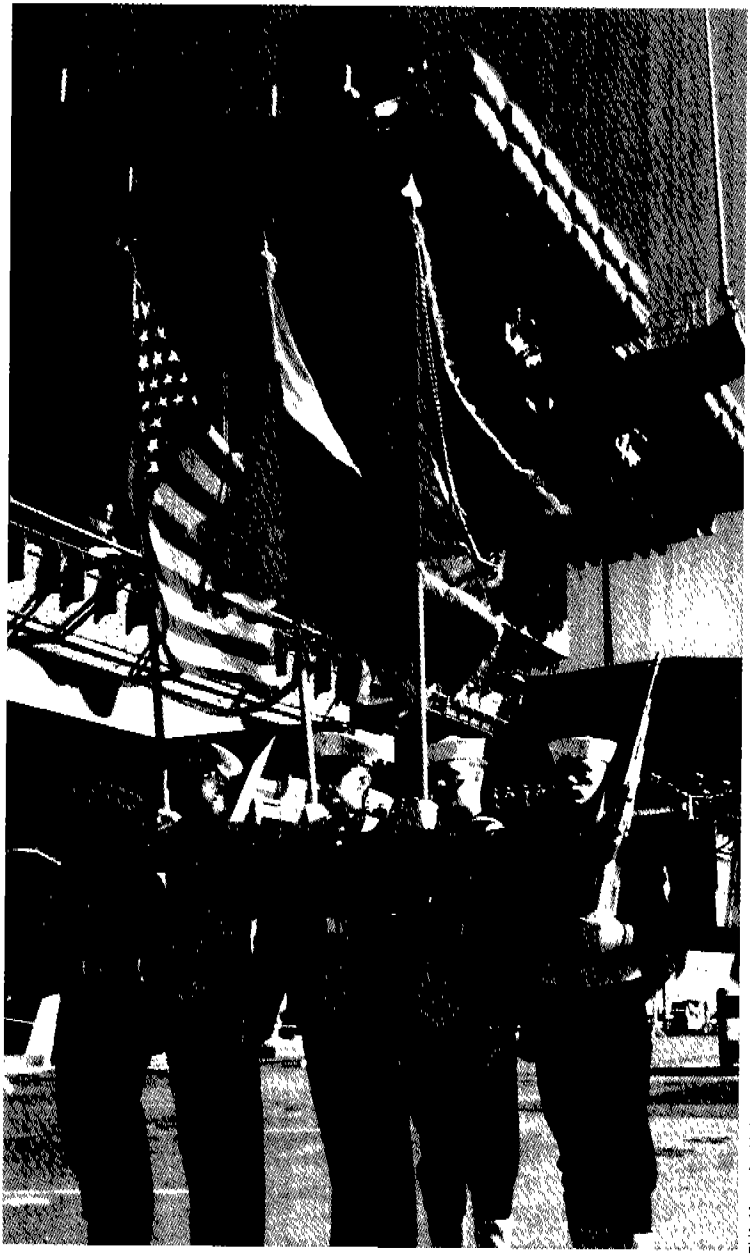


Figure 7.2a–b. a. Right face. b. About face.

easily in their natural arcs about six inches straight to the front and three inches to the rear of the body. Continue marching straight ahead until another command is given.

"Halt." When the person in charge wants to stop the formation from marching ahead, she or he will use the "Halt" command. The preparatory command used with "Halt" is the name of the formation, for example, squad, platoon, detail, company, or battalion. If you were in charge of a squad and you wanted them to stop marching, you would give the command "*Squad* . . . HALT." You could give the command of execution ("halt") as either foot struck the ground. If you gave it on the left foot, each squad member would take one more step with the right foot and then bring up the left foot to stop alongside the



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right foot so that all motion would stop and everyone would be standing at attention.

"Half step." (Given as "*Half-step* . . . MARCH.") Begin taking steps of 15 inches instead of the normal 30 inches. To resume the full step from half step, the command is "*Forward* . . . MARCH."

"Right step." (Given as "*Right-step* . . . MARCH.") At the command "march," move your right foot 12 inches to the right. Then place the left foot beside the right, keeping your left knee straight. "Right step" is ordered from a halt and for short distances only.

"Left step." (Given as "*Left-step* . . . MARCH.") At the command "march," move your left foot 12 inches to the left. Then place your right foot beside the left, keeping your right knee straight. "Left step" is ordered from a halt and for short distances only.

"Back step." (Given as "*Back-step* . . . MARCH.") At the command "march," take steps of 15 inches straight to the rear. The back step is used for short distances only.

Flanking movements. (Given as "*By the right/left flank* . . . MARCH.") When it is desired for the whole formation to change direction by everyone simultaneously facing in a different direction while marching, the flanking commands are used. For a right flanking movement, the command "march" will be given when your right foot hits the ground. You should then take another step with your left foot. With your left foot extended out in front of your right, you should pivot on both feet, causing your whole body to turn 90 degrees to the right. Step off with your left foot as soon as you are turned, and continue marching normally in the new direction. Everyone who was in the right file before the command was given will end up in the front rank after the command is executed, and everyone who was in the rear rank before the command will end up in the right file afterwards.

A left flanking movement is executed in the same but opposite manner.

Reversing direction. (Given as "*To the rear* . . . MARCH.") The command "march" will be given as the right foot strikes the ground. You should take another step with your left foot, then turn to the right all the way about on the balls of both feet and then step off with the left foot.

Figure 7.3. Navy and Marine honor guard members at the commissioning ceremony of USS *Abraham Lincoln* (CVN 72).

"Route step." (Given as "*Route-step . . .* MARCH.") At the command "march," adopt an easy natural stride; there is no requirement to keep step or to maintain silence. In other words, walk normally while staying with your unit.

Sentry Duty

One of the first military duties you will perform as a new recruit is a sentry or security watch. As such, you will be charged with the responsibility for guarding against sabotage, theft, or damage by storm or fire. Such duties will not end with boot camp. Unless your time in the Navy is very unusual, you will be called upon for guard duty, fire watches, barracks watches, pier sentry, and other similar military duties. You may be assigned to patrol an area on foot or in a vehicle, to guard a specific area for a specified period, or merely be available to answer a phone, check people in and out, turn lights off and on, and preserve order and cleanliness.

Requirements for standing sentry duty are the same as those for all watches: keep alert, attend to duty, report all violations, preserve order, and remain on watch until properly relieved. Your immediate superior may be called the "petty officer of the guard," the "petty officer of the watch," the "officer of the deck," the "command duty officer," or some other title. (For the purposes of this discussion, we will refer to your immediate superior as the petty officer of the watch.) Whatever your superior is called, you must take your orders from that person. When you are detailed to a sentry watch, you will conduct yourself according to both special and general orders.

Special orders apply to a particular watch and will be rather specific. These orders will be passed on and explained to you before you assume the watch. You may receive these orders directly from the petty officer of the guard, or you may receive them from the sentry you are relieving.

The eleven general orders are the same throughout the Navy (and the other armed forces for that matter) and never change. You will—on any watch or duty, now and in the future—be responsible for carrying them out, even if no one has explained them to you or reminded you of them. For that reason, you must memorize these eleven general orders and be prepared to recite all or any of them whenever called upon to do so. Because these general orders were written for all the armed forces, you will see some terminology in them that may be unfamiliar. Each of the general orders is listed and briefly explained below.

The General Orders of a Sentry

1. To take charge of this post and all government property in view.

When you are a sentry, you are "in charge." This means that no one—no matter what their rank or position—may overrule your authority in carrying out your orders. The only way that you may be exempted from carrying out your orders is if your orders are changed by your superior. For example, if your orders are to allow no one to enter a fenced-in compound, you must prevent everyone from entering, even if an admiral tells you it is all right for him or her to enter. The petty officer of the watch (or whomever is your immediate superior) may modify your orders to allow the admiral to enter, but without that authorization you must keep the admiral out. Situations such as this will not often—if ever—occur, but it is important that you understand the principles involved.

It is also your responsibility to know the limits of your post. This information will be conveyed to you among your special orders. You must also treat all government property that you can see as though it were your own, even if it is not technically part of your assigned post.

2. To walk my post in a military manner, keeping always on the alert and observing everything that takes place within sight or hearing.

"Keep your eyes peeled," as the expression goes. Be vigilant by looking around at all times. Do not be tempted to hide from the rain or cold in poor weather. If you see or hear anything unusual, investigate it.

3. To report all violations of orders I am instructed to enforce.

If, for example, someone is climbing a fence near your post, you must report it, even if the offender stops climbing and runs away after your challenge. In this case, even though it appears that the threat to security is over, there is no way for you to know whether this violator is the only one involved. And even though the climber may have just been seeking a shortcut back to her or his ship, you cannot be certain that there is not something more sinister involved. Let your superiors make the judgment calls; your job is to report what happens on or near your post.

4. To repeat all calls from posts more distant from the guardhouse than my own.

In these days of modern communications, sentries will probably have telephones or radios at their disposal with which to make their reports. But if they do not, or if there is a power failure or some other

reason that the modern equipment fails, the age-old practice of relaying the word is very important.

The term "guardhouse" in this general order refers to the command post or point of control for the watches. It might be the quarterdeck on board ship or a tent in the field.

5. To quit my post only when properly relieved.

It should be fairly obvious that you should not leave your post until someone has come to take your place or until the petty officer of the guard has told you that the watch is no longer necessary. If the person relieving you is late, report it to the petty officer of the watch but do *not* quit your post. If you become ill and can no longer stand your watch, notify the petty officer of the watch and he or she will provide you a proper relief.

6. To receive, obey, and pass on to the sentry who relieves me all orders from the commanding officer, command duty officer, officer of the deck, and officers and petty officers of the watch.

It is essential that you receive and obey all of the special orders that apply to your watch. It is also essential that you pass these orders on to your relief.

7. To talk to no one except in the line of duty.

Having conversations about matters not pertaining to your duty is distracting and must be avoided. If someone tries to engage you in casual conversation while you are standing your watch, it is your responsibility to inform them courteously that you are on duty and cannot talk with them.

8. To give the alarm in case of fire or disorder.

While this is rather straightforward and obvious, keep in mind that a fire or disorder of some kind might be a deliberate distraction to keep you from observing some other disorderly or subversive activity. If you are certain that a fire is not meant to be a distraction, you should fight the fire if you have the means to do so. Remember, however, that your first responsibility is to *report* whatever is amiss.

9. To call the petty officer of the watch in any case not covered by instructions.

The rule here is "When in doubt, ask." If you are not sure what you are supposed to do in a particular situation, it is better to ask for clarification than to make an assumption or to guess.

10. To salute all officers, and all colors and standards not cased.

Even though you are in charge of your post and everyone, including officers, must obey your instructions insofar as they pertain to your duties, you must still extend the appropriate military courtesies. (Refer to chapter 6 for instructions on saluting if armed.)

Both terms, "colors" and "standards," refer to the national ensign. The national ensign may be referred to as "the colors" when it is fixed to a staff, mast, or pike (e.g., when flown from a flagstaff or carried in a parade). When it is fixed to a vehicle it is often called "the national standard."

A flag is considered "cased" when it is furled and placed in a protective covering.

If your duties allow, you should take part in morning or evening colors ceremonies, but do not sacrifice your vigilance by doing so. For example, if your assignment requires that you watch a certain area and the national ensign is being hoisted in a different direction, you should stand at attention and salute but do not face the colors; keep looking in the direction you are supposed to be watching.

11. To be especially watchful at night, and during the time for challenging, to challenge all persons on or near my post, and to allow no one to pass without proper authority.

Challenging persons while you are on sentry duty is accomplished by a mix of custom and common sense. When a person or party approaches your post, you should challenge them at a distance that is sufficient for you to react if they turn out to have hostile intentions. You should say in a firm voice, loud enough to be easily heard, "Halt! Who goes there?" (or "Who is there?"). Once the person answers, you should then say "Advance to be recognized." If you are challenging a group of people, you should say, "Advance *one* to be recognized." If you have identified the person or persons approaching, permit them to pass. If you are not satisfied with that person's identification, you must detain the person and call the petty officer of the watch.

When two or more individuals approach from different directions at the same time, challenge each in turn and require each to halt until told to proceed.

Use of Weapons

Standing sentry duty will usually mean that you are armed. In addition to sentry watches, other duties may require you to be armed, such as when carrying official mail, guarding prisoners, and, sometimes,

when part of a shore patrol party. Armed personnel are authorized to fire their weapons only under the following conditions:

To protect their own lives or the life of another person where no other means of defense will work.
To prevent the escape of a dangerous prisoner.
To prevent sabotage, arson, or other crimes against the government after all other means have failed.

No one is to be assigned to any duty requiring the use of a weapon until he or she has been properly trained in its use, including all safety precautions.

Whenever you are armed, always treat your weapon with the utmost respect. (See chapter 15 for guidance in the proper handling of weapons.)

Make certain that you know the special orders of your watch pertaining to weapons. In some situations, your orders will be to carry your weapon with a clip or magazine of ammunition inserted but no round (bullet) in the chamber; in others you will be expected to carry your clips or magazines in a pouch on your belt and only insert them when imminent danger threatens.

When being relieved of the watch and your orders are to carry a loaded weapon, you should remove the clip or magazine from the weapon, point it in a safe direction, and check the chamber, making sure there are no rounds present. Release the slide, and with the weapon still pointed in a safe direction, let the hammer go home (return it to the uncocked position). Your relief should repeat this procedure after you have turned the weapon over to her or him.

Physical Fitness

The need for a Sailor to be physically fit goes well beyond health and appearance. While both of these things are important, a Sailor's strength and endurance can be the deciding factors in saving a ship from sinking or an aircraft from going down. Even if your main duties do not routinely entail much physical exertion, the time may come when your ability to shore up a collapsing bulkhead may make the difference in keeping your ship afloat, or a shipmate may live or die depending on your ability to continue holding a line.

For these reasons the Navy places great emphasis on physical fitness, and because an emergency is not the time to find out if you are up to challenge, the Navy requires all Sailors to periodically test their

fitness. Twice a year, you will be given a physical fitness assessment (PFA) that consists of several parts. To begin with, you will be given a Physical Activity Risk Factor Screening Questionnaire, and it is very important that you answer all the questions truthfully. The next part of the assessment consists of a Body Composition Assessment which will determine, through measurements, whether your weight is acceptable or needs adjustment. The last part of the assessment is the Physical Readiness Test (PRT). This consists of a flexibility component (sit-reach), a muscular strength and endurance component (pushups and curl-ups), and an aerobic capacity component (either a mile-and-a-half run, a 500-yard swim, or a 450-meter swim). The PFA is organized and conducted by the Command Fitness Leader (CFL) who may or may not have a number of assistants, depending upon the size of your command.

The standards you will be expected to meet will depend upon your age and gender, and your assessment for each segment will be evaluated as low, medium, or high within the performance categories of satisfactory, good, excellent, and outstanding. If you do not meet the minimum standards, you will be required to participate in a command-directed Fitness Enhancement Program, which will include monitored training, monthly fitness assessments, and, if warranted, nutrition and weight-management counseling. Should you fail the PRT three times in four years, you will be ineligible for advancement in rate until you are able to pass it.

While your command is required to aggressively integrate physical readiness activities into the workweek while meeting mission and operational requirements, it is also your responsibility to maintain a lifestyle that promotes optimal health and physical readiness. At a minimum, you should exercise at least three times a week and ensure that these exercise periods include at least 20-30 minutes of brisk aerobic activity, a strength and flexibility component, and warm-up and cool-down periods. At shore stations, there often are many fitness resources available. Take advantage of them when you can. Staying fit at sea is more challenging, depending on the size of ship you are serving in, but it is imperative that you do what you can, when you can, to stay fit. The stakes are too high to do otherwise.

For more information about the Navy's physical requirements, see the latest version of OPNAVINST 6110.1 or talk to your CFL.

8 Security

The word *security,* as it is used in the Navy, can mean many things. Its most common usage refers to the safeguarding of classified information, but it can also mean the protection of ships and stations and all the people and equipment associated with them.

Security of Information

Because the safety of the United States and the success of naval operations depend greatly on the protection of classified information, it is important that you understand what classified information is, who may have access to it, and some rules and guidance for safeguarding it.

Security Classification

Information is classified when national security is at stake. It is assigned a classification designation, which tells you how much protection it requires. There are three classification designations, each of which indicates the anticipated degree of damage to national security that could result from unauthorized disclosure:

Top secret	Exceptionally grave damage
Secret	Serious damage
Confidential	Damage

All classified material—such as publications, software, equipment, or films—must be plainly marked or stamped with the appropriate classification designation. Following the classification, some material may have additional markings that signal extra precautions in handling. For example, "restricted data" means that the material pertains to nuclear weapons or power and cannot be released to anyone who is not a U.S. citizen.

Unauthorized disclosure, or "compromise," means that classified information has been exposed to a person not authorized to see it.

There is another category of government information, "for official use only" (FOUO). This is not classified information because it does not involve national security, but it is information that could be damaging in other ways and cannot, therefore, be divulged to everyone. Results of investigations, examination questions, bids on contracts, and so on, are "privileged information" and are kept from general knowledge under the designation FOUO.

Security Clearance

Before a person is allowed to have access to classified information, he or she must have a security clearance. You will be assigned a security clearance based upon how much classified material you will need to work with in order to do your job. If you have a need to work with top-secret material, you must first obtain a top-secret clearance. If all you will need to see is confidential information, you will be assigned a confidential clearance.

The standards for clearance are listed in the *Information and Personnel Security Program Regulation* (OPNAVINST 5510.1) or *Security Manual,* as it is commonly called. In general you must be trustworthy, of reliable character, and able to show discretion and good judgment. A person may be loyal to his or her country but unable to meet the standards for a position of trust and confidence. Conduct such as drug abuse, excessive drinking, and financial irresponsibility can lead to denial of clearance. This could cost a promotion, cause a rate conversion, or lead to separation from military service. A clearance may be denied or revoked because of mental or emotional condition, general disciplinary causes, AWOL (absent without leave), falsification of official documents, or disregard for public laws or Navy regulations.

Investigations

Before you can be granted a security clearance, an investigation is conducted into your background to make certain that you can be trusted with classified information. Government agents will look into your past records and question people who have known you. This process takes a while, so you may be given an "interim" clearance based upon some preliminary investigating before your "final" clearance comes through. The word "final" in this case means that the routine investigating is over and that you have been granted the clearance you need. It is not "final" in the sense that it cannot be taken away. Should you involve yourself in any of the disqualifying activ-

ities mentioned above (such as drug use or financial irresponsibility) your clearance may be revoked.

Access and Need to Know

Security clearances are granted only when access to classified material is necessary to perform official duties and only at the appropriate level. If your job requires you to see confidential material but not secret or top secret, you will only receive a confidential clearance. This is no reflection on you or the level of trust the government places in you. If you are ever denied the access you *need,* that is a cause for concern, but as long you receive the level of clearance required for the performance of your assigned duties, you should be satisfied.

It is important to understand the concept of "need to know." Just because you may have a secret clearance, that does *not* give you access to *all* secret material. Your secret clearance allows you to see all the secret material you need to know in order to do your job, but it does not entitle you to see information classified at that level in other locations or departments not related to your job. If circumstances change and your duties no longer require access, or require a lower level of access, your security clearance will be administratively withdrawn or lowered without prejudicing your future eligibility. Commanding officers may reinstate or adjust your security clearance as the need arises.

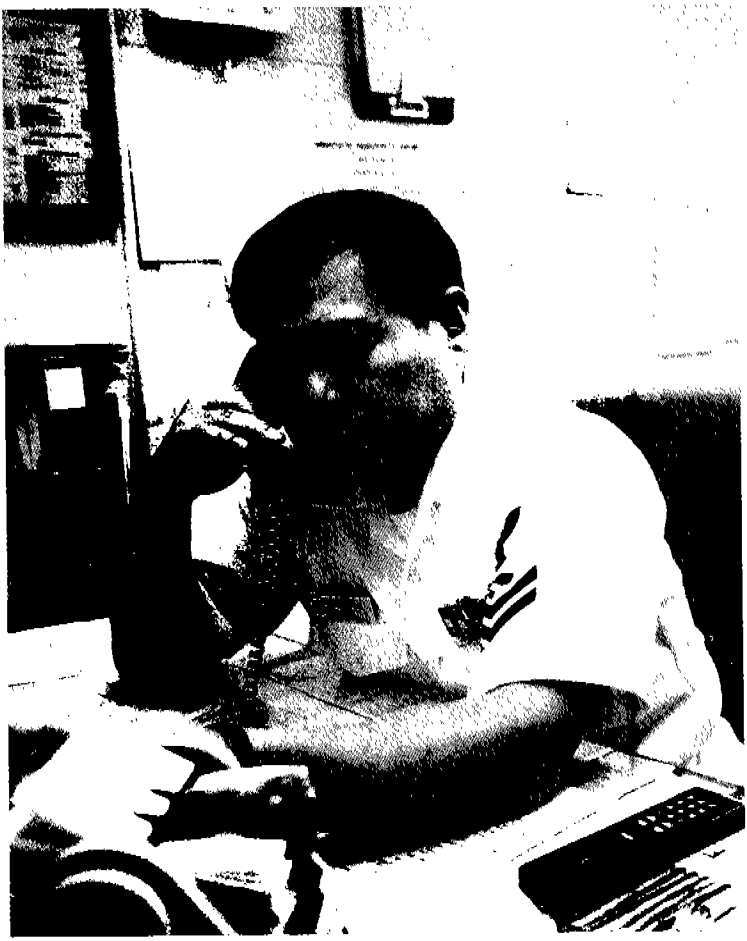
Safeguarding Classified Information

Classified information or material is discussed, used, or stored only where adequate security measures are in effect. When removed from storage for use, it must be kept under the continuous observation of a cleared person. It is never left unattended.

You are responsible for protecting any classified information you know or control. Before giving another person access to that information, it is your responsibility to determine that the person has the proper clearance and a need to know. If you are uncertain whether someone has the proper clearance and a need to know, find out before you allow them access. Never tell someone something classified just because they are curious, even if they have the proper clearance. Remember, there are *two* requirements for someone to have access to classified material: they must have the proper clearance and they must have an official need to know the information.

Voice Communications

Some radio circuits and telephones in the Navy are what we call "secure." This means they are protected by special equipment that encrypts (scrambles) your voice so that an enemy cannot listen in and understand what you are saying. Never discuss classified information over a telephone or a radio circuit unless you know it is secure.



JOSN Oscar Sosa

Figure 8.1. Never discuss classified information on an unsecured telephone line or radio circuit.

Stowage and Transport

Classified material may not be removed from the command without permission. Authorized protective measures must be used when classified material is sent or carried from one place to another and it must be stowed (stored) properly. Do not, for example, take a classified manual home to study at night. It is admirable that you want to improve your knowledge so that you can do your job better, but you probably do not have the means to transport the material safely, you almost definitely do not have the means to stow it safely in your home, and since you will not have the permission of your commanding officer, you will be in very serious trouble should anything happen to the material.

Discovery of Classified Information

If you accidently come across some classified material that has been left unguarded, misplaced, or not secured, do not read or examine it or try to decide what to do with it. Report the discovery immediately and stand by to keep unauthorized personnel away until an officer or senior petty officer arrives to take charge.

Security Areas

Spaces where classified materials are used or stowed or that serve as buffers are known as security areas. Some areas are more sensitive or are more likely to risk compromise than others, so to meet these varying needs, a system has been developed to identify security areas properly. The government has established three types of security areas and identified them by levels. All three of these areas are clearly marked by signs with the words "Restricted Area." The level of the area is *not* identified on the signs, however.

Level I No classified material is actually used or kept in a level I space; it is used as a buffer or control point to prevent access to a higher-level security area. A security clearance is not required for access to a level I area, but an identification system is usually in place to control access to the area.

Level II Classified material *is* stowed or used in these areas. Uncontrolled access to a level II area could potentially result in the compromise of classified information. Therefore, it is mandatory that anyone not holding the proper clearance must be escorted while visiting a level II area.

Level III Classified material is used in a level III area in such a manner as mere entry into the area risks compromise. An example would be a command and control center where large decision-making

displays have classified information posted on them. Only people with the proper clearance and the need to know are permitted access to a level III area. All entrances must be guarded or properly secured.

Censorship

In war or during certain peacetime emergency conditions, censorship of personal mail may be imposed. The intent of censorship is to avoid security violations that might occur through carelessness or lack of judgment in writing letters. Under such emergency conditions, all letters written aboard a ship, or in a forward area, must be passed by a censor. When censorship is imposed, instructions will be issued explaining what can and cannot be discussed in letters. You should avoid subjects such as ships' movements, combat actions, or details of weapons in your letters under these circumstances.

Photographs may be censored as well. Cameras may be barred and all pictures taken aboard ship may require clearance for release.

Limitations may also be imposed upon other forms of communication, such as telephone calls and ham radio operations.

Threats to Security

Foreign nations may be interested in classified information on new developments, weapons, techniques, and materials, as well as movements and the operating capabilities of ships and aircraft.

The people who collect such information cannot be stereotyped or categorized, which is why they succeed in their work. A person who has access to classified material should never talk to any stranger about any classified subjects. A foreign intelligence agent collects many odd little bits of information, some of which might not even make sense to the agent, but when they are all put together in the agent's own country they may tell experts much more than the Navy wants them to know.

Espionage agents prey upon the vulnerabilities of their intended targets. For example, service people with relatives in foreign countries can sometimes be intimidated into cooperation by threats to their relatives. Members of minorities sometimes can be tempted to divulge information if they feel the system within which they live isn't fair to them. People with financial problems or drug habits can be coerced into doing favors for the enemy. Some people may feel a need for attention. If a stranger offers to solve your problem, you could be placed in the awkward position of accepting, without even

knowing that your new friend is indeed from an unfriendly foreign nation. All this may sound like a scene from a spy movie but, unfortunately, it happens in real life. Enemy agents also like to infiltrate social gatherings where U.S. service personnel dance, drink, and talk. These agents may gather important pieces of information merely by listening to the conversation around them or by actively engaging in talk with service personnel. Then they pass on whatever is heard. Some agents even move into communities with service people so they can collect information from their neighbors.

Listed below are some ways to prevent being exploited by a foreign agent:

Don't talk about a sensitive job to people who don't need to know—not even to your family or friends.

Be careful what you say in social situations. Even seemingly trivial information can be valuable in the wrong hands.

Know how to handle classified material properly.

Don't be careless with carbons and typewriter ribbons used in connection with classified material. They are as classified as the original material.

If you have personal problems you feel might be exploited, use the chain of command to solve them. No one in the Navy is going to hit you over the head because you have a problem that might be solved by a senior petty officer or officer. If one of them can't help, go to the chaplain. Chaplains are in the service for more than promoting religion; they are there to help, whatever your problem is.

Reporting Threats

Report any suspicious contact. If someone seems more curious about your job than seems normal and presses you for information in any way, report it to your superiors. If the person is innocent, no harm will come of it. If the person is guilty, you will have done a great service to your country by calling attention to the incident.

If you are contacted by someone whom you are certain is attempting espionage, do not try to be a hero by taking action yourself. *Report it!*

Report any contact with someone you know who is from a nation that is hostile or potentially hostile to the United States, even if the contact seems innocent. Remember that spies rarely start out trying to get classified information from their targets. If you are unsure whether the nation is considered a potential threat, *report it.* In matters of security, it is always better to be overly cautious than not cautious enough.

If you feel that your superior in the chain of command cannot be trusted with the information you have to report, request permission to see the next higher-up. And the next, if necessary. If you feel you can't approach the people in your chain of command, go to the Naval Criminal Investigative Service (NCIS) office. If you can't find one, look in the white pages of the phone book under U.S. Government, Naval Activities.

If you are going to make a report, make a note of the date, time, place, and nature of the encounter. Describe how you were approached and mention who else in the Navy was also approached. Provide names if you know them. State your own name, grade, Social Security number, and anything else you feel is pertinent.

Operational Security

Operations are military actions, missions, and maneuvers. They involve the movement of ships and planes and their cargoes, personnel assignments, information gathering, communications, and the deployment and usage of weapon systems.

Much information can be gathered by an enemy or potential enemy without resorting to espionage. With enough information, an enemy can determine what an operation is for and sabotage it. Cargo loaded aboard a ship or plane may seem unimportant, but it can be vital information for an enemy wondering whether it is destined for the tropics or the arctic regions. The kind of ship carrying the cargo does not escape the enemy's attention. Is it a troop carrier or an icebreaker? Are the planes involved bombers or supply transports? Does an increase in radio traffic signal the beginning of a big operation? The slightest change in daily routine can be noted and reported to an expert who knows that any change, no matter how innocent or trivial it may seem, could be a piece in the puzzle of U.S. operations. For example, if medical supplies are being loaded aboard a supply ship at the same time that Marines are boarding an amphibious assault ship and an air squadron makes an urgent request for maps of a certain area that would be ideal for an amphibious assault, an enemy gathering these three facts can deduce that an amphibious assault is likely in that area and will know something about its timing and components. This information will allow the enemy to take the necessary steps to oppose or confuse the landing, causing a failure of the operation or the loss of American lives that might otherwise not have occurred.

"Operational security" (OPSEC) is the term used in the military to define those measures used to prevent an enemy or potential enemy

from gathering too much information about our military operations. There are four main components to OPSEC.

Communications security. Measures taken—such as encryption and coding or methods of controlling the flow of message traffic—to prevent the disclosure of information by telephone, telegraph, radio, teletype, Internet, FAX transmissions, mail, and any other means of communicating.

Electronic security. This includes the prevention of giving away valuable information by means of radar, sonar, or any other noncommunicating electronic emission. For example, if you use your radar to search for aircraft, your radar signal can be detected by the enemy to let them know you are in the area.

Operational information security. This refers to the protection of plans, maps, photographs, documents pertaining to attack and defense tactics, and information regarding unit movements and locations.

Physical security. Guarding classified areas, equipment, buildings, and people from unauthorized access, sabotage, and other dangers.

Physical Security

Protecting classified material is essential to a military organization, but there are other considerations in the security of a ship or other naval unit. Naval personnel assigned to ships—whether on watch or not—must always be security-minded and on the alert for any sign of danger to the ship. A ship can be threatened by any number of dangers, including hurricanes, tidal waves, flooding, fire, explosions, sabotage from within the ship, foreign saboteurs, sneak attacks, civil disorders, and riots.

External Security

Threats to security may originate outside the ship. Strangers approaching the ship should be regarded with suspicion, even though they appear to be ordinary visitors, salespersons, newspaper carriers, or delivery people. All individuals coming aboard must be identified by the OOD or his or her representative, and all items such as packages, parcels, briefcases, and toolboxes should be inspected. Persons standing gangway or quarterdeck watches assist the OOD in identifying approaching boats, screening visitors, and checking packages.

Sentries and guards posted for security purposes are guided by written instructions and must know how to challenge approaching

boats in order to identify occupants before they come alongside. All sentries may be armed when the situation demands. Armed guards should be well trained in the use of their weapons.

Moored or anchored ships are vulnerable to sneak attacks and sabotage, particularly at night. Ships can be approached by swimmers, small boats, or submarines. Saboteurs may mingle with a returning liberty party, pose as visitors, or sneak aboard when ships are moored to a pier. During times of heightened danger, extra watches will be assigned for added protection to the ship.

If an attack is expected, U.S. military authorities will change the "Threat Condition" or "ThreatCon" as appropriate, which will in turn require heightened security measures. If there is no perceived threat, *ThreatCon Normal* will be set and only routine precautions will be required. Other conditions are described as follows:

ThreatCon Alfa. General threat, the nature and extent of which are unpredictable.

ThreatCon Bravo. Increased and more predictable threat; no target identified.

ThreatCon Charlie. An incident has occurred or intelligence indicates some form of terrorist action is imminent.

ThreatCon Delta. A terrorist attack has occurred, or intelligence indicates terrorist action against a specific target is likely.

As the ThreatCon increases, your command will have certain specific actions to take that will heighten security, ranging from required ID checks to posted sentries and armed patrols. These will vary, depending on the nature of your command, and you should learn what they are.

Internal Security

The safety of a ship may also be threatened from within by accidental or deliberate causes. Fire and flooding—whether caused by equipment failures or deliberate sabotage—are always a serious threat to the internal security of a ship. Someone intent upon doing harm to a ship, for whatever reasons, can do grave damage from within if adequate security measures are not in place.

In addition to the quarterdeck watches already discussed, there are a number of routine watches set up to enhance the internal security of most naval vessels.

The sounding and security watch. Manned both underway and in port, personnel assigned to this watch patrol the ship, making routine

checks for watertight closures and security. If you are assigned to this watch, you will watch for fire hazards, take soundings (checks for flooding), and make draft readings (watch special markings on the ship for signs of gradual sinking).

The cold-iron watch. When a ship is in port and all or part of her engineering plant is shut down, a "cold-iron watch" is set. This watch checks all machinery spaces for violations of watertight integrity and any other problems that might occur.

Security alert teams. Shipboard personnel may be assigned to a security alert team to respond when some sort of emergency situation arises. These Sailors do not man any particular posts but are ready to respond on a moment's notice (much like firefighters in your community) if called away to provide additional security to the ship.

Bomb Threats

A bomb threat may happen anytime or anywhere. Many bomb threats are not real, but you should not assume that this is the case. If you receive a bomb threat by telephone, keep your head and take the following actions if at all possible:

- Try to keep the caller on the line and obtain as much information as you can.
- Write down the exact words of the caller (or as close to the exact words as possible) as quickly as you can.
- Try to determine the sex, approximate age, and attitude of the caller.
- Ask the caller when and where the bomb is to go off, what kind of bomb it is, what it looks like, and where the caller is calling from.
- Listen for background sounds that might give an indication of the caller's location.
- Note any accent or peculiarity of speech that may help identify the caller.

Each telephone at your command should have a copy of the "Telephonic Threat Complaint" form readily available to guide you if you receive a bomb threat.

There are certain defensive actions you can take to reduce the chance of a real bomb attack:

- Strictly comply with and enforce procedures for personnel identification and access control by always carrying your own

identification card and, if you are on watch, carefully examine the ID cards of personnel boarding your ship or visiting your command, particularly if you do not recognize them.

- Be suspicious of packages if you do not know where they came from.
- Be suspicious of articles that are obviously out of place.
- Maintain tight control of locks and keys.
- Lock spaces that are not in use.
- Report suspicious personnel and their actions.

Wartime Security

In times of war or when the potential for hostile action is very high, extra precautions must be taken to provide additional security to the ship. These precautions may be very elaborate and involve highly trained personnel, or they may be relatively simple and affect everyone on board.

EMCON. Because modern technology enables an enemy to detect almost any electronic emission, a condition known as EMCON (emission control) may be set. When EMCON is imposed aboard ship, powerful equipment such as radio transmitters and radars will be shut down or tightly controlled. Even your personal radio may be prohibited if it has signal-emitting characteristics (which many do).

Darken ship. If a vessel does not want to be detected at night, "darken ship" will be set and must be observed by everyone on board. The glow of a cigarette can be seen for miles on a dark night. The light from an improperly shielded doorway will let a submarine make a successful periscope attack.

Quiet ship. Sound travels better in water than in air. Unnecessary noises can aid an enemy in detecting a ship or submarine. When "quiet ship" is set, all banging and hammering will be prohibited and everyone on board will be expected to avoid making any loud noises.

Shipyard Security

Ships sent into shipyards for major repairs will have many civilians coming aboard to do their work. This increased traffic can make a ship more vulnerable to problems of theft, damage, and even sabotage, because it becomes more difficult to keep track of so many people on board. All workers coming aboard a ship must be identified. The shipyard itself will assist in this process by providing proper identification cards to its workers. Compartments containing classified matter must be secured, either by locks or with sentries.

U.S. Naval Institute

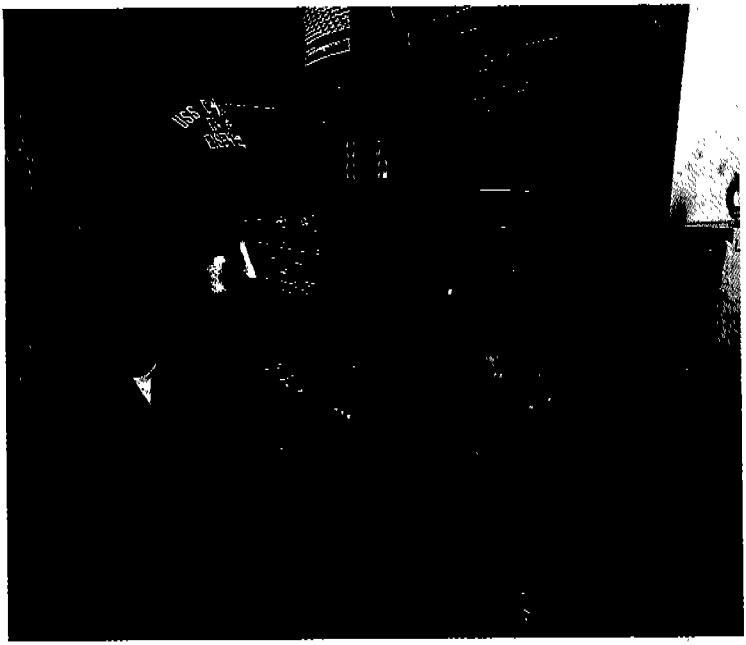
Figure 8.2. A Marine on sentry duty.

Shipboard personnel may be assigned as "fire watches" to each welder and burner who comes on board because of the increased potential for fire. Also, special precautions must be taken after each shift to inspect spaces for fire hazards.

9

Duty Assignments and Advancements

During your time in the Navy, two things will occur on a periodic basis: you will change duty stations and you will advance in pay-grade. In order for you to vary and broaden your experience and for you to contribute to the needs of the Navy, you will periodically change duty stations. The longer you stay in the Navy, the more transfers from one duty station to another you will experience. If you are doing your job well and striving to learn and improve yourself, you will also be advanced in rate.



U.S. Naval Institute

Figure 9.1. A Sailor at work in the combat information center.

Duty Assignments

Whenever you are assigned to a duty station, you will have what is called a "planned rotation date" or, as you will more commonly hear it called, a PRD. This is the day that the Navy is planning to transfer you to a different duty station. It is important to note the word "planned" in this term. This date is for *planning* purposes. You may or may not be transferred on that date. You may in fact be transferred on or close to your PRD, you may be transferred earlier or later than your PRD if circumstances arise that make it necessary, or your PRD may be changed at some point during your stay at a particular duty station. The thing to remember is that most transfers do take place on or about the date set in your PRD, but you must be prepared for other eventualities. Do not embarrass yourself by trying to tell a Navy official that you *have* to be transferred on a certain date because it is your PRD.

It should be obvious that transferring Navy people from one duty station to another is a fairly complicated process. A number of factors (or details) have to be considered before a successful transfer can be accomplished. In the Navy, the people who make these changes are called "detailers" and they must consider the needs of the Navy (including who is needed where and what it will cost to get them there), the needs and desires of the individuals involved, and the qualifications of the individuals who are going to fill specific billets.

Duty Preferences

Your desires are among the factors that detailers will consider in making duty assignments. It is important to let the detailers know what your desires are for your next duty assignment. This is accomplished by the use of a special form called a "Duty Preferences Form" (NAVPERS 1306/63). This form allows you to tell the detailer what kind of ships or squadrons you would like to serve in, what home ports you prefer, where you would like to serve on shore duty, and what overseas duty you would most like to have.

Submission of the duty preferences form is an individual responsibility. If you have no duty preference on file, your detailer will not know what you want and will have no choice but to assign you to fill any valid requirement without considering what your needs and wants are. You should fill out a 1306/63 when you arrive at your duty station and submit a new one every time your duty preferences change.

The 1306/63 has a "remarks" section that allows you to provide additional information that might help your detailer make an appropriate assignment. Use this section to tell the detailer about such things as the expected delivery date if you have a child on the way, any special needs that members of your family may have, or special skills that you or your spouse may have (such as foreign language proficiency).

Detailing

At any one time, about two-thirds of the enlisted personnel in the Navy are in seagoing billets and the other third are in shore billets. To make certain that everyone gets a fair share of each kind of duty assignment, a system of centralized detailing has been set up by the Bureau of Naval Personnel (BUPERS). Full details of how this system works are contained in the Enlisted Transfer Manual (TRANSMAN, NAVPERS 15909), but because this system is somewhat complicated, you should make it a habit to consult a career counselor before making any requests under this system.

Duty Types

It would not be fair if some people always had sea duty and others only shore duty. And it should come as no surprise that not all sea assignments are alike—some are more challenging than others—and not all shore assignments are equal in their challenges and benefits. Therefore, different kinds of duty have been classified by a system that assists detailers in making equitable assignments. These types of duty are assigned (and, when necessary, changed) exclusively by BUPERS. With these type designations, detailers are able to make fair assignments. For example, if you and a shipmate both requested a shore assignment to Hawaii, you would have a better chance of getting it than your shipmate if your record showed that you had more time at sea.

The various types of duty are described below.

Shore Duty (Type 1)

Duty performed in the United States, Hawaii, or Anchorage, Alaska, at land-based activities where you are not required to be away from the station more than 150 days a year. Also, if you are assigned as a student to a school that lasts more than 18 months, it is considered Type 1 (shore) duty.

Sea Duty (Type 2)
Duty performed in ships and deployable aircraft squadrons that are home-ported in the United States (including Hawaii and Anchorage, Alaska). Also applies to embarked staffs (senior officers and their staffs who ride on a ship but are not permanently assigned to it) and land-based activities that are home-ported in the United States (including Hawaii and Anchorage, Alaska) but deploy (go away from their home port or base) for more than 150 days per year.

Overseas Remote Land-based Sea Duty (Type 3)
Duty performed in a land-based activity that does not require you to be away from your base more than 150 days each year but, because of its undesirable location, is counted as sea duty.

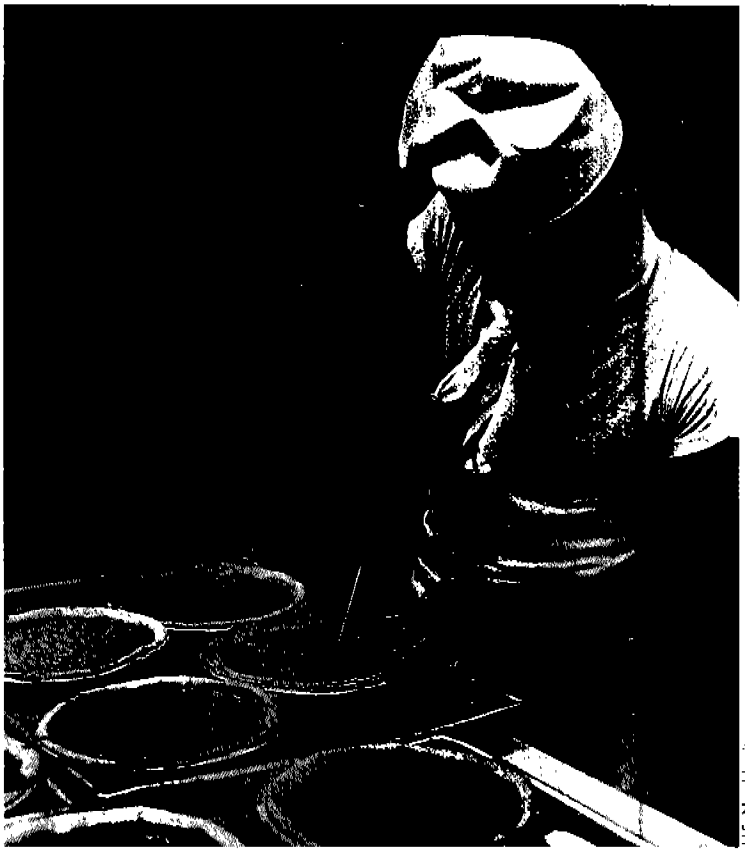
Nonrotated Sea Duty (Type 4)
Duty in ships and aircraft squadrons that are permanently located overseas and whose duties require them to be away from their home base for more than 150 days each year. Also applies to embarked staffs or land-based activities who are required to be away from their home base for more than 150 days each year.

Neutral Duty (Type 5)
This type of duty is no longer recognized.

Overseas Shore Duty (Type 6)
Duty performed at overseas locations that does not meet the special criteria of Type 3 duty counts the same as shore duty in the United States for rotational purposes. In other words, you can expect to go to sea following a Type 6 assignment.

Special Assignments

In addition to the various kinds of duty described above, there are a number of special assignments that require additional attention by detailers and may require additional qualifications or special screening procedures. Some of these are instructor duty, recruiting duty, career counseling, Food Management Teams, Fleet Technical Support Centers, brigs and correctional custody units, Military Assistance Advisory Groups in foreign countries, State Department Support Units, Blue Angels flight demonstration team, Underwater Demolition Teams (UDT), Sea-Air-Land (SEAL) teams, Special Warfare Combat Crewman (SWCC) teams, explosive ordnance disposal (EOD) units, deep sea and salvage diving, and personnel exchange programs (PEP)



U.S. Naval Institute

Figure 9.2. Because food is vital to the readiness of the Navy, special Food Management Teams travel to ships and shore stations to provide on-the-job training in food preparation, mess management, and sanitation.

with foreign navies. If you are interested in any of these special assignments, see your command career counselor for more information.

Humanitarian Assignments

Detailers are aware of the hardships confronting Navy families and of the additional aggravation imposed by long absences of service members from their families. Emergency leave sometimes provides sufficient time to alleviate hardship; however, when an individual requires more time than leave can provide and has a reasonable chance of resolving the hardship within a specified time frame, reassignment for humanitarian reasons (HUMS) may be required.

U.S. Naval Institute

Figure 9.3. Sailors must complete an arduous training program to become Navy SEALS.

Specific requirements are contained in the TRANSMAN, and your personnel office can give you additional information regarding HUMS assignments and help you determine your eligibility for one, but bear in mind that these assignments are made under rather narrow guidelines. The situation has to be *very* serious and there has to be reason to believe that the problem can be solved within a reasonable amount of time (six months is the norm).

Exchange of Duty

There are occasions when the assignment of an individual to a specific area would be highly beneficial to the individual's morale, but not justifiable in view of the expenditure of government funds required. The Navy may effect such transfers, provided the individuals involved agree to bear all expenses involved. There are two types of duty exchange, usually called "swaps." One is negotiated by NAVPERSCOM and is based on a letter of request from you. The other is self-negotiated and should be requested on a NAVPERS 1306/7 (enlisted transfer and special-duty request) form. The specific requirements are contained in the TRANSMAN.

Transfers

Once your new duty assignment has been made and you have received your official orders, it will be time for you to check out of your old duty station, move yourself and your belongings to the new location, and report in to the new duty station. Sometimes a transfer can be as simple as walking across a street or a pier. Other transfers can involve moving you and your family halfway around the world. The Navy will provide you a great deal of assistance in making the transfer as smooth as possible, but you must also do your part to ensure a smooth transition.

Departing

Make certain when you are checking out from your old duty station that you understand your orders. If they authorize DELREP (delay in reporting) to count as leave, make certain you know the date on which you must report to the new station. If commercial transportation is authorized at government expense, pick up the tickets or travel vouchers. If you have any questions at all, ask the transfer yeoman or personnelman before you leave; this may save you a lot of trouble later.

If you have a spouse and/or children who will be going with you to your new duty assignment, it is a good idea to write to the local housing office at your new duty station to get housing information.

Make certain that you file a change of address form at your old duty station so that your mail can catch up to you.

En Route

While you are en route to your new duty station, you may encounter some problems. For example, if you are assigned to a ship, you may get to the port where she is supposed to be only to find that she got underway the day before because an airliner went down off the coast and the ship is needed for rescue operations. There may be no way to join the ship until she returns from the rescue operation. What do you do?

Remember, it's all one Navy, and no matter where you are you can find someone to help. Always keep your orders, records, and pay accounts with you, not in your baggage, which may be lost. With them, you can obtain further transportation if needed and draw some of your pay if you are running out of money. If you are in an area where there are no Navy facilities, Army and Air Force activities can help you with these matters as well.

If you are in doubt as to the location of your new duty station when you arrive in the area, check in with the Navy Shore Patrol or

look in the local telephone directory under "U.S. Government" to find some naval activity where you can obtain help. Most areas have a local Navy or other armed forces recruiting station, and they can help you find your new station.

If you have dependents (spouse and/or children) with you, get them settled into a temporary lodging facility (a hotel, motel, or Navy Lodge if one is available) before reporting to your new duty assignment.

Reporting

When reporting to your new duty station, be in complete and proper uniform. Because you are going to be making a first impression and you want it to be a good one, look your sharpest, and present yourself well when you report in.

Be sure you have all your necessary gear with you; the ship may sail the same day you report, and what you check in with could very well be all you will have for a while. But also keep in mind that you will have only a limited amount of space to store your personal belongings, so bringing large items like "Boom-boxes," computers, and even oversized luggage can cause you problems.

Hand your orders to the watch, either at the main gate or the quarterdeck, so that they can be endorsed and stamped with the time and date of reporting, and you can be logged in.

As soon as is practical, deliver your original orders and your records to the personnel office. You certainly want to be paid on time, so turn in a copy of your orders to the disbursing office.

Enlisted Advancement System

Advancement in the Navy means better pay, more privileges, greater responsibility, and increased pride. Advancement to petty officer rates in the Navy are made through centralized competition. Because the requirements sometimes change, it is always best to consult with your personnel office or educational-services office for the latest information. While the Navy will assist you in various ways, meeting the requirements for advancement in rate is ultimately up to you. Think ahead and prepare, so that you are ready for advancement once you have met the time-in-rate (TIR) requirements.

General Requirements

While there are a number of requirements for advancement (length of service, awards earned, test scores, etc.), the most heavily weighted

aspect is your performance. Throughout your Navy career, you will receive performance evaluations describing how well you perform your duties. What those evaluations in your record say about you is the most important factor in determining whether you will be advanced. Advancement to E-3 depends entirely upon your performance and your having spent the required amount of time as an E-2. If you have a favorable recommendation for advancement on your most recent evaluation, you will be automatically advanced to E-3 when you have served the required time in rate [see below]. But to advance to E-4 through E-7, you must also compete in the semi-annual or annual Navy-wide examinations for advancement in rate. Before you can take these exams you must meet certain eligibility requirements. You must meet physical readiness and body fat standards, must complete any required courses for the rate you are seeking, and must complete all required Personnel Qualification Standards (PQS) [see Chapter 10]. If you are seeking advancement to E-6, E-7, or E-8, you must also attend the Leadership Training course for your rate to be eligible.

Time in Rate (TIR)

You must spend a minimum length of time in any given rate before you can even try to advance to the next higher one. This period is called "time in rate" and is designed to ensure that a Sailor spends some time at each level gaining experience before she or he is eligible for advancement to the next higher rate. The specific TIR requirements do change from time to time, but currently they are as follows:

E-1 to E-2	9 months as an E-1
E-2 to E-3	9 months as an E-2
E-3 to E-4	6 months as an E-3
E-4 to E-5	12 months as an E-4
E-5 to E-6	36 months as an E-5
E-6 to E-7	36 months as an E-6
E-7 to E-8	36 months as an E-7
E-8 to E-9	36 months as an E-8

Keep in mind that these are *minimum* times. Except for advancement to E-3, you should not expect to necessarily get advanced within these periods of time. Few people do. Advancement tests are only given at certain times of the year, and it takes time to process and

grade them. That factor alone will make it very difficult for you to be advanced within the minimum times shown above.

Naval Standards (NAVSTDS) and Occupational Standards (OCCSTDS)

Volume one of the *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupations Standards* (NAVPERS 18068) lists the minimum things you should know or be able to do in order to be eligible for your next advancement. NAVSTDS are general military requirements that do not apply to a specific rating and that all Sailors at each paygrade should know. OCCSTDS are the things you should know for the specific rating (such as quartermaster or storekeeper) you are trying to achieve. Keep in mind that there will be questions related to both on your exam. Also keep in mind that you are responsible for knowing not only those NAVSTDS and OCCSTDS for the rate you are trying to achieve but also all those of the lower rates. In other words, if you are preparing to be advanced to Quartermaster Second Class, you should be studying and reviewing the NAVSTDS for E-2 through E-5 and the OCCSTDS for QM3 as well as QM2.

Preparation Aids

For most advancements you must take a written advancement examination. The people who write these exams have also prepared guides to help you study. For each rate there is a Bibliography for Advancement-in-Rate Exam Study (known more commonly as a BIBS) and an Advancement Handbook (AH). Together, these two publications make up a comprehensive study package that will help you prepare for advancement.

The BIBS for your rate gives you a list of all the publications that will help you prepare for advancement such as training courses, instructions, and technical manuals. BIBSs can be obtained from your educational services officer (ESO) or from the Internet at *www.cnet.navy.mil/netpdtc/nac/bibs/bibs.htm.*

Advancement Handbooks tell you what you need to know and must be able to do in order to pass the advancement exam for your particular rate by breaking the requirements down into logical packages of general skill areas, specific skills, knowledge required to perform the skill, references you should study, and suggestions as to what to expect on the exam. AHs can be obtained from your ESO or from the Internet at *www.cnet.navy.mil/netpdtc/nac/download/ah.intro.htm.*

Training Manuals (TRAMANs) and Non-Resident Training Courses (NRTCs)

To help you prepare for advancement, the Navy supplies TRAMANs, which serve as textbooks, and NRTCs (often called "correspondence courses"), which are courses based on the TRAMANs, that you can take without having to go to a school. Many of these courses are required for advancement. See your Educational Services Officer or Command Career Counselor for assistance in determining which courses to take and how to obtain them. Most are available on the Internet at *http://www.advancement.cnet.navy.mil and http://courses.cnet.navy.mil.*

Personal Preparations

Next to good performance, perhaps the most important requirement for your advancement is a good study plan. There is a lot to learn no matter what rate you are trying to achieve so you must make time on a regular basis to prepare yourself for advancement. Try studying three days a week right after breakfast or every night before taps—whatever works best for you. Try to allot at least an hour, but settle for less on occasion rather than not study at all. Every little bit helps.

Find a study partner or start a study group. Two (or more) heads are usually better than one as long as all participants are sincere about learning. Study partners can help each other understand difficult concepts by pooling their knowledge, and quizzing one another is an excellent way of preparing for exams.

When it comes time to take the exam you have been preparing for, it is a good idea not to attempt any last-minute studying the night before. Relax. Go out for dinner if possible. Take a walk, spend some time with friends, or have a moderate workout at the gym. Most important of all, get a good night's sleep.

While taking the exam, pace yourself. Begin by reading all the questions and the answer choices. Then go through the exam again, this time answering all those questions you are certain you know. Go through again with the time remaining and work on those questions you are not certain about. Take an educated guess rather than leave a question blank. You will not be graded by the number of wrong answers, but on the number of correct responses.

Professional Development Board (PDB)

To ensure that your professional development is adequately cared for, your command will have a PDB consisting of the Command Master Chief, Command Career Counselor, Personnel Officer,

Educational Services Officer, and other assistants as deemed necessary who meet periodically to review the career development issues of the crew as they see them or as individuals bring to their attention. For example, should you be having difficulty reaching career goals in a timely manner, the PBD will find ways to help you. Or if you wanted to apply for an officer program, the PBD would assist you in determining your eligibility and in fulfilling the application requirements.

Advancements

Obviously the Navy cannot advance everyone who wants to be advanced. Because the Navy needs only a certain number of petty officers, it is not even always possible to advance everyone who passes the examination and meets the other qualification requirements. The Navy has therefore devised an equitable system to select the most qualified people for advancement.

Final Multiple Score (FMS)

Once you have met all the requirements and have taken the competitive examination, your results will be computed as a "final multiple score." This is determined by combining a number of factors to determine who, of all those competing, will be advanced. The factors considered include how you did on the written examination, your performance marks, how long you have served in your current paygrade, how long you have been in the Navy, how many awards you have received, and whether or not you have taken the exam before and how well you did. You will receive a certain amount of credit for each of these factors, depending upon what paygrade you are seeking, and the end computed result will be your FMS. Your FMS is then compared to the FMSs of everyone else who took the exam, the Navy determines how many people it needs to advance, and those with the highest FMSs are advanced. For example, if you are seeking advancement from seaman to QM3, and the Navy needs 100 new QM3s, you will be advanced if your FMS was among the top 100 of those who are competing. If 100 or more people did better than you once the FMSs are calculated, you will not be advanced. But if only 99 or fewer did better, you will be a new QM3.

Passed But Not Advanced (PNA)

For every written examination, there is a minimum passing grade established. If you pass the exam but do not end up with a high enough FMS to be advanced, you are designated as PNA, which

means "passed, but not advanced." This is certainly frustrating, but it's not all bad news. The next time you compete for advancement, you will receive some additional credit toward your FMS by having a PNA in your record. And if you do not get advanced the second time you try, but you once again pass the exam, you will receive even more credit the next time around. You can see that it is a good idea to take the exam each time it is offered even if you feel that you have little chance of being one of those who will get advanced. It also is a good idea because, even though it is a different exam each time, chances are you will do better each time you take it.

Senior Enlisted Rates

The higher you go in the rate structure, the more emphasis you will see placed upon leadership and performance. Advancements to the top two enlisted grades, E-8 and E-9, are not determined by a written examination at all. Those chiefs who have three years in rate, have satisfactorily completed military course requirements for senior and master chief petty officer, and are recommended by their commanding officers will automatically be eligible for selection-board consideration. This is where a good record becomes extremely important—those with the best records are selected over those with records that may be good, but not good enough.

There are a number of special positions held by senior enlisted people in the Navy. Only the best of the best of the best will find their way to these positions.

Division Chief/Leading Petty Officer

Every command, whether afloat or ashore, is divided into departments and divisions, and in every division the senior enlisted person is the division chief or the leading petty officer (LPO). The division chief or LPO is responsible for the morale and welfare of his or her subordinates, but also functions as the technical expert for the division. In a larger division, there may be several work centers to which supervisors are assigned. The primary duty of the division chief/LPO is then in the area of personnel management, with the work-center supervisors responsible for the more technical aspects of the division's assignments. The division chief/LPO is responsible for all work performed by his or her division, and he or she reports directly to the division officer. The division chief/LPO also maintains liaison with the Command Master Chief (see below) on all matters that concern the morale, welfare, and proper employment of enlisted members of the division.

Command Master Chief (CMDMC)

By having direct communication with the commanding officer, command master chiefs (CMDMCs) serve as the commanding officer's principal enlisted advisor, fostering sensitivity to the needs and viewpoints of enlisted men and women and their families.

CMDMCs have the responsibility of keeping their commanding officers up to date on situations, procedures, and practices that affect the welfare, morale, and well-being of the enlisted crew.

Navy commands with 250 or more personnel are eligible to have a CMDMC billet. Personnel assigned to these billets actually change their rate to CMDMC. Commands that do not meet this criterion may designate a master chief petty officer from within the command to serve as a collateral-duty command master chief. In commands with no master chief petty officers assigned, a collateral duty command senior chief may be designated from within the existing crew, and where there are no master chiefs or senior chiefs, a collateral duty command chief may be designated. Collateral duty command chiefs (no matter what their rate) do not change their rating.

Chief of the Boat (COB)

The Navy's submarine service has assignments similar to those of CMDMCs, but call these individuals the chief of the boat instead of the command master chief. There are other differences as well. The COB assigns bunks and lockers; details personnel to compartment cleaning, mess cooking, and special details; and assists the executive officer in maintaining the watch, quarter, and station bill. The COB is responsible for ship cleanliness and proper stowage of all special clothing and safety equipment (life-jackets, escape hoods, breathing equipment, lines, and cables). In addition, the COB is responsible, under direction of the commanding officer, for ensuring strict compliance with all safety regulations.

One of the most important functions of the COB is serving as qualification officer for the on-board enlisted submarine-qualification program. The COB coordinates and supervises—through division LPOs—the conduct, performance, and administration of all enlisted personnel. Another responsibility is monitoring leave and special liberty.

The COB, considered an executive petty officer in all matters affecting enlisted personnel, is charged with departmental coordination at the level of LPO. As such, this person reports directly to the commanding officer and is the senior petty officer on board. By virtue of the position, the COB works closely with the executive officer and all officers on board.

CNO-Directed Command Master Chief Petty Officers (CNOMCs)
A number of special Navy commands, such as the Naval Academy, the Navy Recruiting Command, and the Naval Training Center at Great Lakes, have command master chiefs assigned who are specially designated as CNOMCs. These individuals, like primary duty CMDMCs, change their rating (to CNOMC).

Fleet and Force Master Chiefs (FLTMCs and FORMCs)
These command master chiefs serve as principal enlisted advisors to the commanders of larger commands, such as the Commander in Chief of the Atlantic Fleet or the Commander of the Naval Reserve Force. They also change their ratings (to either FLTMC or FORMC, as appropriate).

Master Chief Petty Officer of the Navy
Assigned to the Office of the Chief of Naval Operations, there is only one master chief petty officer of the Navy (MCPON) and he or she serves as senior enlisted leader of the Navy and as senior enlisted advisor to the Chief of Naval Operations and the Chief of Naval Personnel in all matters pertaining to enlisted personnel and their families.

The MCPON also serves as an advisor to many boards dealing with enlisted personnel, accompanies the Chief of Naval Operations on some trips, serves as the enlisted representative of the Department of the Navy at special events, and testifies before Congressional committees on enlisted issues.

10 Navy Education and Training

Education in the Navy begins with recruit training and continues throughout your naval career, whether it lasts for four years or thirty. You will probably attend one or more Navy vocational/technical schools, you may be able to receive college credit for your military training and experience, you may qualify for specialized training (such as nuclear engineering or diving school), and you might even be eligible to enter a commissioning program that will lead to becoming an officer. General Military Training (GMT) applies to everyone in the Navy and is an ongoing process throughout your career no matter what your rank or rate. There are self-study courses available for those who wish to improve and advance themselves. And every Sailor is frequently involved in formal or informal on-the-job training.

Young men and women who have the desire and the ability to expand their personal educational horizons will find a number of programs offering correspondence courses, tuition assistance, college opportunities, high school equivalency, and other ways to improve themselves. You will never find a shortage of educational opportunities and requirements while you are in the Navy.

Professional Development

One of the easiest and yet most effective forms of professional training is what is called on-the-job training (OJT). It can be as simple as a coworker showing you how to turn on the office copier, or it can be more involved, such as your chief letting you shift electrical distribution under supervision. Other forms of training are more structured and require either formal schooling or a system of written standards and requirements. However it is accomplished, professional training that contributes directly to your effectiveness as a Sailor—improving your vocational and/or your military capabilities—is essential to both you and the Navy as long as you are wearing a uniform.

PH3 Heather S. Gordon

Figure 10.1. One of the most effective forms of professional training is OJT (on-the-job training).

Navy Military Training (NMT) and General Military Training (GMT)

NMT is required training for all enlisted personnel during their first year of service that is designed to round out the training you received at Boot Camp. GMT is non-occupational training required periodically for all Navy personnel (officer and enlisted) throughout their time in the Navy.

NMT is designed to help you make the transition from the highly structured environment of recruit training to one of personal accountability and responsibility. You will probably complete your NMT requirements while in apprentice training or at "A" school.

GMT falls within four curriculum areas (Navy Heritage, Personal Growth and Professional Relationships, Managing Risk, and Wellness) and covers a wide variety of subjects, including such things as naval history, fraternization, the Navy College Program, suicide awareness, etc.

Personnel Qualification Standards (PQS)

Before you can operate or maintain a specific piece of equipment, you must learn certain skills and acquire a certain amount of knowledge. The same is true of standing a watch or doing a job. The PQS program provides a written list of the skills and specific knowledge that you must have in order to qualify for a specific watch station, to be able to do a certain job, or to operate or maintain a specific piece of equipment. That list tells you exactly what you need to know and serves as a guide through your qualification process.

As part of the PQS process, you will be given a PQS book that allows you to record your progress by obtaining the signatures of already qualified people who are convinced that you have met the standards for qualification. For example, you may be working toward qualification as a small boat operator. Your card might say, among other things, that you must demonstrate the ability to tie certain knots. The person helping you to qualify would have you tie a square knot several times until she or he was convinced that you could do it sufficiently well. Then he or she would sign your book on the appropriate signature line. This process would continue until you had obtained all of the required signatures and met any additional requirements leading to your qualification.

Service Schools

Navy service schools are located at NTC Great Lakes and at Pensacola, Florida; Gulfport and Meridian, Mississippi; Norfolk, Virginia; and Port Hueneme (pronounced "why-nee-mee"), California, among other places. For some ratings, graduation from a particular service school is necessary for advancement. Selection for a service school depends on your rate, time in service, current duty assignment, school quotas, and the operational schedule of your unit. Although you can be sent to a service school from your current duty station on what the Navy calls a TAD (temporary additional duty) basis, most school assignments are made as part of your formal transfer process when changing duty stations and will be assigned on your PCS (permanent change of station) orders.

Since the eligibility requirements for schools vary, and change frequently, you should check the *Catalog of Navy Training Courses* (CANTRAC), NAVEDTRA 10500. CANTRAC has information on schools and courses under the direction of the Chief of Naval Education and Training (CNET). Besides CANTRAC, you have three other sources of information on schools—your educational services office, your career counselor, and your personnel office.

The different types of service schools are listed and explained below.

Class A. These schools provide basic technical knowledge required for job performance in a given rating. A Navy enlisted classification (NEC) code may be awarded once the school has been completed.

Class C. Advanced skills and techniques needed to perform tasks beyond those of the normal rating are taught in these schools. This category includes schools and courses previously identified as Class B. An NEC code may also be awarded to identify the level of skill.

Class E. This identifies schools designed for professional education leading to an academic degree.

Class F. Schools that train fleet personnel who are en route to or are members of ships' companies. These schools also provide individual training such as refresher, operator, maintenance, or technical training of less than 13 calendar days. An NEC code is not awarded.

Class P. These are officer-acquisition schools, designed to provide undergraduate education and training for midshipmen, officer candidates, and all other newly commissioned officers (except aviators).

Class R. This is the basic school that provides initial training after enlistment, also known as "boot camp" or "recruit training." It prepares the recruit for early adjustment to military life by inculcating basic skills and knowledge about military subjects. Currently, everyone attends Class R school in Great Lakes. Class R schooling does not include apprenticeship training, but follow-on apprenticeship training is conducted at the Naval Training Center in Great Lakes for seaman and fireman apprentice and in Pensacola for airman apprentice.

Class V. Training that leads to designation as a naval aviator or naval flight officer is conducted at schools designated as Class V.

Specialized Training

If you choose and are qualified to go into a specialized part of the Navy—such as submarines, underwater demolition, deep-sea diving, or a foreign language specialty—you will be specially trained. Some programs, such as the nuclear-power program, require a substantial amount of additional schooling, and, if you are accepted, will require an added service obligation. The nuclear field, for example, requires the Navy to provide more than a year's additional training to participants—training worth thousands of dollars which will make the individual receiving it more qualified for good civilian engineering

jobs—so it is a fair trade that the Navy expects those selected for such training to serve some additional time in the Navy to make the investment worthwhile.

Most specialized training programs are voluntary in nature and all require personnel to meet extra qualifications beyond those of the average enlistee. For example, nuclear-field personnel must be able to handle a great deal of mathematics and physics training, while those who would be deep-sea divers must pass a very rigorous physical before entering that program.

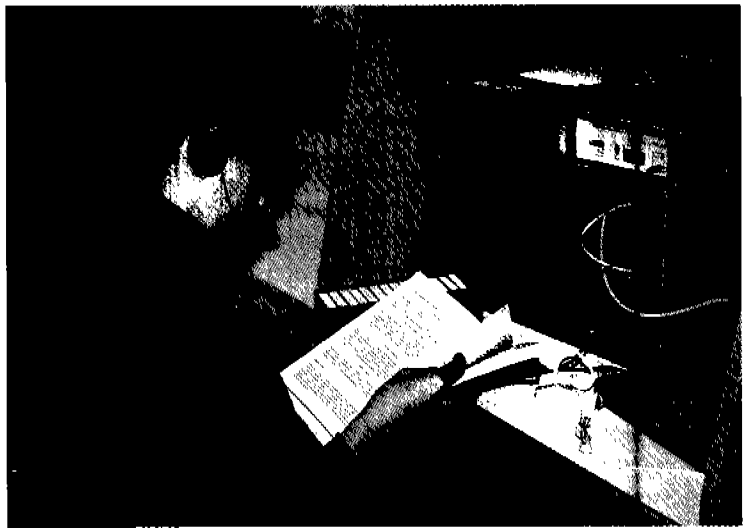
Leadership Training

Although leadership comes more easily to some than to others and there is no complete substitute for experience, acquiring leadership skills can be enhanced by schooling. To assist you in understanding and accepting your responsibilities as a leader, the Navy provides extensive leadership training at various times throughout your career. These courses, called the "Leadership Continuum," vary in length and are taught at major training centers throughout the fleet. Leadership-oriented training is available for petty officers, for chiefs, and for officers, both senior and junior. If you are selected to be a command master chief, you will be eligible to attend the Senior Enlisted Academy at the Navy Education and Training Center at Newport, Rhode Island. This course provides in-depth study in communications skills, leadership and management technique, national security affairs, management of Navy resources, and other selected topics.

Along with the promotions you receive in your Navy career come increased responsibilities as a leader and manager. These courses are designed to help you attain the level of skill required to accept such responsibilities and perform effectively.

Personal Development

The Navy provides a wide variety of training experiences that help Sailors do their jobs better. But because the Navy also recognizes the value of education outside that required for a Sailor to do his or her job, a number of programs and methods have been created and/or endorsed which are designed to enhance the personal development of individual Sailors. The Navy's voluntary education program is called Navy College and encompasses many avenues to help active-duty personnel complete high school diplomas, work on technical/occupational certifications, improve academic skills, or pursue college degrees.



PH3 L. B. Weaver

Figure 10.2. To advance your Navy career, you must study and stay abreast of the latest developments in your field.

Navy College Program (NCP)

NCP brings together a number of different programs designed to help you obtain a college degree while in the Navy, at a pace that you are comfortable with. Some of these programs have existed for quite some time and have been proven effective, while others are newer initiatives.

One of the newest advancements is the cooperation of a number of colleges and universities that recognize your Navy training and experience as partial fulfillment of requirements for a degree. These colleges have partnered with the Navy to work with you to maximize the amount of credits you can earn through successful completion of training within your rating.

The Navy College Center (NCC) coordinates and provides information for the NCP. You can ask questions of special education advisors via the NCC website at *www.navycollege.navy.mil* or by calling 1-877-253-7122 seven days a week, 15 hours a day (0700-2200 EST). You can also reach the NCC advisors by e-mailing them at *ncc@smtp.cnet.navy.mil.*

There are also local offices, called Navy College Offices (NCOs), at many locations around the world that can help you get the education you seek. The NCO can answer your educational questions, pro-

vide advice, get you the courses and testing you need to earn a high-school diploma or high-school equivalency certificate, and tell you what college courses are being offered at times that fit your schedule. To find the nearest NCO to you, go to the website *www.navycollege.navy.mil.*

Servicemembers Opportunity Colleges, Navy (SOCNAV)

A worldwide network of more than eighty colleges provides college education opportunities that cross traditional academic boundaries and allow Sailors to work toward and ultimately earn degrees while serving in various duty stations around the world. First, credit is awarded for past experience, nationally recognized standard tests, and military training. You will then determine what additional schooling is necessary to earn a degree, and then take those courses from SOCNAV sites near your duty stations until you have fulfilled the requirements for the degree you are seeking. If you are transferred before earning a degree, credits are readily transferable within the network and arrangements can also be made to take required courses from colleges outside the network. Participating colleges have agreed to limit their residency requirements to make your participation more feasible.

Navy College Program for Afloat College Education (NCPACE)

Tuition-free college preparatory and college credit courses are available at some remote shore sites and on ships and submarines on extended deployment. These courses are taught by on-site instructors in some cases and electronically (using computer-based and modern communications technology) in others. You pay for the textbooks while the Navy pays all other costs. Courses are offered by colleges in the SOCNAV network [see above] so NCPACE credits earned can be combined with those earned in the SOCNAV program in your quest for a degree.

Tuition Assistance (TA)

The Navy pays a substantial percentage of tuition costs at accredited educational institutions for courses leading to a vocational-technical certification or a college degree (associate, bachelor's, or graduate). For high school diploma or equivalency courses, the Navy pays the full cost. Check with your local NCO or the NCC for more information.

Navy College Learning Center (NCLC)

Fully funded courses designed to provide improvement in basic reading, mathematics, and grammar skills are offered at many locations

worldwide. These courses are designed to improve your ability to succeed in college-level studies and may be conducted by on-site instructors or through computer interaction, depending upon the circumstances.

Sailor/Marine American Council on Education Registry Transcript (SMART)

SMART is a formal record of your educational achievements that is similar to a college transcript. It tracks your educational progress by validating military occupational experience and training, listing college-level exams completed as well as credits earned, and incorporating other learning experiences. Under this system, for example, you earn college credit by successfully completing recruit training. Recognized by the American Council on Education (ACE), these recommended credits can be applied toward a college degree at many colleges and universities. To review your SMART or have it sent to an academic institution, visit your local NCO, or call 1-877-253-7122, or send an e-mail to *ncc@smtp.cnet.navy.mil,* or go to the website *www.navycollege.navy.mil.*

Rating Roadmap

Some of your on-the-job experience and training is worth college credits as recommended by the American Council on Education. Rating roadmaps tell you how many credits may be earned in a career for a particular rating. You can obtain them at your local NCO or from the NCC website.

Navy National Apprenticeship Program (NNAP)

Under an agreement between the Navy and the U.S. Department of Labor, some Navy skills can lead to apprenticeship certification in jobs comparable to civilian career fields. See your Educational Services Officer for more information about application procedures.

Job-Oriented Basic Skills Program (JOBS)

This program provides preparatory training for enlisted personnel with insufficient ASVAB scores to qualify for "A" School.

Defense Activity for Nontraditional Education Support (DANTES)

DANTES is a Department of Defense activity that supports voluntary education programs of all active and reserve military services. The organization provides tests to service members (the majority are

offered free), which are administered at NCOs and on large ships. Navy students can take the GED high-school equivalency test, earn college credit upon successful completion of tests such as the College Level Proficiency Examination (CLEP), take college admission tests such as the SAT, ACT, and GRE, and also take certification examinations and guidance tests. DANTES also publishes and provides education centers with catalogs listing independent study/distance learning courses and degree programs offered by accredited colleges and universities and private educational institutions.

Information Technology (IT) Courses

The Department of Defense has made many IT courses available to you free of charge through the Internet. These computer courses range in scope from beginning applications such as MSWord, Powerpoint, Access, and Excel to more advanced technology such as C, C++, Java, and Visual Basic. Successful completion of these courses can lead to professional certifications, such as Microsoft Certified System Engineer (MCSE), Database Administrator, A+ certification and many others. You can access these courses at *http://USN.netg.com* or *http://dl.damneck,navy.mil* or *http://192.215.136.73*.

Montgomery GI Bill (MGIB)

The MGIB provides educational assistance in the form of money paid directly to the member for tuition and registration fees. To qualify for these benefits, you must agree to participate when you enter active duty, have a minimum two years of obligated service, agree to have money deducted from your pay to go toward the program as your share, and complete a high school diploma or equivalent before the end of your first enlistment. You may use these benefits while on active duty (after a specified qualifying period) or you may use them after you leave the Navy (provided you receive an honorable discharge), but you must use these benefits within 10 years of your discharge.

Once you elect coverage in the MGIB, you cannot change your mind and the money reduced from your pay is not refundable if you decide later not to participate.

Navy College Fund (NCF)

The Navy College Fund provides an additional educational benefit (or "kicker"), added to the MGIB, for those qualified Sailors who agree to strike for certain critical or hard-to-fill ratings.

Commissioning Opportunities

There are a number of ways to become an officer in the U.S. Navy. Minimum requirements are that you must be a U.S. citizen, and must meet certain age, physical, and additional service requirements. In general, a college degree is also a minimum requirement, although there are exceptions. If you are interested in any of the programs briefly described below, you should contact your educational services officer or command career counselor for additional information and assistance.

The United States Naval Academy

Most midshipmen are appointed from among high school or prep school graduates, but about ten percent of every entering class consists of prior enlisted Sailors and Marines. To be a candidate for appointment, you must be a U.S. citizen, at least 17 but not more than 23 years of age in the entering year, unmarried with no children, and have a combined math and verbal Scholastic Aptitude Test (SAT) score of at least 1050 or an American College Test (ACT) combined score of 46. You must also meet certain physical requirements and be recommended by your commanding officer.

Midshipmen pay no tuition, room, and board and are paid while attending the Academy in Annapolis, Maryland, for four years. Upon graduation, they receive a bachelor of science degree and a commission in the Navy or Marine Corps.

For further information, consult your educational services officer or contact the Candidate Guidance Office, 117 Decatur Road, U.S. Naval Academy, Annapolis, MD 21402-5018. Or call the fleet coordinator toll-free at 1-800-638-9156. The Naval Academy website is also available at *www.nadn.navy.mil.*

Naval Reserve Officers Training Corps (NROTC)

Enlisted persons may also compete for NROTC scholarships. To be eligible, you must be a U.S. citizen, a high school graduate or equivalent, physically qualified, have a good performance record, and be under 27½ years of age on 30 June of the year you become eligible for commissioned status. Tuition, fees, books, uniforms, and a monthly subsistence allowance are paid for by the scholarship program. The program is available at more than fifty civilian colleges and universities. A NROTC student may earn a bachelor's degree in various academic fields, although at least 80 percent of the program's participants must be majoring in engineering, mathematics, physics, or chemistry.

Officer Candidate School (OCS)

If you have a baccalaureate degree (BA, BS) from an accredited academic institution, you may be eligible to attend OCS at Pensacola, Florida. The program is about 13 weeks long and provides basic knowledge of the naval profession. You will also receive specialized follow-on training after OCS to further prepare you for your initial fleet assignment as an officer. If you are an E-4 or below, you will be designated as an officer candidate and advanced to E-5 for pay purposes upon reporting to OCS. If you are an E-6 or above, you will continue to be paid in your current grade. Besides having the required degree, you must meet age and physical requirements, and you must be a U.S. citizen. Upon completion of the program you will incur a minimum active duty obligation of four years.

Broadened Opportunity for Officer Selection and Training (BOOST)

This is an excellent educational opportunity for men and women who have demonstrated leadership potential but have not had enough education to compete successfully for commissioning programs. If selected, you will attend a rigorous college preparatory course in Newport, Rhode Island studying mathematics, science, communications skills, computer science, and campus skills to acquire the knowledge and academic discipline you will need to compete for admission to a commissioning program.

There are a number of admission requirements, but probably the most important one is that you must be serious about a career in the Navy. You will probably incur an additional service obligation, must meet certain age and physical requirements, and must be recommended by your commanding officer.

Seaman to Admiral Program (STA)

The seaman to admiral program provides a commissioning path for outstanding career-motivated enlisted personnel. It is open to E-5 and above (or E-4s who have passed the E-5 exam) active-duty personnel who have at least four years active duty. The Seaman to Admiral Board meets annually to select the fifty most-qualified applicants and sends them to selected schools to earn a bachelor's degree within 36 months on a full-time, year-round basis. After successful completion of that phase, candidates will go to Officer Candidate School to earn their commissions.

To be eligible to apply for this program, applicants must meet all eligibility requirements, including being a U.S. citizen, having a high

school diploma or service-accepted equivalent, meeting age and physical requirements, and having a superb performance record as well as strong academic potential.

Seaman to Admiral-21 (STA-21)

A relatively new program has been created to make applying for a commissioning program easier and more beneficial. The STA-21 program consolidates four of the programs listed above into one. Included are the Enlisted Commissioning Program (ECP), Naval Reserve Officer Training Corps (NROTC), Broadened Opportunity for Officer Selection and Training (BOOST), and the Seaman to Admiral program (STA). With STA-21 you need only make one application and you will automatically be considered for all four programs. Additionally, under this new program the Navy provides full pay and benefits and up to $10,000 per year to cover college costs (tuition, books, etc). STA-21 will ultimately replace the ECP, NROTC, BOOST, and STA programs but the older versions will not be phased out until fiscal year 2006. The Naval Academy and OCS programs are unaffected by the STA-21 program, and you must apply to them separately.

Warrant Officer Program

Chief petty officers (paygrades E-7 to E-9) may apply for the warrant officer program. There is no age requirement but applicants must have completed at least 12 but not more than 24 years of naval service. Appointments are made to the grade of chief warrant officer (W-2). E-9s with two years in grade may apply for appointment to chief warrant officer (W-3).

Other specific requirements are that a candidate must be a U.S. citizen, have a high school diploma or equivalent, have a good performance record, be physically qualified, and be recommended by the commanding officer. Applications are considered by a board convened by the Secretary of the Navy annually. Names of selectees are released by a BUPERS notice or an ALNAV (all-Navy commands) message. Those not selected are not notified.

Applicants accepted into the warrant officer program must agree to remain on active duty for three years from the date they are promoted to chief warrant officer.

Limited Duty Officer (LDO) Program

The LDO program is open to warrant officers with one year time in grade as of 1 September in the year application is made. The program is also open to enlisted applicants in paygrades E-6 through E-8. En-

listed applicants must have completed at least eight but not more than sixteen years of active naval service. E-6 personnel must compete in the E-7 examination and be designated LDO selection-board-eligible.

The LDO program has some of the same basic requirements as the warrant officer program. Warrant officers who are accepted into the LDO program are appointed to the grade of lieutenant (junior grade); enlisted applicants who are accepted are appointed as ensigns.

Because those appointed through this program are specialists in a particular field (having come from an enlisted rating), officers who receive their commissions as LDOs continue to receive assignments related to their specialties. For example, a gunner's mate who is commissioned through the LDO program is likely to be assigned to a ship as the weapons officer. Because these officers are "limited" to assignments related to their specialties, they are called "limited duty officers." Applicants accepting commissions through the LDO program must agree to remain on active duty for three years from the time they are commissioned.

Enlisted Commissioning Program (ECP)

The ECP is an undergraduate education program for enlisted personnel on active duty who have previously earned college credits. Selectees are ordered to the ECP on a permanent change of station (PCS) basis and enrolled as full-time students in a participating NROTC (Naval Reserve Officers Training Corps) host college or university to complete their degrees. If you are selected and are in a technical degree program, you will have up to 36 months to complete your degree. If you are in a nontechnical program, you may have up to 30 months to complete your degree. You will maintain your enlisted status during training, receiving all pay and allowances, but you must pay any expenses incurred in the education program (such as tuition, fees, and books). Upon graduation you will be commissioned. There are medical, aviation, and nuclear options available for this program.

Other Commissioning Opportunities

Besides the programs listed above, there are a number of other ways for you to earn a commission. All commissioning programs are covered in a consolidated manual called the Enlisted to Officer Commissioning Programs Application Manual (OPNAVINST 1420.1). See your educational services officer for assistance.

Navy Pay and Benefits

11

While no one gets rich serving in the U.S. Navy, there are many benefits—some financial, some in other forms—that are part of the Navy career. One benefit that cannot be spent in any consumer outlet, but is of inestimable value, is the satisfaction of knowing that you are serving your nation. By being a part of the finest Navy the world has ever seen, whether in the throes of combat or carrying out the daily routine, you are helping to preserve freedom in the United States of America, and that is a special satisfaction you will not find in many walks of life.

No one expects you to survive or thrive on pride alone, however. Just as in any profession, you will be paid for your work. And, because there are special demands and sacrifices that go with life in the Navy, there are also other benefits that come with the job.

Pay and Allowances

You will receive two kinds of financial remuneration while you are in the Navy, pay and allowances. There are certain legal and economic distinctions between the two, but the most practical way to distinguish them is that pay is much like the salary a civilian would receive in her or his job and is, therefore, subject to federal income tax. Allowances are extra payments designed to help you meet certain expenses of Navy life, and these are *not* subject to federal income tax.

Because there are these two types of remuneration in the Navy, when you are comparing how much money you make with how much a civilian counterpart makes you should not merely compare dollar for dollar because some of your dollars are tax free.

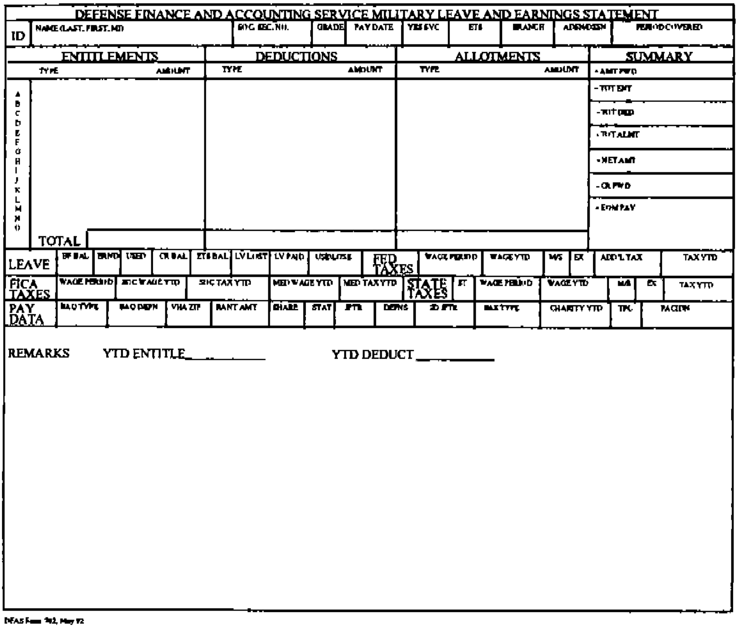
Defense Joint Military Pay System (DJMS)

Your Navy pay is handled by a sophisticated pay system known as DJMS, but you are responsible for knowing what you should be getting paid and ensuring that what you actually receive is correct.

PH1 Alexander C. Hicks, Jr.

Figure 11.1. Because there are special demands—such as periods of family separation—that come with a career in the Navy, there are also many benefits for both the Sailor and his family.

Every month you will receive a DFAS Form 702, known as a leave and earnings statement (LES), showing you your entitlements, deductions, and allotments. Read and keep these forms each month. If your pay varies significantly and you don't know why, or if you have any questions after reading your LES, contact your disbursing office.



DEFENSE FINANCE AND ACCOUNTING SERVICE MILITARY LEAVE AND EARNINGS STATEMENT

ID | NAME (LAST, FIRST, MI) | SOC. SEC. NO. | GRADE | PAY DATE | YRS SVC | ETS | BRANCH | ADSN/DSSN | PERIOD COVERED

ENTITLEMENTS (TYPE, AMOUNT) | DEDUCTIONS (TYPE, AMOUNT) | ALLOTMENTS (TYPE, AMOUNT) | SUMMARY

A B C D E F G H I J K L M N O

TOTAL

LEAVE | BF BAL | ERND | USED | CR BAL | ETS BAL | LV LOST | LV PAID | USE/LOSE

FED TAXES | WAGE PERIOD | WAGE YTD | M/S | EX | ADD'L TAX | TAX YTD

FICA TAXES | WAGE PERIOD | SOC WAGE YTD | SOC TAX YTD | MED WAGE YTD | MED TAX YTD

STATE TAXES | ST | WAGE PERIOD | WAGE YTD | M/S | EX | TAX YTD

PAY DATA | BAQ TYPE | BAQ DEPN | VHA ZIP | RENT AMT | SHARE | STAT | JFTR | DEPNS | 2D JFTR | BAS TYPE | CHARITY YTD | TPC | PACIDN

REMARKS YTD ENTITLE__________ YTD DEDUCT __________

DFAS Form 702, May 92

Figure 11.2. Leave and earnings statement (DFAS Form 702).

Below is a list of the names of the various blocks as they appear on the LES with a brief explanation of each. Because DJMS is run by the Defense Department instead of the Navy Department, some of the terms are different from the old Navy terminology.

Block name	Explanation
The first nine blocks are listed on a line marked by the letters "ID" (for "identification").	
NAME	Your name in last, first, and middle initial format.
SOC. SEC. NO.	Your Social Security number.
GRADE	Your current paygrade.
PAY DATE	The date you entered active duty for pay purposes in YYMMDD (year, month, day) format. The old Navy term for this was "pay entry base date (PEBD)."
YRS SVC	In two digits, the actual years of creditable service you have.

ETS	Expiration term of service in YYMMDD format. This is the date when your obligated service ends. This is the equivalent of the term EOAS (end of active obligated service) used more commonly in the Navy.
BRANCH	The branch of service you belong to (i.e., Navy).
ADSN/DSSN	The unique identifying number assigned to your disbursing office (Disbursing Station Symbol Number).
PERIOD COVERED	The period covered by this individual LES. Normally this would be a calendar month.
ENTITLEMENTS	This large block lists the pay and allowances you are receiving. There is room for fifteen separate entitlements and they are listed by type and amount. If you should rate more than fifteen, the others would be continued in the remarks block.
DEDUCTIONS	Such things as taxes and deductions for the dependent dental plan are listed in this large block by type and amount. Like the entitlements block, there is room for fifteen entries in this block.
ALLOTMENTS	Allotments (explained below) that you have set up are listed in this large block by type and amount. There is room for fifteen entries.

The next seven blocks are listed under the heading "SUMMARY."

+AMT FWD	The amount of all unpaid pay and allowances due from a previous LES.
+TOT ENT	The total of all your pay and allowances.
–TOT DED	The total of all your deductions.
–TOT ALMT	The total of all your allotments.
=NET AMT	The dollar amount of all unpaid pay and allowances, minus all deductions and allotments.
–CR FWD	The dollar amount of all unpaid pay and allowances due to be reflected on the next LES as the +AMT FWD.

=EOM PAY	The actual amount of the payment to be paid to you on payday.

The next eight blocks are listed as items pertaining to your LEAVE (earned vacation days).

BF BAL	The "brought forward" leave balance. This is the number of days of leave you had earned as of the last LES.
ERND	The amount of leave earned during the period covered by this LES.
USED	The amount of leave used during the period covered by this LES.
CR BAL	Your current leave balance.
ETS BAL	The leave balance you would have if you took no more leave during the remainder of your obligated service (until the expiration of your term of service).
LV LOST	The number of days of leave you have lost (remember, there is a limit to the number of days of leave you can carry "on the books").
LV PAID	The number of days you have paid for instead of taken (normally only occurs at the end of your service).
USE/LOSE	The number of days of leave you will lose if not taken by the end of the fiscal year. This is figured on a monthly basis.

The next six blocks are listed "FED [federal] TAXES" items.

WAGE PERIOD	The amount of money you earned this LES period that is subject to federal income tax withholding (FITW).
WAGE YTD	The total amount of money you have earned this calendar year ("year to date") that is subject to federal income tax. Note that this is figured on "calendar year" and not on the "fiscal year" (explained below); this is because your taxes are figured on the calendar year.

M/S	Your marital status (used to compute the FITW).
EX	The number of exemptions used to compute the FITW.
ADD'L TAX	The dollar amount you have specified to be withheld in addition to the amount computed using the M/S and EX figures.
TAX YTD	The total amount of FITW withheld so far this calendar year.

The next five blocks are listed at "FICA [Federal Insurance Contributions Act] TAXES" and pertain to Social Security and Medicare.

WAGE PERIOD	The amount of money you have earned this period that is subject to FICA.
SOC WAGE YTD	The total amount of money you have earned this calendar year that is subject to FICA.
SOC TAX YTD	The total amount of FICA that has been withheld so far this calendar year.
MED WAGE YTD	The wages earned so far this year that are subject to Medicare.
MED TAX YTD	Cumulative total of Medicare taxes paid so far this year.

The next six blocks are listed as "STATE TAXES" items.

ST	The two-digit postal abbreviation for your official home state.
WAGE PERIOD	The amount of money you earned this LES period that is subject to state income tax withholding (SITW).
WAGE YTD	The total amount of money you have earned this calendar year that is subject to SITW.
M/S	Your marital status (used to compute the SITW).
EX	The number of exemptions used to compute the SITW.
TAX YTD	The total amount of SITW withheld so far this calendar year.

The next thirteen blocks contain additional "PAY DATA."

BAQ TYPE — Basic Allowance for Housing (BAH) was once called Basic Allowance for Quarters (BAQ). Although it may eventually be changed, the LES still uses the old term.

BAQ DEPN — Again using the old term (BAQ instead of BAH), this block contains a code that indicates the type of dependent(s) you have for pay purposes. The codes are as follows:

- I = Member married to member (your spouse is also in the service)
- R = You
- A = Spouse
- C = Child
- W = Member married to member, child under 21
- G = Grandfathered (special case where an old policy is continued)
- D = Parent
- K = Ward of the court
- L = Parents-in-law
- S = Student (age 21–22)
- T = Handicapped child over 21

Note: Keep in mind that these categories must be officially established in order for you to draw the associated BAH. Just because you have parents-in-law, for example, does not mean that code L would show up on your LES—they must be your legal dependents for that to happen.

VHA ZIP — VHA (Variable Housing Allowance) is an old term that no longer is used (what used to be VHA is now incorporated into BAH).

RENT AMT — The amount of rent you are currently paying for housing (if applicable).

SHARE	The number of people that are sharing your housing costs (if applicable).
STAT	Indicates whether you are authorized to be "accompanied" (i.e., spouse is with you at your duty station) or "unaccompanied."
JFTR	The joint federal travel regulations code based on your location—used for cost-of-living adjustments (COLA).
DEPNS	The number of dependents you have.
2D JFTR	The JFTR code based on the location of your dependents—used for COLA purposes.
BAS TYPE	A code indicating the type of basic allowance for subsistence you are receiving, if applicable. Codes are as follows: B = Separate rations C = Temporary duty (TDY) or permanent change of station (PCS) H = Rations in kind not available K = Rations under emergency conditions
CHARITY YTD	The total amount of charitable contributions you have made out of your pay so far this year.
TPC	This block is not used by the Navy.
PACIDN	The activity unit identification code. (*Note:* Every naval activity has a unique number assigned that identifies it. The number of the activity that is processing your pay appears in this block.)
REMARKS	Amplifying information that may be necessary appears in this block.
YTD ENTITLE	The total of all entitlements (pay and allowances) that you have received so far this year.
YTD DEDUCT	The total amount of money that has been deducted from your entitlements so far this year.

Basic Pay

Basic pay depends on your paygrade and years of service. It is the largest single item in your pay. You will be paid twice a month, usually on the first and the fifteenth. Through the direct-deposit system (DDS), your pay and entitlements will be electronically transferred to the banking institution of your choice. With DDS, no matter where you are—aboard ship, on shore, at an overseas station, in a travel status, or on leave—when payday rolls around you will have immediate access to your money because your pay will be in your account, on time.

Basic Allowance for Housing (BAH)

There are two kinds of BAH. If you have family members—spouse, children, or stepchildren (under 21 years old), parent or step-parent—who rely on you for more than half of their support, you can draw "with-dependents BAH." This allowance is not paid to you, however, when you are occupying public (government) quarters. "Without dependents BAH" is a lesser amount and is available to you if you do not have any of the family members described above. Because the cost of housing varies from place to place, the amount of BAH you receive will depend upon the geographic location of your duty station (your home port if you are assigned to a ship or squadron).

Family Separation Allowance (FSA)

Persons entitled to BAH (at the with-dependents rate) may also draw a family separation allowance (FSA) if (1) their ship or squadron is deployed for more than 30 days; (2) transportation of family members at government expense to a new duty station is not authorized; or (3) they are on temporary additional duty (TAD) for a period of 30 days or more.

Basic Allowance for Subsistence (BAS)

If you are serving aboard ship or on a base, your meals will be provided on the mess decks or in a mess hall. Sometimes, however, you will not be able to eat in these facilities on a regular basis. In those cases, you will receive BAS to cover your increased food costs.

The rates vary depending on whether (1) "rations in kind" (a government or government-provided mess) are available; (2) permission has been granted to mess separately (commuted rations or leave rations); or (3) you are assigned to duty under emergency conditions where no government messing facilities are available. Separate

rations (SEPRATS) are usually limited to people living off base who have permission to eat away from their duty station. If you are receiving SEPRATS and choose to eat a meal at a government-run mess hall, you must pay for the meal.

Sea and Foreign Duty Pay

In general, sea pay begins the day you report aboard ship for duty if you have more than three years' prior sea duty and are in paygrade E-4 or above. Foreign-duty pay begins the day you report aboard a designated foreign-duty station. The rates vary for each paygrade.

Selective Reenlistment Bonus (SRB)

As the name implies, this retention incentive is paid to members serving in certain selected ratings or with certain NECs that are critically undermanned who have agreed to stay in the Navy for a specified amount of time. The actual amount received depends on a number of factors and can be rather complicated. You will do well to check with your career counselor or personnel office for additional facts.

Incentive Pay for Hazardous Duty

There are a number of different types of incentive payments. The most common types are aviation pay and submarine-duty pay. Rates for those two types are based on your paygrade and years in service.

Additional monthly incentive payments are made for flight-deck hazardous duty (FDHD), parachute duty, demolition duty, and experimental stress duty. Handlers of toxic pesticides, fuels, and propellants also receive incentive payments.

Diving pay, for members serving in an authorized diving billet, varies according to the skills involved. A scuba diver gets less per month than a master saturation diver, for example.

Imminent danger/hostile-fire pay may be given to members under certain circumstances.

Clothing Allowances

The first clothing allowance you received while at boot camp is the initial clothing monetary allowance (ICMA). Because men's and women's uniform items are not identical and different costs are associated with the various items, the ICMA for men and women is different.

If you must wear a uniform not worn by the majority of Navy personnel (if you serve in a Navy band that wears a special uniform for performances, for example), you will receive a special initial clothing monetary allowance (SICMA). This allowance is also paid to you

upon promotion to chief petty officer, since chief uniforms are very different from other enlisted uniforms.

You also will receive a yearly clothing maintenance allowance (CMA). This allowance varies depending upon a number of circumstances. See your disbursing office to determine how much you are eligible for.

Travel and Transportation Allowances (T&T)

The T&T allowances are paid to you when you receive orders to travel. You might be authorized to travel by privately owned vehicle (POV) or by government or commercial transportation. In addition, you may be paid a per diem (daily) allowance to cover the cost of lodging, meals, and other incidentals not included in the cost of transportation. How much you receive for per diem expenses will depend upon the area you are traveling through. An allowance for transportation of family members at government expense is also provided for a permanent change of station (PCS). You may also receive an allowance for transportation of household goods (HHGs) or personal effects when you make a PCS move. A reduced weight allowance is sometimes allowed for temporary additional duty (TAD) orders. Partial reimbursement for incidental expenses incurred in a PCS move of HHGs is also paid as a dislocation allowance (DLA). Single and married personnel may qualify for this entitlement.

Several other allowances are specifically designed to help you with excessive costs while you are on permanent duty outside the continental United States (CONUS). Some overseas stations will give you an overseas housing allowance (OHA) or cost-of-living allowance (COLA) and a temporary lodging allowance (TLA). The OHA is based on the average cost of local housing in the overseas area, compared with your BAH. Items considered include rent, utilities, minor maintenance expenses, and initial occupancy expenses. COLA is derived by comparing the cost of living in your overseas area with the average cost of living in CONUS for a similar area. TLA provides partial reimbursement for the expenses incurred when you are moving to or from overseas areas. The amount is a graduated percentage, depending on the number of family members and the per diem allowances for travel to that specific area. Be sure you see your disbursing office for all the details before making the move.

Family Subsistence Supplemental Allowance (FSSA)

This supplemental pay program is designed to ensure that all military members' household income is at least 130% of the federal poverty

line and to ensure that no military members must use food stamps in order to subsist. The amount received is based upon monthly income and family size. If you have a spouse and/or dependent children and are having serious financial difficulty, see your division chief or division officer to find out whether you may be eligible for FSSA.

Allotments

Through allotments you may assign part of your pay regularly to a spouse, parents, bank, or insurance company so that they will receive payments without you having to take any further action. You may also take part in the Navy's savings bond program or make a donation to certain charity organizations through the allotment system. Once the appropriate forms have been filled out, the specified amount of money is automatically deducted from your pay each month and payments will automatically be made by the Navy.

Benefits

There's no doubt that the pay in today's Navy is one of the real benefits. There are others, such as commissary and exchange privileges, medical and dental care for you and your family, and an extensive educational program. Other somewhat less tangible benefits also go to you (and in some cases to your family) because you are in the Navy.

Legal Assistance

A legal-assistance officer can help you draw up wills, powers of attorney, deeds, affidavits, contracts, and many other documents. She or he also can advise you on transfer of property, marriage and divorce, adoption of children, taxation, personal injury, and other legal problems. The advice is free, and may help you avoid a lot of trouble. The Navy's legal-assistance program is specifically designed to advise and assist Sailors and their dependents who have legal problems. All matters are treated confidentially.

Family Housing

The family housing program includes public quarters (government rental units), mobile-home parks, government-insured privately owned projects, and leasing of privately owned units. The Navy tries to make sure adequate housing facilities are available for Sailors and their family members at a reasonable cost and within reasonable commuting distance.

Because on-base housing is a popular benefit (more convenient and less expensive than renting or buying a place to live off base) there is usually a waiting list for those who want it. When you are preparing to transfer to a new duty station, contact the housing office at your new location as soon as possible to see what the housing situation is and to get yourself on the list as soon as you are eligible.

Where Navy housing is not available, housing referral offices will assist you in locating private housing in the community.

Health Benefits

Under the Uniformed Services Health Benefit Program (USHBP), care is provided in Uniformed Services Medical Treatment Facilities (USMTFs) when possible. Other care is provided in civilian facilities at full or partial expense to the government when necessary.

Active-duty members must be provided all *necessary* medical care. The primary source of care for all eligible beneficiaries is the USMTF. When care is not available from the USMTF for an active-duty member, it may be provided at government expense under the Non-Naval Medical Care Program and must be preauthorized. Each USMTF can provide acute medical and surgical care to varying degrees. Since not all USMTFs have the same medical capabilities, the health benefits advisor (HBA) should be contacted to determine what services are available.

Dependents and retired personnel are provided care at a USMTF if space, facilities, and proper medical staff are available. Dental care may also be provided on a space-available basis.

Defense Enrollment Eligibility Reporting System (DEERS)

The DEERS system verifies who is entitled to health care at military medical treatment facilities and who is eligible for TRICARE benefits [see below]. Active duty and retired personnel are automatically enrolled in the system, but family members must be enrolled (including newborns) to be eligible. Be sure to report all changes (such as marriages, divorces, adoptions, changes of address, etc.). To enroll family members or make changes, see your personnel office.

TRICARE

TRICARE is a regionally managed health care program for active duty and retired personnel and their dependents that brings together the health care resources of the Army, Navy, and Air Force. There are three components of this program: TRICARE Prime (where military medical facilities are the primary source of care), TRICARE

Standard (a fee-for-service option), and TRICARE Extra (a preferred provider option that saves money).

Active duty personnel are automatically enrolled in TRICARE Prime and pay no fees. Family members must choose a TRICARE option and apply for enrollment but they pay no enrollment fees. Retired personnel must choose an option and in some cases pay enrollment fees.

The best option for you and your family depends upon a number of factors, and making the right choice can be challenging. A lot of information is available in the form of pamphlets and booklets but do not hesitate to seek advice from your command health benefits advisor.

Family Dental Plan

The Navy's family dental plan is a contracted insurance program that allows spouses and children of active-duty members to obtain basic dental care from the civilian sector. Family members must reside in the United States, Puerto Rico, or the U.S. Virgin Islands to be eligible. Participants pay a monthly payroll deduction, plus there may be copayments for certain kinds of care. First-term enlisted personnel must have at least 24 months until expiration of active obligated service (EAOS) to enroll their family.

Counseling Assistance

The Navy has human relations experts ready to advise and help Sailors with difficult personal and family affairs. A Navy chaplain, like a minister or priest at home, can offer counseling as well as perform religious ceremonies like baptisms, marriages, and funerals.

Professionally trained specialists are also available through Fleet and Family Support Centers (FFSC) for counseling of problems relating to alcoholism, drug abuse, family and personal affairs, and the effects of discriminatory practices in and out of the Navy.

Death Benefits

If you should die while on active duty, your family members would be eligible for certain benefits to help them financially.

Death Gratuity

If you die while serving on active duty in the Navy (or within 120 days after leaving the Navy, and if your death is determined to be service-related), your spouse or another designated surviving family member will receive a death gratuity of $6000. Also, your family will

be eligible to receive 90 days worth of BAH or will be permitted to remain in government housing for 90 days rent-free.

Social Security

Your family will also be eligible for certain Social Security benefits if you die while in the Navy. Your uniformed service may qualify you for extra consideration above the amount you would receive as a civilian. You may obtain additional information about your Social Security benefits by calling 1-800-772-1213.

Dependency and Indemnity Compensation (DIC)

Regardless of your paygrade, your surviving spouse will also be eligible for a monthly payment from the Department of Veterans Affairs should you die while serving on active duty. These payments will continue as long as your spouse does not remarry.

If your spouse has one or more children under the age of 18, he or she will receive an additional payment per child. If only your children survive you and they are under the age of 18, they will receive additional payments depending upon the number of children.

Servicemen's Group Life Insurance (SGLI)

You may also have a $200,000 life-insurance policy while on active duty, through servicemen's group life insurance. The cost is $18.00 per month. If you do nothing, you will automatically be covered for $200,000 at a cost of $18.00 per month. You must request to be covered for less than $200,000. You may request that the amount be reduced in increments of $10,000 or you may choose not to be covered at all. On separation, SGLI can be converted to a five-year nonrenewable term policy, veterans' group life insurance (VGLI). The moderate cost of VGLI is based on age at the time of separation.

Survivor Benefit Program

This program is for retired personnel only and provides a guaranteed lifetime income to your surviving spouse (providing he or she does not remarry before age 55). While this is an optional program, most responsible sources recommend that you take advantage of this benefit.

Navy Mutual Aid Association

While this is not a government benefit, the Navy Mutual Aid Association was organized for the purpose of aiding its members and

their families by providing assistance and a low-cost life insurance program. If you are interested in learning more about this popular program, call 1-800-628-6011 or write to: Navy Mutual Aid Association, Henderson Hall, 29 Carpenter Road, Arlington, Virginia, 22212.

Leave

As already discussed in chapter 1, all personnel on active duty, from seaman to admiral, earn leave at the rate of 2.5 days each month, for a total of 30 days a year. The only exceptions are time spent in the brig or if you are absent without authorization for 24 hours or more. "Earned leave" is the amount credited to you on the books at any given date. Under certain circumstances, you will be permitted to take more leave than you are entitled to. This is called "advance leave" and will give you a negative balance, which will show up on your LES. Advance leave is paid back as you earn it.

As leave accumulates, it is carried over from one fiscal year to the next. Except for special circumstances involving extended deployments and/or hostile conditions, no more than 60 days can be carried over on the books. This means that if you have 67 days of leave on the books on 30 September (the end of the fiscal year), you will lose seven days of leave. For this reason, you should watch your leave balance on your LES and plan accordingly.

Persons discharged with leave still on the books are paid a lump sum equal to their daily pay for each day. The most leave you can "sell back" in a military career is 60 days. Those discharged with minus leave will pay back approximately a day's pay for each day's leave owed.

Your commanding officer has the authority to grant all earned leave on a yearly basis, plus up to 45 days' advance leave. Personnel lacking enough earned leave during an emergency can be granted advance leave up to 60 days.

"Convalescent leave" is an authorized absence while you are under medical care and treatment. It must be authorized by your commanding officer on orders of a medical officer, or by the commanding officer of a military hospital. It is usually granted following a period of hospitalization and is not charged as leave.

In a personal emergency, such as a death in the family or a serious illness, you will normally be granted emergency leave to take care of personal matters that no one else can handle. Such emergencies must be verified by the Red Cross.

Overseas Schools for Family Members

The Department of Defense (DOD) operates many educational facilities for minor family members of all U.S. active-duty military and DOD civilian personnel stationed overseas. There are approximately 190 DOD schools overseas and 90,000 students; about 20 of these schools are Navy-sponsored. There are Navy schools from Spain to Japan, from Iceland to the West Indies. Army and Air Force schools in many countries are open to Navy family members. From first grade through high school, family members can receive an education overseas at the government's expense.

Credit Unions

Although not a government-supplied benefit, your special status as a member of the armed services has caused the development of specially oriented credit unions. Most major Navy installations provide credit-union facilities for Navy personnel and the Navy Federal Credit Union (NFCU) in Washington, D.C., serves Navy men and women the world over. NFCU has worldwide wire facilities, an 800 number that allows members to call toll free anywhere in the continental United States, and a website (*www.navyfcu.org*). NFCU offers credit cards, signature loans, loans based on equal collateral, automobile loans, and personal loans for mobile homes and furniture as well as mortgage loans in some areas. NFCU also has a policy of free life insurance that ensures loan protection for members. Recruits at Great Lakes are eligible for membership and can sign up immediately.

Morale, Welfare, and Recreation

Morale, welfare, and recreation (MWR) programs provide many different recreational, social, and community support activities for all Navy personnel. Some of these activities are described below.

Sports and fitness program. The sports and fitness program is designed to provide the Navy community with sports and fitness opportunities that enhance the overall quality of life and contribute to physical and mental readiness. The base-level sports and fitness program consists of informal or recreational sports (where individuals participate for fun and fitness) and organized (intramural) sports (i.e., individual, dual, team, and meet events) where the element of competition is included for events within and between individual commands. Some MWR programs also offer "Captain's Cup Field Day" competitions that are designed to build morale and teamwork while providing a means to have a great deal of fun.

Navy higher level sports program. The higher level sports program (armed forces sports program) is for active-duty members who demonstrate exceptional athletic abilities. Competitive forums for the higher level sports program include Navy trial camps, which are used to evaluate and select athletes for Navy teams and the armed forces championships. These two competitive forums provide a pathway for athletes to represent the armed forces in competition at the international level.

Youth recreation program. This program provides comprehensive, year-round recreation activities and services for youth of all ages ranging from kindergarten to twelfth grade. The program contains six core elements: school-age care, day camps, teen programming, social/recreational activities, sports/physical fitness, and personal development.

Outdoor recreation program. Facilities may include outdoor equipment rental centers, parks, picnic areas, archery ranges, recreational vehicle (RV) parks, skeet and trap ranges, campgrounds, stables, marinas, beaches, swimming pools, cabins, cottages, off-base recreational areas, outdoor obstacle/challenge courses, paint-ball competition courses, and climbing walls. Instructional classes, outdoor equipment rentals, specialty equipment sales, organized group activities, special events, self-directed activities, and seasonal/geographic activities are also provided in various areas.

Information, tickets, and tours (ITT) program. An information, tickets, and tours program is located on virtually every shore installation in the Navy. ITT serves the military community with local recreation information (on and off base), entertainment tickets, and local tour services. Additionally, a hotel reservation system is available to assist travelers in finding quality, low-cost accommodations while on vacation.

Auto craft skills center program. Provides automotive enthusiasts with a quality, value-based program for the repair and maintenance of their vehicles. Auto-craft skills centers are not service stations, but are facilities where patrons can work on their vehicles and learn automotive skills.

Afloat recreation program. Sea duty is a difficult and demanding part of Navy life and it is important that Sailors are provided quality leisure time activities that can be accommodated within the limited space aboard ship. Whether in port or at sea, a wide variety of individual and group recreational activities are available, including sports, fitness center facilities, tours ashore, leisure reading, ticket rebates, board games, and underway athletics.

Golf program. The Navy golf program is offered at over forty bases, providing course play, snack bars, pro shops, driving ranges, cart rentals, as well as classes and personalized lessons.

Bowling program. The Navy bowling program offers open and league bowling, and special youth programs at many shore facilities.

Navy Clubs. The Navy Club System provides food, beverage, entertainment, and recreation programs at most bases.

Child care. The Navy operates child-development centers at almost all naval installations. This program provides high-quality child care in conveniently located child-development centers at moderate cost to the Sailor (fees are based on pay grade). Additionally, at naval installations having government housing, family child care is provided in government housing and is run by government-certified child-care providers. Commanding officers of installations that have child-care centers may establish priority of access in child-development centers (for example, single parents, dual military couples).

Fleet and Family Support Centers (FFSC)

Fleet and Family Support Centers are located at most Navy installations and are staffed by program specialists and clinical counselors to assist with adaptation to Navy life, to facilitate personal and family readiness, and to provide services and skills for self-sufficiency and personal success. They offer a wide variety of programs and services, some of which are discussed below.

Information and referral programs. Provide a convenient way to find out what family support services are available in both the military and civilian community.

Counseling services. Helps Sailors and their families deal with personal issues and stresses. FFSCs provide short-term, individual, marital, family, and group counseling to address situational problems in day-to-day living such as depression/grief after a loss, troubled relationships, occupational concerns, and family and parenting issues.

Crisis response. Provides help in a time of crisis that affects many people or a group of people at an installation. Such incidents can include natural disasters, aircraft accidents, major fires, terrorist activity, a collision at sea, or mission-related casualties. The help provided is designed to minimize the negative effects and long-term human-resource losses associated with traumatic incidents.

Deployment support. Helps Sailors and their families successfully manage the challenges of deployment.

Personal financial management assistance. Sailors in need of financial guidance can find it at their local FFSC.

Spouse employment assistance. Assists civilian spouses in locating and obtaining local employment by providing workshops on how to search for a job, plan a career, write a resume, have a successful job interview, and network.

Family advocacy program. Provides help with the problems of child and spouse abuse. Services include prevention classes and individual help for victims and offenders. FSC staff members work closely with military and civilian agencies in dealing with these issues.

Exceptional family member support. Ensures that the special needs of family members will be met by ensuring the service member's assignments are compatible with those needs. Because special needs cannot be met at every duty station throughout the world, EFM enrollment is mandatory for active-duty sponsors who have family members with chronic illness or incapacity, mental illness, or learning disabilities.

Transition assistance. Assists service members who are transitioning from military to civilian life. These services include seminars designed to address social, financial, job-search, and professional issues.

Relocation assistance. Helps Sailors and families adjust to new duty stations. Typical services include destination area information, intercultural relations training, settling-in services, and help in finding a home.

Sexual assault victim intervention services. Victims are helped directly and educational services are provided to individuals, commands, and community groups to improve awareness of these problems.

New parent support. A voluntary program of identification, screening, home visitation, information, and referral for new and expectant parents. Prevention education programs and referrals to community support services are also offered.

Service Organizations

Many organizations provide assistance and services to Sailors and their families. Three of the most important are listed below.

Navy–Marine Corps Relief Society. Supported entirely by private funds, the Navy–Marine Corps Relief Society assists Sailors/Marines and their families in time of need. Though not an official part of the Navy, this society is the Navy's own organization for taking care of

its people. It is staffed and supported largely by naval personnel and provides financial aid to those in need in the form of an interest-free loan, a grant, or a combination of both.

American Red Cross. The Red Cross supplies financial aid to naval personnel, does medical and psychiatric casework, and provides recreational services for the hospitalized. It also performs services in connection with dependency discharge, humanitarian transfer, emergency leave, leave extensions, and family welfare reports.

Navy Wives Club of America. This group is composed chiefly of wives of enlisted men serving at sea in the Navy, Coast Guard, and Marine Corps. Besides its many social activities, NWCA sponsors a special scholarship fund for the children of Sailors. The club assists chaplains and participates in the blood-donor and NRS projects. Local chapters participate in community projects and hold dances, picnics, and similar affairs.

Reenlistment

A Sailor who completes an enlistment in the Navy and then reenlists is said to "ship over." If you reenlist on the expiration date of your current term of service, or within three calendar months after discharge, it is called a continuous-service reenlistment. Those who reenlist after more than three calendar months of being released from active duty make a "broken service reenlistment." The first type is better; on the broken service reenlistment, you may have to come back in a lower rate. Also, if your rate is SRB eligible, you may lose a substantial portion of your reenlistment bonus.

Reenlistment is not a right, it's a privilege. To earn that privilege, you must be recommended by your commanding officer, be physically qualified, and meet certain standards of performance.

You may choose to reenlist for anywhere from two to six years. In cases where a reenlistment bonus is available, the more years you ship over for, the more money you will receive.

In some cases, you may choose to *extend* your current enlistment rather than reenlist. There are two types of enlistment extension. "Conditional extensions" may be made at any time during an enlistment if you wish to qualify for advancement, for a cruise or a deployment, for entrance into a service school, for a special program, for any other duty requiring additional obligated service, or to obtain maternity benefits for your wife. Extensions are executed in increments of one or more months, not to exceed a total of 48 months on any single enlistment. "Unconditional extensions" may

also be made at any time for a period of not less than 24 or more than 48 months.

Incentive Programs

A number of programs in the Navy offer various incentives to help a Sailor decide in favor of staying in the Navy.

Selective Training and Reenlistment (STAR) Program

A number of incentives are available under this program, including early reenlistment, a variety of school programs, automatic advancement, and payment of a selective reenlistment bonus (SRB). In order to apply for STAR, you must be an E-5, E-4, or qualified E-3, and you must have at least 21 months, but not more than six years, of continuous naval service. You must also be recommended by your commanding officer, be serving in your first enlistment, meet the minimum test-score requirements for entrance into the appropriate Class A school, and agree to reenlist for or extend your enlistment to a period of four, five, or six years. Although all ratings are eligible, your chances of getting into the STAR program are enhanced if you are serving in a critical rating or if you have a critical NEC. (*Note:* "Critical" means that there is a shortage of that rating or NEC in the Navy at the time that you apply.)

Selective Conversion and Reenlistment (SCORE) Program

This program allows you to change your rating as an incentive for reenlistment. SCORE works best for people in ratings that are overmanned or have limited advancement opportunities and are willing to shift into a critical rating. The program offers a variety of incentives, depending upon the individual's particular situation, and may include schooling guarantees, automatic advancement, early reenlistment, and, in some cases, payment of a selective reenlistment bonus. To be eligible, you must be in paygrade E-6, E-5, E-4, or be an identified E-3 striker who has more than 21 months of continuous active naval service (but not more than 12 years of total active military service). You must be recommended by your commanding officer, be within one year of end of active obligated service (EAOS), meet the obligatory service and test-score requirements to enter the appropriate Class A school for your new rating, and be willing to extend your service obligation. Candidates frequently are given the opportunity to work in the rating to which they are converting before being assigned to school. See your command career counselor for more information.

Guaranteed Assignment Retention Detailing (GUARD) Program

Although there are no schools guaranteed under this program, GUARD is a reenlistment incentive program that guarantees assignment to all petty officers and eligible E-3s with less than 25 years of service. If you are within six months of your EAOS you should first talk to your career counselor, then contact your detailer (by personal letter, telephone, or e-mail) to discuss your options. GUARD guarantees two assignments in exchange for your reenlistment. One assignment must be used at first reenlistment, while the second may be used at the end of any other enlistment, up to your seventeenth year of service.

To be eligible for GUARD, you must not be more than six months away from your EAOS and cannot already have a set of PCS (permanent change of station) orders in hand. You must also be recommended by your commanding officer, be eligible for the duty requested in accordance with the sea/shore rotation pattern, be willing to reenlist for four or more years, and have a consistent record of above-average or steadily improving performance.

Assignment to School as a Reenlistment Incentive

The Navy also has provisions to guarantee reenlistees a specific school. Generally, a Sailor must meet the service and entrance requirements for the appropriate school. Consideration of requests is based on composite training, sea/shore rotation, paygrade-versus-skill requirement, and fleet-reserve eligibility. Assignments to schools normally occur at the member's projected rotation date (PRD).

Changes in Rate or Rating

Since the Navy wants each Sailor to serve in the rate or rating for which he or she has the greatest aptitude and interest, regulations provide for lateral changes in rate and rating. "Lateral change" means that you can change your apprenticeship field or occupational specialty without changing your paygrade. Changes in rate or rating may be accomplished via formal school training or "in-service training," through direct conversion, through successful competition in a Navy rating exam, and, in rare cases, through forced conversion. The program is rather complex, so if you are contemplating a change in rate or rating, you would do well to check current directives or consult with your career counselor, personnel office, or educational services office.

If you are not yet rated and want only to change your apprenticeship field, this is less complicated and your commanding officer can authorize it. Normally it will be approved if a greater need exists in the apprenticeship you want to switch to.

Discharges

If you choose not to reenlist, or if the Navy does not invite you to reenlist, or if other circumstances dictate that you must leave the service, you will receive a discharge.

Types of Discharge

There are different types of discharges and the type you receive is very significant because it can affect your life in important ways after you leave the Navy. Certain discharges eliminate some veterans' rights and benefits, and many employers will reject a former military person who cannot produce an honorable-discharge certificate. The various types of discharge are discussed below.

Honorable discharge. An honorable discharge means separation from the service with honor. It is given for one of the following reasons: expiration of enlistment, convenience of the government, dependency, or disability. To receive an honorable discharge, the final average of your performance marks must meet minimum specifications. You can't have been convicted by a general court-martial, or convicted more than once by a special court-martial.

General discharge. A general discharge is given under honorable conditions for such reasons as minority enlistment (meaning that you lied about your age to get into the Navy and were later discovered), ineptitude, and unsuitability. In most cases, it goes to those whose conduct and performance, though technically satisfactory, has not been good enough to deserve an honorable discharge.

Other discharges. These are the ones you especially do not want. They are, in order of increasing severity, the undesirable discharge (UD), bad conduct discharge (BCD), and dishonorable discharge (DD). The UD is given by administrative action for misconduct or breach of security, the BCD only by approved sentence of a general or special court-martial, and the DD only by approved sentence of a general court-martial.

Formal Reasons for Discharge

There are twelve formal reasons for discharge that the government uses to officially determine the nature of your discharge. They are listed and briefly explained below.

Expiration of enlistment. An enlistment normally ends the day before the anniversary date of the enlistment. Depending on circumstances, it may be later. If you have lost days because of injury, sickness, or disease caused by misconduct, you can be kept on active duty until the lost days are made up. Your expiration date may also be postponed if you are undergoing medical care or awaiting trial or official papers. All enlistments can be extended by the government during war or national emergency.

Fulfillment of service obligation. This discharge is given to regular Navy enlisted men and women on completion of their service obligation (if different from your original enlistment period), or to reservists released to inactive duty after completing their active obligated service.

Disability. Given to Sailors unable to carry out their duties because of a mental or physical disability.

Convenience of the government. This term includes general demobilization after a war, acceptance of a permanent commission, and for certain parenthood issues.

Dependency. Discharges for reasons of dependency or hardship are authorized when it is shown that undue and general hardship exists at home. The hardship must be permanent and must have arisen or worsened since the person joined the Navy. Dependency discharges, commonly called hardship discharges, are not authorized for financial or business reasons, or for personal convenience.

Misconduct. A misconduct discharge is given to deserters who have not returned to military jurisdiction, persons convicted by civil authorities, and those who have made fraudulent enlistments.

In absentia. Deserters absent longer than 18 months can be discharged *in absentia.* These discharges cover those who flee to foreign countries, where the United States has no jurisdiction, or for those who have not been found and the statute of limitations has run out.

Security. Given to personnel considered security risks.

Sentence of court-martial. Self-explanatory.

Unsuitability. Given for such reasons as ineptitude, apathy, alcoholism, and financial irresponsibility, as well as character and behavior disorders.

Personal abuse of drugs. Given to a drug abuser identified either by urinalysis or by the abuser's own admission.

Good of the service. This type of discharge can be issued instead of taking action under the UCMJ. Although a Sailor may request an administrative discharge under other-than-honorable (OTH) conditions, he or she is still subject to the results of any disciplinary proceedings in the case.

Retirement

When enlisted men and women complete more than 20 years of active service, they are eligible for release to inactive duty and for transfer to the fleet reserve. After 30 years of combined active service and inactive duty in the fleet reserve, they are transferred to the Navy's retired list. Those with 30 or more years of active service may be transferred directly to the retired list. Technically, the pay received by a fleet reserve member is a retainer, while that received by those on the retired list is retired pay, though both are popularly called retired pay. For the rest of this discussion, we will simply refer to both retirement pay and retainer pay as "retirement pay."

Currently, if you joined the Navy after July 1986, you have to make a choice of what kind of retirement benefit you will receive once you reach the 15-year point of your career. One choice is to accept a $30,000 bonus at the 15-year point and receive less retirement money once you actually retire. The other choice is to not take the $30,000 bonus at the 15-year point but receive more retirement money once you actually retire. The difference between the two is based on more complicated formulas but can be summed up as follows.

High-3. Whether you take the $30,000 bonus option or not, you will first need to figure your "high-3" pay. This is obtained by averaging your annual basic pay for the 3 years of service in which you received the most pay (usually the last 3 years of service). For example, if your basic pay was $32,000 in your last year of service and $30,000 in the two years preceding that, you would average them (32,000 + 30,000 + 30,000 divided by 3) to get your "high-3" of $30,666. (These figures are for illustration only; real Navy pay would not normally work out to such even figures.)

Without 15-Year Bonus. If you chose not to take the bonus at the 15-year point, you will receive 50% of your High-3 pay if you retire at the 20-year point. For every year beyond 20 that you serve, you will receive an additional 2.5%, up to 75%. So, using the high-3 example above ($30,666), if you retired at the 20-year point, you would receive 50% of that—$15,333—every year for the rest of your life [see the discussion of inflation below]. If you waited another year to retire, your retired pay would be increased by another 2.5% (to $16,099). [Be aware that dollar figures are always rounded down when figuring retirement.] If you stayed on active duty for 25 years, your retired pay would be 62.5% of your high-3 ($19,166). Once you reached 30 years, you would receive the maximum 75% ($22,999) and could not go any higher.

Taking the 15-Year Bonus. This option puts cash in your pocket before you retire, which can be a big help, but you should weigh the advantages against the disadvantages before making a decision either way. To begin with, you should know that income taxes will be withheld from the bonus money, so you will not receive a full $30,000. You should also know that if you decided to leave the Navy before reaching retirement (or Fleet Reserve) eligibility, you would be required to pay back $6,000 for each year less than twenty you did not serve. When you reach the twenty-year point, you will be eligible to receive 40% of your high-3 money ($12,266 per year in our example). Each year served beyond that would earn you another 3.5%, so at the 21-year point you would be eligible for $13,339, and at the 25-year point it would be $17,632 per year. By the time you reached 30 years, you would have reached the 75% maximum just as you did with the other option [see the discussion of inflation below].

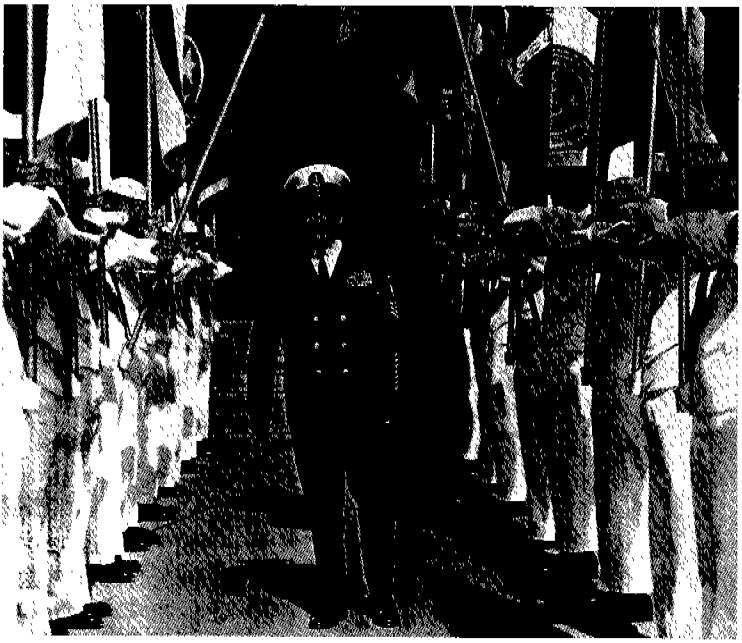
Inflation. One other thing to consider is that the rate of inflation adjustment is different for the two options described above. The no-bonus option includes full inflation adjustment each year, but the bonus option is capped each year at 1 percentage point below the inflation rate, with a one-time adjustment at age 62 to raise your pay to what it would have been without the cap.

Obviously, there is a lot to consider before making your choice. Be sure to weigh all the variables (how long you plan/hope to stay on active duty, what are/will be your financial needs, etc.) before making that important decision at the 15-year point in your career. No matter what decision you make, military retirement is an important benefit that you should think about before deciding when to leave the Navy.

Another thing to consider is the Thrift Savings Plan offered by the Navy. This is not a substitute for the retirement plans described above but is an added benefit you can choose to supplement your retirement. The plan allows you to have some of your pay automatically deducted and invested. There are several options available, and you should see your career counselor for more information.

Second Career

For most people, retirement from the military is not retirement in the traditional sense. Either because you want to make more money or because you are still young enough to do more with your life, you will probably want to start a second career after you leave the Navy. Planning for a second career is an important step that should be care-



U.S. Naval Institute

Figure 11.3. A chief petty officer retires from the Navy after 30 years of service.

fully considered. Your new life can offer fun, zest, or relaxation—or it can be one big headache.

The first step is getting to know yourself, especially if you want to find a new job. Often a Sailor undersells his or her talents or, worse yet, his or her potential. If you have climbed the promotion ladder to senior petty officer or officer, you've shown not only talent but potential and leadership. In examining your career, look for areas that will support your job aims in civilian life. Don't think that because you've spent 20 years as a signalman, the only job you're qualified for on the outside is that of a construction flagman. In general, don't limit yourself to work directly related to your Navy occupation. Your experience as a supervisor or manager is probably even more important in the eyes of an employer.

You should also brace yourself for the social and psychological shock that comes from leaving military society, where rules and paths are well defined. Even though you were a civilian before you joined the Navy, going back to the civilian world will take some adjustment. Even though you always looked sharp in your uniform and passed

every inspection with flying colors, you may find that dressing yourself for your new job is a real challenge. You will probably be surprised at how missing a little sleep is a much bigger deal to a civilian than it is to you. You may find that what is early morning to your civilian coworkers is midday to you. You will probably get some quizzical looks the first time you ask a coworker where the head is or explain that you are "going topside for a minute."

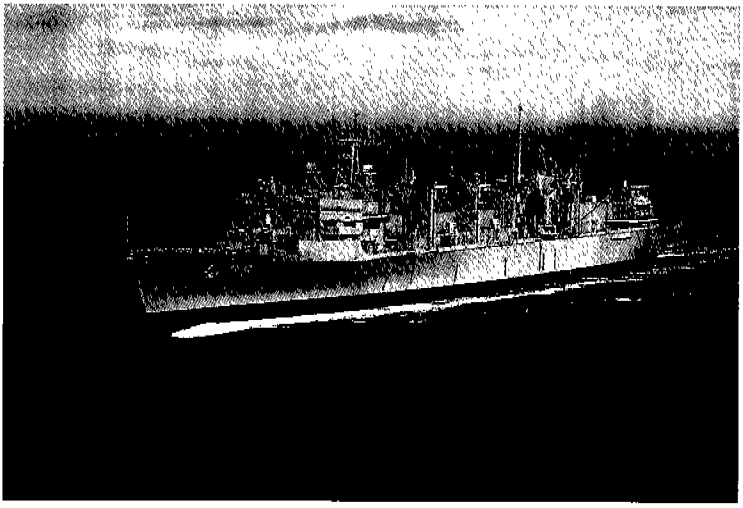
Don't expect this transition to happen overnight. It may take weeks, months, or even longer. The important thing to remember is that it is perfectly normal and you're not the first who has had to make this adjustment.

As you venture out on this second career, whatever it is, bear in mind that your years of service in the Navy have strengthened you as a person, taught you a great many things, and prepared you to handle many of the challenges of life. Don't be cocky, but be confident. As a former Sailor, there isn't much you can't handle.

12 Ship Construction

Ships are the basic element of the Navy. There are other important components—aircraft, submarines (a kind of specialized ship actually), construction battalions (known as Seabees), commando teams (known as SEALS), shore installations, and so on—but ships have been the centerpiece of navies since ancient times. Because of their long existence, ships are steeped in tradition and talking about them requires a specialized vocabulary. Among the traditions that you will learn to observe is that ships are always referred to in the feminine gender. Sailors use the words "she" and "her" when talking about ships, never "it."

Navy ships are highly complicated machines with their own propulsion plants, weapons, repair shops, supply spaces, and facilities for living, sleeping, and eating. Although there are great differences in the types and missions of ships, all ships have certain essential characteristics.



National Steel and Shipbuilding Company

Figure 12.1. Ships are the basic element of the Navy.

Armament is the combat "punch" of a ship. In some ships, that punch is primarily offensive, such as heavy-caliber guns or long-range missiles. Other ships, whose mission may be supportive, such as oilers or ammunition replenishment ships, carry armament that is primarily defensive in nature. A ship's armament may consist of guns, missiles, torpedoes, depth charges, rockets, mines, or aircraft. Most ships are armed with more than one type of weapon. An aircraft carrier, for example, uses her airplanes as the primary means of attack and defense, but she also may carry a close-in missile defense system to handle any attackers that may have penetrated her outer defenses.

Survivability refers to those features that help a ship survive the effects of combat. Aside from weapons, a ship's sturdy construction is her best protection. Compartmentation, double bottoms, and other structural components all make a ship less vulnerable to attack or damage by other means. A ship's fire-fighting and flooding-control systems are also important components of her survivability.

Seaworthiness means those features that enable a ship to operate in high winds and heavy seas. A ship's stability, or the way she recovers from a roll, is an essential part of her seaworthiness. You will sometimes hear a ship referred to by her "sea-keeping abilities," which refers to how well she is able to perform her mission when the sea and weather conditions are bad.

Maneuverability is the way a ship handles in turning, backing down (going in reverse), moving alongside another ship, or evading enemy weapons. Many factors contribute to a ship's maneuverability, such as the size of her rudder, the power of her engines and how quickly they respond to changes, her draft (how much of the ship is under the water), or her sail area (how much of the ship is above the water where the wind can affect her).

Speed determines how quickly a ship can get to a scene of action, helps her overtake an enemy or avoid being overtaken, and plays a role in a ship's maneuverability and vulnerability. Key factors are the power of her engines in relation to her size, and the shape of her underwater hull.

Endurance is the maximum time a ship can steam at a given speed. Most oil-powered ships can steam for days or even weeks without refueling. The Navy's nuclear-powered ships can cruise for years, limited only by their need to replenish food and other consumables.

No matter how specialized your professional training, you must still be thoroughly familiar with basic nautical terminology referring to ship construction. You will find that this terminology is used throughout the Navy whether you are on a naval air station, in a Navy

school, or actually aboard ship. So you will need to learn this new vocabulary in order to communicate in your new profession. After a time, such language will become second nature to you and you will find yourself using these terms more naturally than the ones you used to use.

In some respects a ship is like a building. She has outer walls (forming the *hull*), floors (*decks*), inner walls (*partitions* and *bulkheads*), corridors (*passageways*), ceilings (*overheads*), and stairs (*ladders*). But, unlike a building, a ship moves, so you will also have to learn new terms for directions and getting around. For example, when you cross from a pier to a ship you are using the *brow* to go *aboard,* and what might be an entrance hall or foyer in a building is the *quarterdeck* on a ship. The front (*forward*) part of a ship is the *bow;* to go toward the bow is to *go forward.* The back (*after*) part of the ship is the *stern;* to go toward the stern is to go *aft.* Something located further aft than another object is said to be *abaft* the other. The uppermost deck that runs the entire length of the ship from bow to stern is the *main deck.* [An exception to this rule is the aircraft carrier, whose main deck is the hangar deck, not the flight deck, which would seem to fit the normal definition of main deck.] Above the main deck is the *superstructure.* "Floors" below the main deck are called *lower decks,* but those above the main deck are called *levels.* In a building you would go upstairs or downstairs, in a ship you go *topside* and *below.* The forward part of the main deck is the *forecastle* (pronounced "fohk-sul"), and the after part is the *fantail.* As you face forward on a ship, the right side is *starboard,* and the left side is *port.* An imaginary line running full-length down the middle of the ship is the *centerline.* The direction from the centerline toward either side is *outboard,* and from either side toward the centerline is *inboard.* A line from one side of the ship to the other runs *athwartship.*

Although an explanation of the term *displacement* is more complicated, for most practical purposes this term refers to the weight of a vessel.

Basic Ship Structure

While you are not expected to be a naval architect, you will need to know some of the basics of how ships are constructed in order to understand how they work and where things are in relation to each other. This knowledge will not only keep you from getting lost on a ship, it may help you some day to save your ship or yourself should a disaster strike.

The Hull

The hull is the main body of the ship. *Shell plating* forms the sides and bottom, and the *weather deck* or *main deck* forms the top. Where the sides join the main deck is called the *gunwale* (pronounced as though rhyming with "funnel"). The outermost layer of plating and decking is called the *skin of the ship*.

The shape and construction of the hull depend on the type of ship. Ships designed for high-speed operations—destroyers and cruisers, for example—have long, narrow hulls with fine lines. Aircraft carriers and auxiliary ships have hulls with square center sections, vertical sides, and flat bottoms for greater carrying capacity. Submarines, designed to operate under water, have hulls that are rounded, like an egg, because that shape withstands great pressure.

The keel is the backbone of the ship. The keel usually looks like an I-beam running the full length of the ship along the bottom. The forward end of the keel, extended upward, is the *stem;* the after end, extended upward, is the *sternpost. Frames* are beamlike structures fastened to the keel. They run athwartship, like ribs, and support the watertight skin or shell plating. Most ships built for the Navy also have *longitudinal frames* running fore and aft. The longitudinal and athwartships frames form an egg-crate structure in the bottom of the ship which, when inner-bottom plating is welded to it, creates what is called a *double bottom.* What would be walls in a building are called *bulkheads* if they are weight-supporting and watertight, and *partitions* if they are not. Solid (except for the openings for doors, ventilation ducts, and so on) "walls" inside the hull, extending from one side of the ship to the other, are called *transverse bulkheads.* Deck beams, transverse bulkheads, and *stanchions* (posts) support the decks and help strengthen the sides against water pressure.

When weight is added to a ship's inner bottom to balance her topside weight, making her more stable, it is called *ballast.* Some ships carry permanent concrete ballast; others pump saltwater into tanks to serve as temporary ballast, pumping it out when it is no longer needed.

Where the hull meets the surface of the water on a ship is called the *waterline.* Any part of the ship that is under water is below the waterline; any part of the ship that is in air instead of water is above the waterline.

Vertical extensions of the shell plating above the deck edge, which serve as a kind of solid fence, are called *bulwarks.* They shield deck areas from the direct effect of waves and keep personnel and equipment from going overboard. The latter purpose is also served by *lifelines,* which are wire ropes mounted on short stanchions and

stretched tight by turnbuckles to form a kind of safety fence around the edges of the ship's weather decks (where there are no bulwarks).

The vertical distance from the waterline to the keel determines a ship's *draft*. Measured in feet and inches, draft markings are six-inch-high numbers marked on the hull near the stem and stern post. Because these numbers are six inches high and are six inches apart, the bottom of each number indicates foot marks and the top indicates half-foot marks.

That part of the ship's hull that extends from the waterline to the first weather deck is called *freeboard*.

To protect the ship's propellers (also called *screws*) from damage when coming alongside a pier or mooring next to another ship, steel braces are mounted at the stern, directly above the propellers. These are appropriately called *propeller guards*.

When a ship is properly balanced fore and aft (that is, the bow and stern are at the levels they were designed to be), the ship is said to be in *trim*. If the bow is lower than the stern, the ship is said to be *down by the head* or *down by the bow*. When her stern is lower, she is said to be *down by the stern*.

A ship with one side higher out of the water than the other has a starboard or port list. *List* is a temporary condition caused by uneven loading of the ship. If fuel is added to the port-side tanks more rapidly than to the starboard-side tanks, the ship will list to port until the weight is balanced. List is measured in degrees by a device called an *inclinometer*, which is either a liquid-level or pendulum-like device mounted exactly at the ship's centerline. When the ship is perfectly level, the inclinometer reads "zero"; when she has a list the inclinometer will tell you how much.

Superstructure

All structures above the main deck are collectively referred to as the *superstructure*. Different kinds of ships have different types of superstructure. Often, the superstructure is topped off by one or more *masts*. At its simplest, a mast is a single pole fitted with a crossbar, called a *yardarm*, which extends above the ship and carries flag *halyards* (lines used to hoist the flags), navigational and signal lights, and various electronic devices. If the ship has two masts, the forward one is called the *foremast*, the after one the *mainmast*. Modern ships do not normally have three masts, but in the days of sail, when masts also played a role in the propulsion of the ship by supporting her sails, some ships had a third mast, called the *mizzen*, which was mounted after the mainmast. On single-masted ships, the mast,

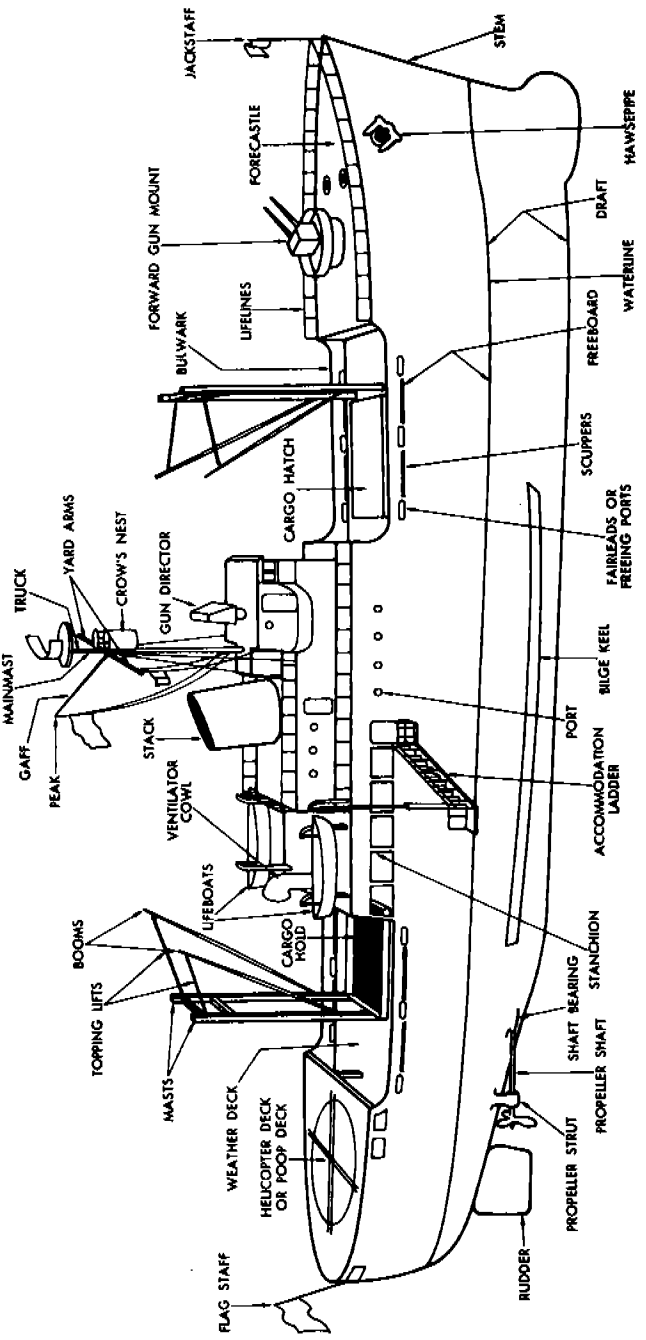


Figure 12.2. Some of the principal parts of a ship.

whether forward or amidships, is usually part of the superstructure and is simply called the mast.

The top of a mast is called the *truck*. The top of the foremast is the *foretruck*, while the top of the mainmast is the *main truck*. The *pigstick* is a slender vertical extension above the mast from which the ship's commission pennant or an admiral's personal flag flies. The *gaff* usually extends abaft the mainmast and is used to fly the national ensign when the ship is under way. The vertical *spar* (short pole) at the bow and the slightly raked one at the stern are called the *jackstaff* and *flagstaff*, respectively. As discussed in chapter 6, when a Navy ship is at anchor or moored to a pier it flies the union jack on the jackstaff and the national ensign on the flagstaff from 0800 to sunset.

The *stack* of a ship serves the same purpose as the smokestack on a powerplant ashore. It carries off smoke and hot gases from the boilers and exhaust from the diesel engines. (Nuclear-powered ships do not need stacks since their reactors produce no smoke or gas.) Some diesel-powered ships release their exhaust from the sides. On some ships, the masts and stacks have been combined to form large towers called *macks*.

Decks and Levels

Decks divide a ship into tiers or layers of compartments the way floors of a building divide it into stories. The deck normally consists of steel plates strengthened by transverse (athwartships) deck beams and longitudinal (fore and aft) girders. Decks above the waterline are usually *cambered* (arched) to provide greater strength and drain off water.

Decks are named according to their position and function in the ship. For purposes of compartment identification, decks are also numbered. The *main deck* is usually the uppermost of the decks that run continuously from bow to stern. The *second, third,* and *fourth decks,* continuous decks below the main deck, are numbered in sequence from topside down. A partial deck (that does not run continuously from bow to stern) is called a *platform*.

A partial deck above the main deck is numbered with a zero in front and called a *level* to distinguish it from the full decks. So the first partial deck above the main deck would be the 01 level, the next one up would be the 02 level, and so on. The term *weather deck* means just what it sounds like—a deck that is exposed to weather. *Flats* are removable platings or gratings installed as working or walking surfaces.

The *quarterdeck* is not a true deck or a structural part of the ship, but rather a location designated by the commanding officer as a place for ceremonies. Likewise, the word *mess deck* refers to a specific place (where the crew eats) and is not actually a deck in the strict sense of the word. A *flight deck* is an area used by airplanes and/or helicopters to land and take off.

Compartmentation and Watertight Integrity

Compartments are the rooms of a ship. Some compartments are called rooms, such as *wardroom, stateroom,* and *engineroom,* but generally speaking "room" is not often used. Don't refer to the area where you sleep as the "bedroom" or the place where you eat as the "dining room." They are called *berthing compartment* and *mess deck,* respectively.

You will also hear the term *space* used often to describe a compartment or any enclosed area of a ship.

If a ship were built like a rowboat, one hole below the waterline could sink her. To prevent this from happening, naval ships are built with bulkheads that divide the hull into a series of watertight compartments. The term *watertight* means that when these compartments are sealed up, water cannot enter or escape. *Watertight integrity* is the overall quality of being watertight. A ship with good watertight integrity is far more survivable than one with poor watertight integrity. If a ship experiences flooding, the affected spaces can be sealed off and the other watertight spaces will keep the ship afloat. There are limits to this concept, of course. If enough compartments on a ship become flooded, the remaining watertight compartments may not have enough *buoyancy* (floatability) to keep the ship afloat. The more compartmentation a ship has, the more chance her crew has of confining the flooding to an acceptable level that will permit the ship to stay afloat (remain buoyant). The tradeoff is, of course, that too much compartmentation would interfere with the arrangement of mechanical equipment and with her operation.

An important bonus is that just as flooding can be isolated through this compartmentation system, so can fire.

Watertight doors allow access through bulkheads when opened but can prevent flooding and the spread of fire when closed. Watertight *hatches* serve the same purpose by providing sealable access through decks. Be sure to note the difference here. People—even some Sailors—often confuse doors and hatches on a ship. Ships have doors just as buildings ashore do. The difference between shipboard doors and those ashore is that those found on ships can be watertight or nonwatertight. Watertight doors contribute to the com-

partmentation and overall watertight integrity of the vessel, while nonwatertight doors serve the same kinds of purposes as those ashore—privacy and noise suppression. Watertight doors pass through bulkheads and nonwatertight doors pass through partitions. *Hatches,* on the other hand, are always horizontal—never vertical like a door—and allow passage through *decks,* not bulkheads or partitions. All watertight fittings (doors and hatches) are specially marked to tell you when it is all right to open them and when it is not. These markings will be explained in the chapter covering damage control.

Obviously, holes must also be placed in watertight bulkheads and decks to allow ventilation ducts, fluid piping, and electrical and electronic cabling to pass through. These holes are specially constructed to prevent leaking and thereby preserve the watertight integrity of the ship.

Large ships have outer and inner *double bottoms.* These are divided athwartships and longitudinally into tanks, which are used to stow fuel oil or fresh water.[1] These tanks can also be used to bring in seawater for ballast.

Tanks at the extreme bow and stern, called the *forward peak* (or *forepeak*) tank and the *after peak* (or *aftpeak*) tank, are used for trimming (leveling) the ship. Sometimes these tanks are used to carry potable (drinking) water. A strong watertight bulkhead on the after side of the forepeak tank is called the *collision bulkhead.* If one ship rams another head-on, the bow structure of the latter collapses at a point somewhere forward of the collision bulkhead, thus absorbing some of the shock of the collision and, hopefully, preventing the flooding of compartments aft of it.

All tanks are connected to a pumping and drainage system so that fuel, water, and ballast can be transferred from one part of the ship to another or pumped overboard.

Deck and Compartment Identification

Trying to find your way around a multideck ship that is several hundred feet long can be a difficult process. Just as a town or city has a system using street signs and addresses to help you find your way around, so does a Navy ship. Each deck on a ship has a number, as we have already discussed, and each compartment on a ship has an

1. The nautical term for "store," when it is used as a verb, is *stow.* When used as a noun, the correct term remains *store.* For example: "A load of stores was delivered to the ship and stowed below." The nautical term for "storage" is *stowage.*

identifier that is roughly equivalent to a street address in a city. Once you understand this system, you will know where you are at any given time on a ship, and you will be able to find any space on ship even if you haven't been there before.

Every space aboard ship is assigned an identifying number-letter symbol, which is marked on a label plate above the entrance(s) to the space and on a sign on the bulkhead inside the space. Compartment identifiers contain the following information in the following format: Deck number–Frame number–Number representing the space's relation to the centerline of the ship–Letter(s) explaining the function of the compartment

EXAMPLE: 4–95–3–M

The *deck number* is the first part of the compartment number. Since the main deck of a ship is always numbered "1," we know that our example compartment is three decks below the main deck. If our example had been numbered "04," we would know that it was four decks *above* the main deck. If a compartment extends through more than one deck (such as an engineering space that must be large enough to hold a boiler or turbines), the deck number of that compartment refers to the bottommost deck.

The second number refers to the *frame number*. As explained earlier in this chapter, frames are beamlike structures that are fastened to the keel and run athwartships. They are numbered sequentially, fore to aft, so that the frame nearest the stem of the ship would be numbered "1" and the next one aft would be numbered "2," and so on. When you are first assigned to a ship, it is a good idea to find out and memorize the number of frames she has, because then you will have a better idea what part of the ship you are in once you know the frame number of the compartment. In our example compartment, the frame number is 95. If we know that the ship has a total of 207 frames, we would then be able to deduce that we are located about halfway between the bow and stern of the ship. The frame number always refers to the forwardmost bulkhead of a compartment.

The third part of the compartment identifier refers to the compartment's relation to the centerline. Compartments located directly on the centerline are numbered "0" (zero). Those on the starboard side of the centerline are numbered with odd numbers, and those on the port side are numbered evenly. The first compartment on the starboard side of the centerline would be numbered "1," the next one outboard would be numbered "3," the next one outboard of that one

would be "5," and so on until we reach the skin of the ship. The first compartment on the port side of the centerline would be numbered "2," and the ones outboard of it would be "4," "6," and so on. Our example compartment is identified by the number "3," so we know that it is the second compartment off the centerline on the starboard side of the ship.

The fourth and last part of the compartment identifier is the letter that identifies the compartment's primary function. On cargo ships, cargo spaces (where goods are stowed for delivery to other ships or stations) are identified by a two-letter symbol, but all others are simply one letter. From the following list, it can be seen that our example compartment is used for the stowage or handling of ammunition.

Compartment Letter Identifiers

- A Stowage spaces: store and issue rooms; refrigerated compartments
- AA Cargo holds: cargo holds and refrigerated compartments
- C Control centers for ship and fire-control operations (normally manned): the combat information center (CIC); internal communications (IC) rooms; plotting rooms; pilot house; electronic equipment-operating spaces
- E Engineering control centers (normally manned): main machinery spaces; evaporator rooms; steering-gear rooms; pump rooms; auxiliary machinery spaces; emergency generator rooms
- F Oil stowage compartments (for use by the ship itself, that is, not as cargo): fuel-, diesel-, and lubricating-oil compartments
- FF Oil stowage compartments (cargo): compartments carrying various types of oil as cargo
- G Gasoline stowage compartments (for use by the ship itself): gasoline tanks, cofferdams, trunks, and pump rooms
- GG Gasoline stowage compartments (cargo): spaces for carrying gasoline as cargo
- J JP-5 (aviation) fuel (ship or embarked aircraft use): jet-fuel stowage spaces
- JJ JP-5 fuel (cargo): spaces for carrying JP-5 fuel as cargo
- K Chemicals and dangerous materials (other than oil and gasoline)
- L Living spaces: berthing and messing spaces; staterooms; washrooms; heads; brig; sick bay; and passageways

M Ammunition spaces: magazines; handling rooms; turrets; gun mounts; shell rooms; ready service rooms
Q Miscellaneous spaces not covered by other letters: laundry; galley; pantries; wiring trunks; unmanned engineering; electrical and electronic spaces; shops; offices
T Vertical access trunks: escape trunks
V Voids: spaces that are normally empty
W Water stowage spaces: drainage tanks; freshwater tanks; peak tanks; reserve feedwater tanks

Propulsion Plant

A ship is of little use unless it has mobility, and the source of that mobility is the ship's propulsion plant. In previous centuries, the source of propulsion was oars or sails, but in modern times more sophisticated forms are used.

Oil-fired Steam Plants

For the better part of a century, steam has been the primary method of marine propulsion for sizable ships and is still used in many U.S. Navy vessels. Steam plants consist of *boilers* that transform fresh water into steam and *turbines* that convert that pressurized steam into usable power that turns the ship's propellers. *Condensers* convert the spent steam back into fresh water, which returns to the boilers to be reheated into energy-filled steam again. This "steam cycle," as it is called, is repeated over and over to propel a ship through the water. Even though this is a *closed* cycle—meaning that the water and steam are theoretically contained in the system and not allowed to escape—a certain amount of the fresh water is used up, so that a continuous supply of *feed water* is required for sustained operations. This is generated by *distilling plants*, which convert sea (salt) water into fresh. A steam plant also needs a supply of fuel to provide the heat in the boilers, and this must be carried in fuel tanks onboard—much as an automobile has a gas tank—and periodically replenished (either in port or from oilers at sea).

Nuclear Power

Nuclear power is a very specialized form of steam propulsion. Instead of using oil-fired boilers, nuclear-powered ships have a *reactor* that produces the heat to convert fresh water to steam. Nuclear powerplants give a ship the advantage of great endurance at high speed. Instead of refueling every few thousand miles like an oil-burning ship, a nuclear-powered ship can operate for years on one reactor

core. Because there is no need to replenish oil, nuclear-powered ships can steam almost indefinitely, limited only by their need to replenish food and spare parts (and ammunition in wartime).

Another favorable feature of nuclear power is that, unlike conventional oil-fired systems, the generation of nuclear power does not require oxygen. This makes it particularly useful as a means of submarine propulsion. Submarines can operate completely submerged for extended periods of time.

Gas Turbines

Gas turbines are very similar to aircraft jet engines, but have been adapted for use on ships. The burning fuel spins turbines in the engines that convert the energy created by the burning fuel into usable power that turns the ship's propellers.

Although some of the principles are the same, some of the primary differences between these propulsion plants and those that use steam are that the gas turbines combine the functions of the boiler and the turbines into one element and gas turbines have no need of feedwater. This means that they are smaller, more efficient, and easier to maintain. They are also much more quickly "brought on the line" (turned on). A steam-powered vessel requires *hours* to prepare to get underway, while gas turbine-powered ships can be ready in *minutes*.

The obvious advantages of gas-turbine technology have caused the U.S. Navy to build more and more of these ships. Whereas steam was once the main means of naval propulsion, today there are more gas-turbine ships in the Navy than any other kind of propulsion.

Diesel Engines

For relatively small ships that need no more than 5000 to 6000 horsepower, diesel engines are frequently used. Diesels are lighter, take up less space, and are more efficient than steam turbines. The diesel can be coupled directly to the shaft through reduction gears and perhaps a clutch; or it can drive a generator that produces current for the main drive.

Diesel engines are preferred over gasoline engines because highly volatile gasoline fumes are heavier than air and tend to collect in low places in a ship, making them very dangerous. Diesel fuel, which does not vaporize as readily, is much safer.

Propellers

A vital component of a ship's propulsion system is the propeller(s). Some ships have only one, others have two or more (an aircraft car-

rier has *four* giant propellers). Another term you will hear when referring to ships' propellers is *screw*.

Propeller *shafts* carry the power generated by the propulsion plant to the propellers. Shafts run from the *reduction gears* (which change the high-speed spin of the turbines into a more suitable speed for the propellers) through long watertight spaces, called *shaft alleys,* in the bottom of the ship. These shafts go out through the hull using special watertight sleeves and are often supported outside the hull by *struts*.

Propellers on some ships are fixed while others are of the controllable-pitch type. Fixed propellers are solid in their construction and change speed by speeding up or slowing down the spin of the whole propeller. Controllable-pitch propellers, on the other hand, pivot their blades in such a way as to change the amount of thrust they create and thereby control the speed. For a fixed-type propeller to *back down* (go in reverse), it must be slowed down, stopped, and then spun in the opposite direction. A controllable-pitch propeller need only change the pitch sufficiently to reverse the thrust. For this reason, the latter type of propeller is much more common in modern naval ships.

The Steering System

The basic component of nearly every ship or boat steering system is the *rudder*. The simplest rudder design is a flat board or blade that extends into the water beneath the vessel's stern. When it is turned one way or the other while the vessel is moving, flowing water builds up on the front side and pushes the stern of the vessel in the opposite direction. Because the rudder acts by the force of water pushing against one side of it, there is no rudder action when the ship is motionless. And the greater the speed of the vessel through the water, the greater the effect the rudders have. For this reason, the rudder is usually mounted just astern of the screws, where the wash created by the moving propeller pushes directly against it and increases the effect.

The rudder is controlled by a *tiller* in an open boat (such as a motor whaleboat or motor launch) or by a wheel in the cockpit of a larger boat or on the bridge of a ship. This wheel is often called a *helm* on a ship. In a boat, the motion of the wheel is transmitted to the rudder by a cable or shaft. In a ship, the rudder is turned by an electric or steam engine in the steering-engine room. This electrical or hydraulic engine is controlled by the helm on the bridge. When the helm is turned on the bridge, it transmits a signal to the steering engine which then moves the rudder.

Ships can have more than one rudder, but in the case of multiple rudders the rudders do not act independently but are controlled together.

To prevent loss of control in case of damage to the bridge, there is usually a second steering wheel mounted elsewhere in the ship. This back-up control station is called *secondary conn.* If that wheel is also disabled, the ship can be hand-steered by several Sailors using special gear in the steering-engine room. There is also a duplicate set of steering engines and connecting cables on naval vessels to serve as backup in the event of damage.

Ships or boats with two screws can be steered fairly well without a rudder by using the engines. If one screw turns faster than the other, the bow will swing toward the slower screw. If one screw goes ahead while the other goes astern, the bow of the ship will swing toward the backing screw. Boats, and even very large ships, can turn within the diameter of their own lengths using this method, which is appropriately called *twisting.*

Ground Tackle

A ship is *moored* when she is held in position by an anchor on the ocean bottom made fast either to a mooring buoy or a pier. To moor to a pier, a ship uses her mooring lines. To anchor or moor to a special mooring buoy, the ship uses her *ground tackle* (such as anchors, anchor chains, or windlasses). Ground tackle is normally located on the forecastle, but some ships, particularly amphibious craft that run up onto beaches, may also carry a stern anchor used to help haul themselves off the beach when it is time to return to sea.

Ladders, Booms, and Brows

When a ship is not moored alongside a pier, her freeboard (distance from the water up to her main deck) causes a problem for boarding or leaving the ship. Boats coming alongside a ship will be too low for personnel to get out of the boat and up to the main deck. A special stairway leading from the deck down close to the water is suspended over the side to take care of this problem and is called an *accommodation ladder.* It has a platform at the bottom that serves as a landing for boats, and a suspended line, called a *sea painter,* to which boats secure themselves when coming alongside.

Some ships have *boat booms,* which are special spars swung out from the ship's side when the ship is moored or anchored. These special booms have lines suspended to the water for boats to tie up to and

they also have a *Jacob's ladder* (basically a rope ladder, although it can be made of metal or have wood components) that allows boat crews to climb into their boats or to leave their boats and come aboard the mother ship.

Boat booms require some athletic ability and are provided primarily for boat-crew use. Accommodation ladders are used by other ship's personnel and visitors.

When a ship is moored to a pier (or alongside another ship), boarding and departing are less difficult and can be accomplished by placing a simple crossway, called a *brow*, to bridge the gap between the ship and pier (or between the two ships).

Specialized Spaces

Just as a building has specialized rooms or areas, such as the lobby, parking garage, heating plant, or boardroom, ships have special spaces with distinct purposes necessary to the operation or utility of the vessel. Some ships have very special areas—such as Primary Air Control on an aircraft carrier—not found on all ships, but other special areas are found on most naval ships.

The Bridge

This is the primary control position for the ship when she is under way, and the place where all orders and commands affecting the ship's movements and routine originate. The captain will be on the bridge a lot of the time underway—especially during most special sea evolutions and when the ship is entering and leaving port—but obviously cannot be there 24 hours a day. The officer of the deck (OOD)—a rotating watch position manned only by highly qualified personnel—who is the captain's primary assistant in charge of safely running the ship is always on the bridge when the ship is under way.

On the bridge are various instruments and equipment used to control the movements of the ship. The ship's helm and engine controls are located here, as well as radar repeaters, navigation light switches, wind indicators, radios, speed indicators, and compasses.

The Chart House

The chart house is normally just aft of the pilot house and on the same deck, but it can also be on another deck and some distance away. This is where the navigator and his or her team of quartermasters do much of their work. Using navigational equipment and

instruments such as sextants, stadimeters, bearing circles, stopwatches, parallel rulers, dividers, protractors, position plotters, electronic devices, and navigational books and tables, the navigational team keeps a constant plot of the ship's position (location) at any given moment and a plan of where the ship is going.

Signal Bridge

This is an open platform located near (often just above) the navigational bridge and equipped with devices used to communicate visually, such as signal searchlights and signal flags. The signal lights allow ships to communicate with one another by flashing the lights on and off in Morse code (see Appendix E). The signal flags are kept in a specially designed stowage locker, known as a *flag bag,* which allows quick access to the flags. The lower ends of the halyards, on which signal flags are hoisted, are secured here so that the signalmen can quickly attach flags from the flag bag and hoist them into the air where other ships can see them.

Combat Information Center

The combat information center (CIC) is the nerve center of the ship. A wide range of electronic equipment is installed in the CIC to process information received from a wide variety of sources, including radio, radar, sonar, electronic-warfare intercept receivers, IFF (identification friend or foe) transponders, visual communications, satellites, fathometers (depth gauges), and computers. All of this information is collected, processed, displayed, evaluated, and disseminated to other parts of the ship (or to other ships) for use in decisionmaking and in properly employing the ship. CIC is the place where the ship's tactical operations are controlled. Such operations include the evaluation of targets, weapons firing, the control of friendly aircraft, surveillance operations, navigational assistance, submarine tracking, and many others.

Damage Control Central (DCC)

Damage Control Central serves as the central information site for matters affecting the safety of the ship. By monitoring conditions aboard ship and maintaining control of vital systems such as those used in firefighting and flooding control, and by maintaining careful records, damage-control charts, and liquid-loading diagrams, DCC sees that the ship is prepared for any emergency conditions that may arise.

Storerooms

A ship cannot operate at sea for extended periods of time unless it has adequate stowage for consumable supplies and spare parts. These areas are known as storerooms.

Magazines

Magazines are special storerooms used for the stowage of missiles, rockets, and gun ammunition. For obvious reasons, these important but potentially dangerous areas aboard ship are kept locked and under close control. They also are protected by various alarm and firefighting systems and are usually located in spaces well below the waterline so that, in case of fire, they can be flooded.

Crew Accommodations

The living spaces aboard ship are essential to accommodate the needs of the crew. Berthing (sleeping) compartments, heads (lavatories), wardrooms (living and dining areas for officers), officers' cabins (or staterooms), galleys (kitchens), messes (where enlisted personnel eat), laundries, barber shops, and sick bay (medical clinic) are all living areas necessary for the daily routine of the men and women who live aboard ship. Larger ships may have other spaces for the health and comfort of the crew, such as tailor shops, libraries, chapels, weight/aerobic rooms, and crew lounges. Virtually all ships have a ship's store where you can purchase toiletries, uniform items, gedunk (snacks), and—depending upon the size of the ship and its store—a variety of other items. An added benefit of using your ship's store is that the profits go to the ship's Morale Welfare and Recreation fund (see chapter 11).

Shops and Offices

Shops and offices can be found on virtually every Navy ship. The number of each depends upon the size and the purpose of the ship. An aircraft carrier will have hundreds of each. A patrol craft may have only one or two.

Most Navy ships will have at least an electrical shop and perhaps a carpentry shop as well. A tender, whose mission is maintenance and repair, will have many shops, including ones that do specialty work, such as instrument calibration, printing, photography, torpedo overhauls, and pump refurbishment. An aircraft carrier will have a large specialized repair facility called the aircraft intermediate maintenance department (AIMD), which performs a wide variety of maintenance functions to keep aircraft flying while the ship is at sea.

The captain and executive officer will probably have their own offices (or, on smaller ships, they will be combined into one, called the ship's office). On ships with adequate room, individual departments and divisions will have their own offices.

Ships' Vital Systems

A number of systems are essential to every Navy ship. Without these important systems, ships could not carry out their missions. Because they carry on vital functions for the ship similar to functions for the human body, these systems are analogous to our nervous, circulatory, respiratory, and excretion systems.

Electrical System

At one time, ships functioned without electricity, and for many years electrical power provided only a few important services, such as lights and a few motor-driven appliances. But today's modern ship uses an incredible amount of electrical power to carry out a wide array of functions. A modern vessel depends upon its electrical power system to power complex weapon and communications systems, to compute the solutions to a vast spectrum of tactical problems, to power ammunition hoists and aircraft elevators, to detect incoming enemy missiles and aircraft, and to run in-house television systems for entertainment. These and hundreds of other functions make electricity as vital to a modern vessel of war as ropes were to a sailing vessel.

Ships generate their own electricity and all have backup systems to provide power when the primary system fails. Vital electrical circuits are also frequently duplicated so that power can continue to flow after battle damage occurs.

Ventilation System

This system supplies fresh air where it is needed and carries off unwanted exhaust. This system is made up of many subsystems that operate independently of each other.

Supply ventilation brings fresh (external) air into the ship and, in the event of cold weather, heats the air by means of a preheater installed in the ducting. *Exhaust* ventilation carries away the air that has served its purpose and needs to be replaced. In those spaces containing equipment that generates heat and/or humidity (such as main engineering spaces, galley, or head facilities), the exhaust system is particularly vital. *Recirc* ventilation is provided to spaces containing

electronic equipment (which requires a cool environment for proper operation), as well as to berthing, messing, and office spaces. As its name implies, this system recirculates internal air to prevent stagnation and, when necessary, draws the air through a cooling system to maintain the proper temperature.

In the event of fire, flooding, or some other danger requiring the isolation of a space or spaces, ventilation systems can be secured by de-energizing the fan motor and can be segregated by closing valve-like devices in the ducting (often found where the ducting penetrates decks, overheads, and bulkheads).

Potable Water System

Water for drinking, showers, and cooking is provided by this piping system. Potable water is made in the ship's distilling units (evaporators) from saltwater taken from the sea and stowed in tanks specifically designated for potable water only. Piping systems carry the water from the tanks to the heads, galleys, and drinking fountains (scuttlebutts) where it can be used.

Because the evaporators can only make so much water at a time, care must be exercised not to waste fresh water while a ship is underway or at anchor. You should never take what is popularly called a "Hollywood shower" while at sea. (This is the kind of shower you probably take at home, where you let the water run for as long as you are in the shower without giving any thought to water conservation.) While at sea, it is important to get in the habit of wetting down (quickly), turning the water off and leaving it off while you soap and scrub, and then turning the water on again just long enough to rinse off.

In a steam-powered ship, water conservation is complicated by the boilers' need for feedwater. Saltwater cannot be used in boilers, so you must compete with the engineering plant for whatever fresh water the evaporators can produce.

When moored to a pier where the appropriate connections are available, the ship's potable water system can be hooked up to receive fresh water. At these times, abundant fresh water is available so that the strict water conservation practices you use at sea are not necessary. The ship's potable water tanks will all be *topped off* (filled to capacity) before the ship gets underway.

Saltwater System

Saltwater is drawn out of the sea through underwater intakes and pumped throughout the ship using a different piping system from the

one used for potable water. This water is available for firefighting when needed and is used on a routine basis as flushing water for the heads. It also is used as cooling water for certain items of machinery and electronic equipment and can be piped into tanks for ballast (to stabilize the ship). Special sprinkler heads mounted all over the outside of the ship can be opened to allow a washdown of the ship to rid her of contaminants in the event of a chemical, biological, or radiation (CBR) attack.

Drainage System

This system includes the piping, valves, and pumps that discharge water from the ship. Its functions include the removal of seawater that has entered the hull because of damage, collision, or heavy weather.

The main drainage system is composed of large piping located in the main engineering spaces and used for pumping their *bilges* (the lowest parts of the ship's hull where water collects). The secondary drainage system is composed of smaller piping located in other spaces, such as pump rooms and shaft alleys.

The main and secondary drainage systems are often coupled with the saltwater system to maintain the proper trim (stabilize) of the ship.

Since weather-deck drains collect natural rain and seawater, the drains connected to these areas are piped directly overboard. But internal drains (from sinks, showers, galleys, and urinals) are carefully controlled for environmental reasons. Drainage from these sources is collected in specially designed tanks for appropriate disposition.

Fuel System

This system includes fuel-stowage tanks, pumps, filling lines, transfer lines, and feed lines to the ship's boilers or engines. Like the other liquid systems aboard ship (potable water, saltwater, and drainage) the fuel system is also constantly monitored and moved about to help maintain proper trim.

Compressed Air System

Ships use compressed air for a number of reasons. Ejecting gases from guns after they have fired is one important use of this system. Compressed air is also used for charging torpedoes, operating pneumatic tools, running messages through dispatch tubes, powering automatic boiler controls, and various other uses. Compressors create

the compressed air and special piping carries it where needed in the ship.

Submarines

Because they are designed to operate under water, submarines have very few topside features and practically no superstructure. About all that projects above the hull is the *sail,* a streamlined tower that houses the periscopes and certain control stations and where a few watchstanders can stand when the submarine operates on the surface.

Submarine hulls have nearly circular cross-sections and are built to withstand tremendous pressure. The hull consists of the bow compartment, containing living accommodations; the operations compartment, containing the control room, sonar and radar rooms, the torpedo room, and some state rooms; the reactor compartment; the missile rooms (on fleet ballistic missile submarines); and the engineroom. Submarines have special ballast tanks that can be quickly flooded when the boat is to submerge, or pumped out when she is to surface.

The controls by which a submarine is maneuvered are more like those of an aircraft than those of a surface ship (which merely steers left or right), because a sub also moves up and down. In fact, when operating submerged, she banks in her turns much like an aircraft. Aside from these basic differences, a submarine is still a ship (although submariners traditionally refer to their vessel as a "boat") and therefore contains many of the same systems and features found in a surface vessel.

13 Ships and Aircraft

Ships and aircraft are what the Navy is all about. While it is not difficult to tell the difference between the two, their missions and operational capabilities are tightly interwoven, and it is rare that a significant naval operation is undertaken without relying upon some combination of both for its execution. Seapower and air power go hand in hand.

There are many different kinds of ships and aircraft in the Navy, and while you cannot be expected to know every detail about each, as an effective Sailor you will need and want to have a substantial understanding of these vital components of your Navy.

Ships

The U.S. Navy operates hundreds of ships. Some of these are *active* ships, which means they have a full complement of personnel and, unless they are temporarily undergoing heavy maintenance or repair, are fully capable of carrying out an assigned mission on short notice.

The Navy also keeps a number of vessels in *reserve* status, which means that they are partially manned with active duty personnel. The rest of the crew is made up of reserve personnel, who only man the ships periodically for training and when called upon in a national emergency.

The Navy also operates a number of vessels under what is called the Military Sealift Command (MSC). These ships usually have only a very small contingent of Navy personnel on board, and the majority of the crews are civilians. MSC ships have a support role and are not used as front-line combatants. They are considered to be "in service" rather than "in commission." Some ships, such as "Roll-on, roll-off" vehicle cargo ships (AKRs) and transport oilers (AOTs) serve the Army and Air Force as well as the Navy.

Other MSC ships perform special-duty projects, such as ocean-bottom laying and repairing of cables used for detecting enemy submarines. Surveying ships (AGSs) and oceanographic research ships (AGORs) explore the oceans.

Of special interest is a group of various MSC ships of the Naval Fleet Auxiliary Force (NFAF). As with other MSC ships, they have civilian officers and crews. They operate under Navy orders and have a military department of Navy personnel aboard, performing visual and radio communications and otherwise assisting the ship's civilian master and crew in operations with other naval units. These vessels include a variety of replenishment ships, fleet ocean tugs, and several specialized mission types.

Ship Identification

Most Navy ships have both a name and what we call a *ship's designation* to identify them. While the name is a convenient and traditional means of identification, there have been Navy ships bearing the same name throughout history, so the ship's designation—which is unique to that ship—is the only way to identify a specific naval vessel. The ship's designation tells what *type* the ship is (such as destroyer, submarine, or cruiser) and assigns a specific *hull number* to the vessel.

Ships are also grouped into *classes* to identify those with identical, or nearly identical, characteristics.

Name

The name is unique to a ship in that there can only be one Navy ship in commission at a time with a given name. But, as already mentioned, there may have been other ships with the same name in the past—in fact, it is fairly common practice in the Navy for ships to carry the name of an earlier ship who served with honor. For example, there have been six U.S. Navy ships named *Enterprise*. (*Note:* This count does not include the starship *Enterprise* of Star Trek fame, but the creator of the hit television and movie series, Gene Roddenberry, recognized the long tradition of passing on ship names and carried it on in his futuristic vision.)

The name of a Navy ship in commission (active or reserve) is preceded by the letters "USS," which stands for "United States Ship," for example, USS *Enterprise*. Because they are considered to be "in service" rather than "in commission," names of MSC ships are preceded by the letters "USNS" (for United States Naval Ship) instead of "USS." In the British Navy, vessels carry the prefix "HMS" before their name, which stands for "Her Majesty's Ship" (or "*His* Majesty's Ship" if there is a reigning king instead of a queen). The navies of other nations are similarly identified.

Sailors have traditionally added nicknames to their seagoing homes. Among aircraft carriers, for instance, the USS *Enterprise* is known informally as the "Big E," the *Constellation* is the "Connie," and the *Dwight D. Eisenhower* is "Ike."

Designation

While a ship's name gives her some identity, the ship's designation—which consists of a combination of letters and numbers—tells you two additional things about a ship: her type and her place in the construction sequence. The USS *Theodore Roosevelt,* for instance, has the designation CVN 71. CVN is her type classification, *CV* standing for aircraft carrier and *N* meaning nuclear propulsion; 71 indicates that she is the seventy-first aircraft carrier authorized for construction. The term *hull number* actually refers only to the number part of the ship's designation, but you will commonly hear it used instead of "ship's designation." Ships' hull numbers are frequently painted on their bows and near the stern. Aircraft carriers have their hull numbers painted on the forward part of the flight deck and on the "island" (superstructure).

Since 1920, the Navy has used letter symbols to identify the types of ships and service craft. This is called "type classification" and is used as part of the ship's designation. Some of the more common type classifications are listed below. Keep in mind that some of these type classifications may not be currently be in use, but are listed because you may come across them historically or they may be reactivated at some later date. Those not currently in service are listed in italics.

AD	Destroyer tender
AE	Ammunition ship
AFS	Combat store ship
AGF	Miscellaneous command ship
AH	Hospital ship
AO	Oiler
AOE	Fast combat-support ship
AOR	Replenishment oiler
APL	Barracks craft (non-self-propelled)
ARS	Salvage ship
AS	Submarine tender
ASR	Submarine rescue ship
ATF	Fleet ocean tug
BB	*Battleship*
CA	*Heavy cruiser*

CG	Guided-missile cruiser
CGN	*Guided-missile cruiser (nuclear propulsion)*
CL	*Light cruiser*
CV	Multipurpose aircraft carrier
CVA	*Attack aircraft carrier*
CVN	Multipurpose aircraft carrier (nuclear propulsion)
CVS	*Antisubmarine warfare aircraft carrier*
DD	Destroyer
DDG	Guided-missile destroyer
DE	*Destroyer escort*
DL	*Destroyer leader*
DSRV	Deep-submergence rescue vehicle
FF	*Frigate*
FFG	Guided-missile frigate
IX	Unclassified miscellaneous
LCAC	Landing craft, air cushion
LCC	Amphibious command ship
LCM	Landing craft, mechanized
LCPL	Landing craft, personnel, large
LCU	Landing craft, utility
LCVP	Landing craft, vehicle, and personnel
LHA	Amphibious assault ship (general purpose)
LHD	Amphibious assault ship (multipurpose)
LPD	Amphibious transport dock
LPH	*Amphibious assault ship (helicopter)*
LSD	Dock-landing ship
LSSC	Light SEAL support craft
LST	Tank-landing ship
MCM	Mine-countermeasures ship
MCS	Mine-countermeasures support ship
MHC	Coastal minehunter
MSC	*Coastal minesweeper*
MSO	*Ocean-going minesweeper*
PBR	River patrol boat
PC	Coastal patrol craft
PCF	*Fast patrol craft ("swift boat")*
PT	*Patrol torpedo boat*
SS	*Submarine*
SSBN	Ballistic-missile submarine (nuclear propulsion)
SSN	Submarine (nuclear propulsion)
YP	Yard patrol
YTB	Large Harbor Tug

YTL	Small Harbor Tug
YTM	Medium Harbor Tug

Ships of the Military Sealift Command (MSC) are distinguished from other Navy ships by having a "T" before their letter designations. Below are some examples of MSC ship types.

T-AFS	Combat stores ship
T-AE	Ammunition ships
T-ATF	Fleet ocean tug
T-AH	Hospital ship
T-AGOS	Ocean surveillance ship
T-AGS	Oceanographic Survey
T-ARC	Cable repair
T-AK	Maritime pre-positioning ship
T-AOT	Tankers
T-AKR	Roll-on/Rolloff

Class

Within a type classification of vessels there are *classes*. Ships belonging to a particular class are built from the same plans and are very much alike; in many cases, they are identical except for the different hull number painted on their bows. The first ship built of a class determines the name of the class. For example, after World War II the United States redesigned its aircraft carriers to accommodate the newly invented jet aircraft then entering the fleet. The first of these new aircraft carriers to be built was commissioned as USS *Forrestal* (CV 59). She was the fifty-ninth aircraft carrier, but the first of this new class. Satisfied with these new ships, the Navy built three more—USS *Saratoga* (CV 60), USS *Ranger* (CV 61), and USS *Independence* (CV 62)—all of which are referred to as *Forrestal*-class carriers.

Later, some major improvements were deemed necessary, so the Navy redesigned its aircraft carriers significantly enough that they were considered a new class of carrier. The first of these new and different carriers was named USS *Kitty Hawk* (CV 63), so the next ship built after her, USS *Constellation* (CV 64), was considered a *Kitty Hawk*–class aircraft carrier.

Ship Types and Their Missions

The many different types of vessels have specific functions. Some exist primarily to engage in combat with enemy forces (other vessels,

aircraft, or land targets) and are generally referred to as *combatants*. Others exist to deliver the supplies (fuel, ammunition, food, and repair parts) needed to keep a ship operating, and are generally referred to as *auxiliaries*. Still others, known as *amphibious* ships, are designed to take troops where they are needed and get them ashore.

Aircraft Carriers

These gigantic ships are among the world's largest. They have been described as the world's largest combatant ships and the world's smallest airfields. The various classes range in displacement between 75,000 and 96,000 tons and carry between 75 and 85 aircraft of various types. The number of personnel required to operate an aircraft carrier and its aircraft is more than 5000.

Aircraft carriers carry an assortment of aircraft capable of performing a wide variety of missions, including air support to troops ashore, bombardment missions, antisubmarine operations, rescue missions, reconnaissance, and antiair warfare. Because of their powerful engines and four screws, carriers are capable of high speed, and they are capable of staying at sea for long periods of time, making them a potent weapon in a wide variety of scenarios. Some of the

PH3 Greg Welch

Figure 13.1. The aircraft carrier USS *Abraham Lincoln* (CVN 72).

U.S. Navy's carriers are driven by oil-fired boilers; others, designated CVN, are nuclear-powered.

Cruisers

These medium-sized (around 10,000 tons displacement) ships are particularly potent in antiair missions, but are capable of a number of other missions as well, including antisurface and antisubmarine. They are equipped with missiles that can knock out incoming raids from enemy aircraft or missile attacks. With other specially designed missiles, they are able to hit land or sea targets at substantial distances.

Currently, the Navy's cruisers are all *Ticonderoga*-class (designated CG) ships, which are powered by gas turbines and equipped with the very sophisticated Aegis combat system. This integrated combat system is highly automated, exceptionally fast, and capable of conducting antiair, antisurface, and antisubmarine warfare simultaneously.

Destroyers

In today's Navy, destroyers perform a wide range of duties. They can serve as part of a screen unit in a carrier task group, protecting it from

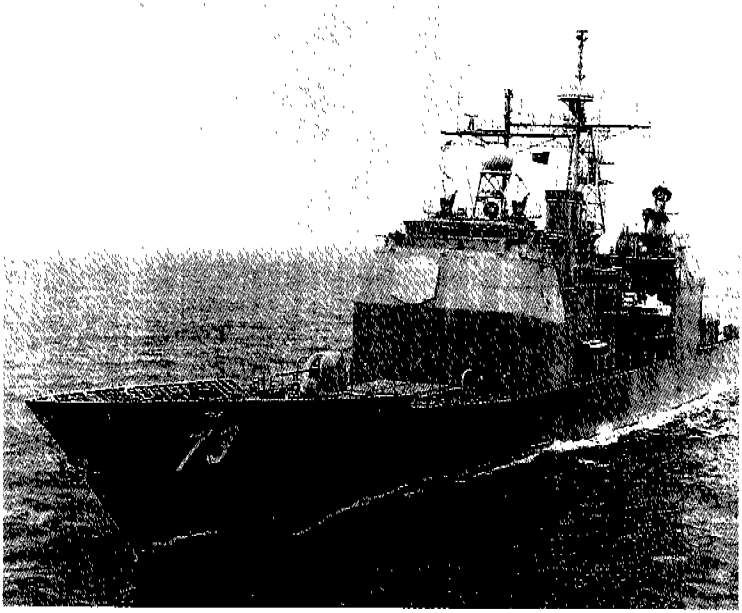


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Figure 13.2. The guided-missile cruiser USS *Port Royal* (CG 73).

various forms of attack. They can detect and engage enemy submarines, aircraft, missiles, and surface ships. In an amphibious assault, a destroyer's weapons can help protect against enemy forces at sea and ashore. In short, destroyers have a well-deserved reputation of being the "workhorses" of the fleet.

Previous classes of destroyer were rather small—some displacing as little as 400 tons—but today's *Spruance*-class destroyers are 563 feet long and 55 feet in beam, displace 7800 tons, and have a crew of 250. The *Spruances* were the first major ships to be powered by gas turbines. Their 80,000-horsepower, gas-turbine-drive engineering plants can go from "cold iron" (meaning no engines on the line) to full speed in 12 minutes. Their weaponry consists of torpedoes, guns, antisubmarine rockets, and short-range antiair missiles. Some have received the vertical launching system (VLS) to handle antiair and antiaircraft missiles. Others have cruise-missile launchers.

The newer *Arleigh Burke* class, like the *Ticonderoga*-class cruisers, is equipped with the Aegis system, making it the most potent

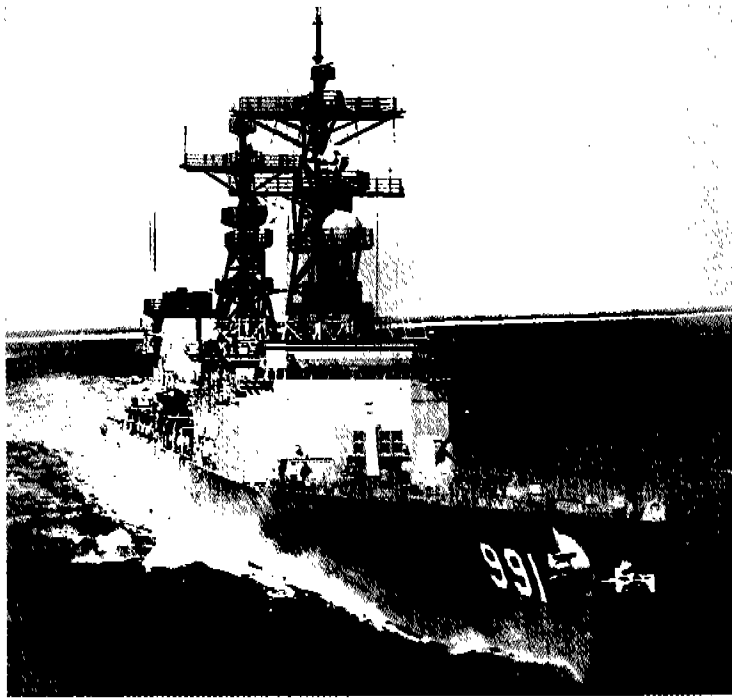

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Figure 13.3. A *Spruance*-class destroyer, USS *Fife* (DD 991) underway in the Gulf of Mexico.

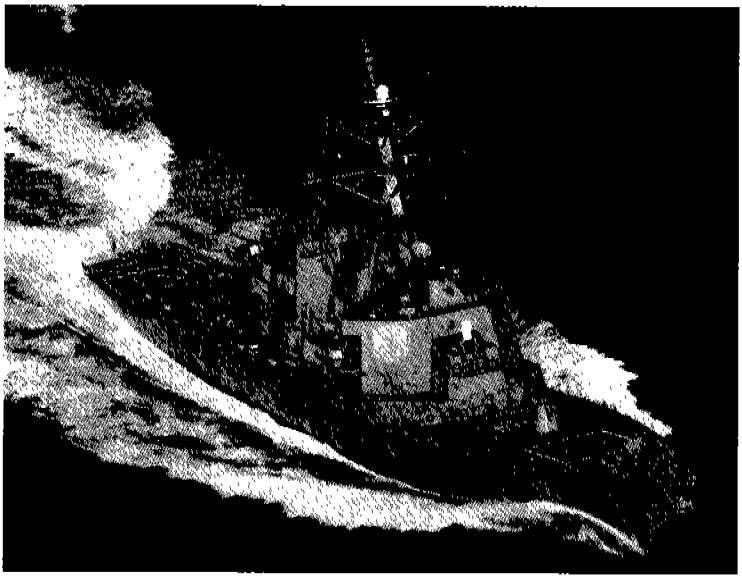

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Figure 13.4. A starboard-bow view of the guided-missile destroyer USS *Carney* (DDG 64).

class of destroyer ever built. At one time, the differences between cruisers and destroyers were significant. Today, the differences are not so obvious.

Frigates

The frigate first appeared in the U.S. Navy during World War II as the destroyer escort (DE). In 1975, they were re-designated as *frigates* (FF).

A number of classes have been built since then, but today the *Oliver Hazard Perry*–class frigates are the only ones in commission in the U.S. Navy. These ships carry crews of a little more than 200 and may be viewed as scaled-down destroyers. They protect amphibious forces, underway replenishment operations, and merchant-ship convoys.

Submarines

The Navy has two types of submarine: one is called *attack* and is designated SSN, while the other is called *fleet ballistic-missile* and is designated SSBN. All U.S. submarines currently are nuclear-powered.

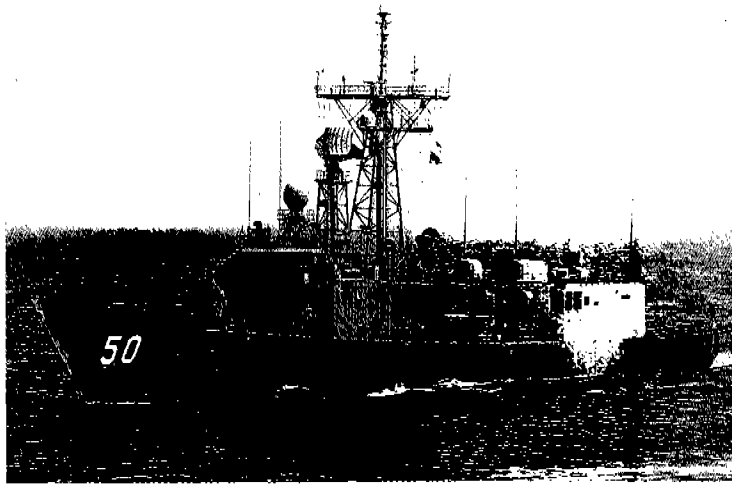

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Figure 13.5. A guided-missile frigate, USS *Taylor* (FFG 50).

The SSN's primary mission is to attack other submarines and ships, but they are also assigned secondary missions, which may include surveillance and reconnaissance, direct task-force support, landing-force support, land attack, minelaying, and rescue.

The SSN's principal weapons are high-speed, wire-guided torpedoes and cruise missiles for use against surface and land targets.

The fleet ballistic-missile submarines (SSBN) have a strategic mission, in that they are meant to deter or participate in a nuclear-

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Figure 13.6. A starboard-beam view of the nuclear-powered attack submarine USS *Boise* (SSN 764) underway in the Atlantic Ocean.

missile exchange. Their highly sophisticated, very potent ballistic missiles are capable of hitting targets many thousands of miles away and causing tremendous destruction.

These vessels must remain submerged for long periods of time, virtually out of contact with the rest of the world, waiting to carry out a mission that could be devastating to the whole world. This is a stressful environment for the crews and, to alleviate some of that stress, SSBNs are operated during alternate periods by two separate crews. One is called the blue crew and the other the gold crew. On return from an extended patrol, one crew relieves the other, and the ship returns to patrol following a brief period alongside her tender or in port. The relieved crew enters a month-long period of rest, recreation, and leave, followed by two months of training. This system allows each crew time ashore, while keeping the entire force of SSBNs cruising on deep patrol except for very brief periods.

Patrol Combatants

Some smaller coastal and riverine craft are also in service. Among the more prevalent types are the coastal patrol ships of the *Cyclone* (PC 1) class. Measuring 170 feet long with a 35-knot speed and armed with two 25mm guns, Stinger missiles, and lighter weapons, the *Cyclones* are used for special warfare and coastal interdiction missions.

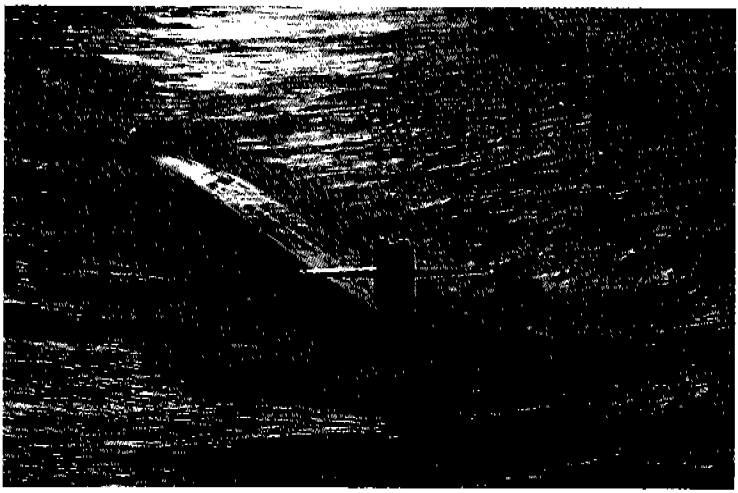

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Figure 13.7. A fleet ballistic-missile submarine, USS *Maine* (SSBN 741).

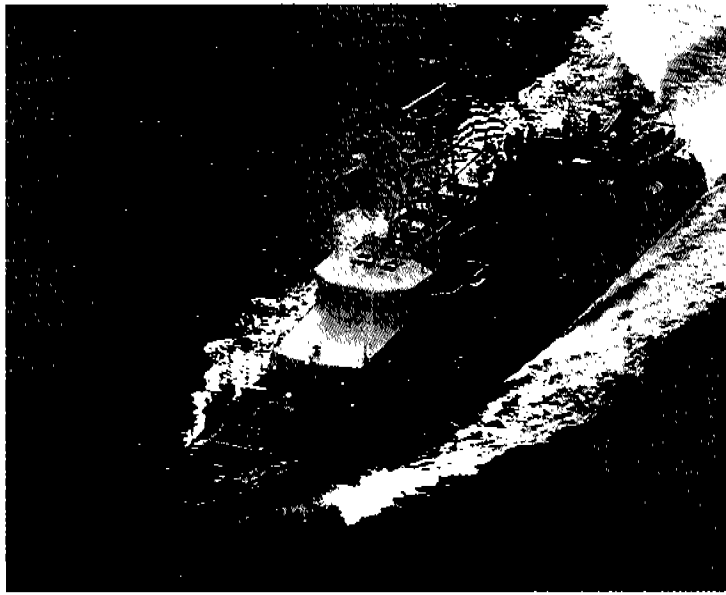

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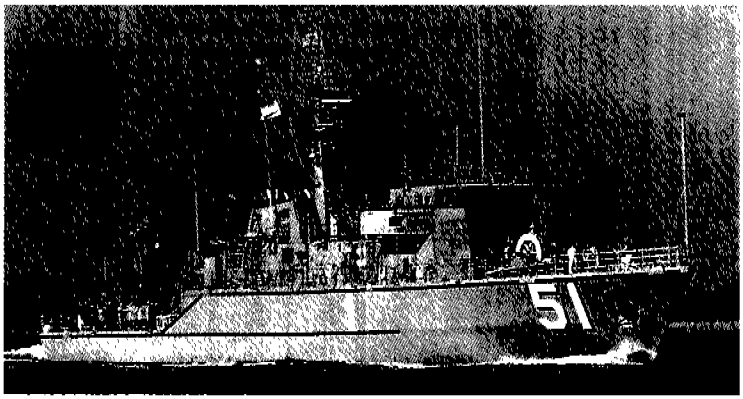
Figure 13.8. Coastal patrol vessel, USS *Firebolt* (PC 10).

Mine-Warfare Ships

Three types of mine-warfare vessel are currently in use in the U.S. Navy. The *Osprey* (MHC 51)-class designation is for minehunters and the *Avenger* (MCM 1)-class ships are mine-countermeasures ships. The MHCs specialize in detecting and locating today's highly sophisticated mines and the MCMs are tasked with removing or destroying them. A former amphibious assault ship, USS *Inchon,* has been converted to a mine-countermeasures support ship (MCS) which serves as a mine-force flag ship, carrying a contingent of mine-countermeasures helicopters and specially trained explosive ordnance disposal (EOD) personnel.

Amphibious Warfare Ships

Often referred to as the "amphibs" or "gators," these ships work mainly where sea and land meet, and where assault landings are carried out by Navy–Marine Corps teams. Such operations call for a variety of types of ships. Many are transports of varied designs, used to sealift Marines and their equipment from bases to landing beaches. The differences lie in ship design and the way troops and their gear are moved from ship to shore, which can be done by means of landing craft, helicopters, or tracked amphibious vehicles.



Intermarine, USA

Figure 13.9. The minehunter USS *Osprey* (MHC 51).

Tank-landing ship (LST). LSTs can run up to the beach, lower their extended bow ramp, and offload tanks, artillery, and logistic vehicles. Amphibious vehicles can also be launched from a stern gate into the water. These vessels displace 8400 tons and carry over 400 troops.

Dock-landing ship (LSD). These ships have a well deck inside the vessel that can be flooded so that waterborne landing craft and vehicles can be floated out of the ship's stern gate. They can also have a limited capacity for handling troop-carrying helicopters.

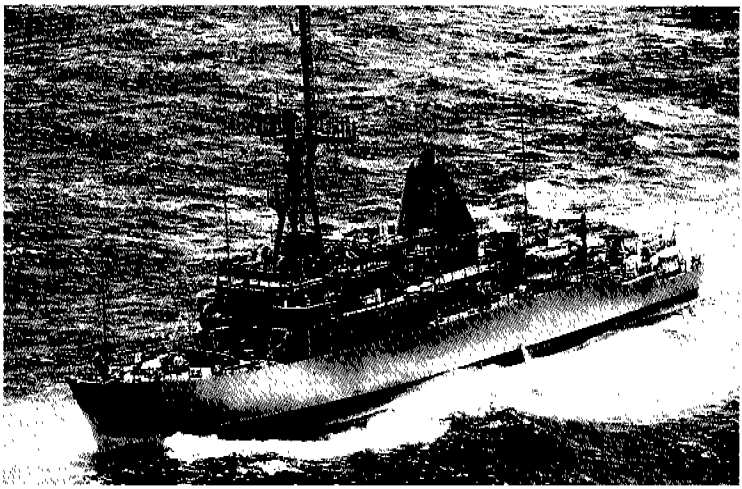


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Figure 13.10. Port-bow view of mine-countermeasures ship, USS *Guardian* (MCM 5).

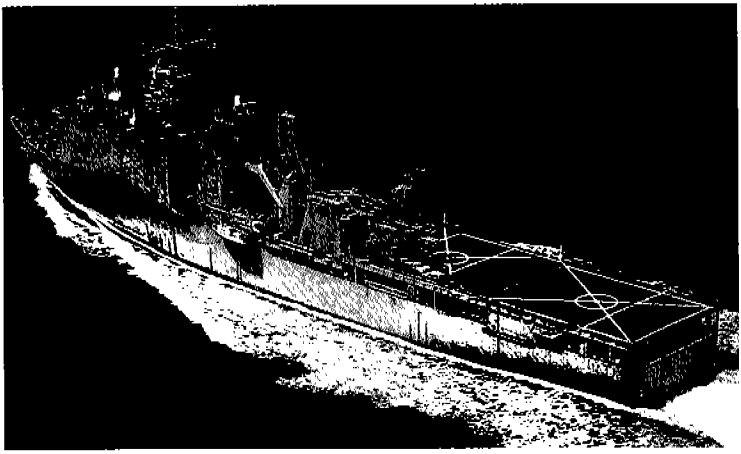

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Figure 13.11. The dock landing ship USS *Ashland* (LSD 48).

Amphibious transport dock (LPD). These ships are similar to the LSD in that they deliver troops and equipment in landing craft or vehicles carried in a well deck and floated out through a stern gate, but their helicopter capacity is more extensive.

General-purpose assault ship (LHA). Of all the ship types discussed so far, only aircraft carriers are larger than these. The five ships of the *Tarawa* (LHA 1) class displace more than 39,000 tons.

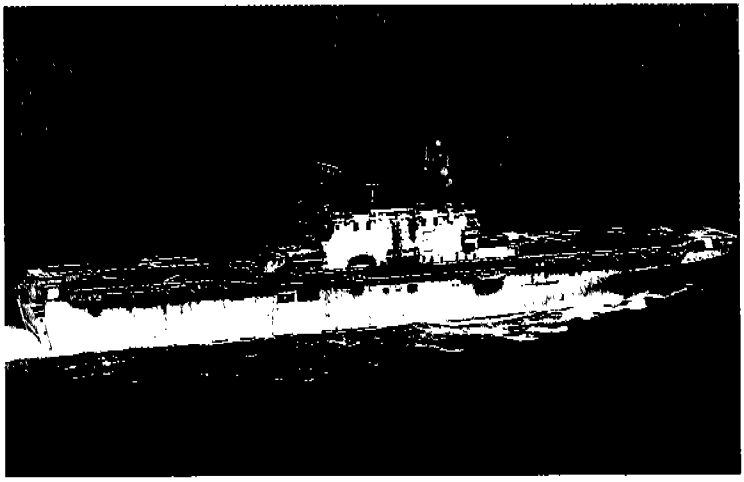

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Figure 13.12. The amphibious assault ship USS *Peleliu* (LHA 5).

They resemble aircraft carriers and are capable of simultaneous helicopter and landing-craft operations, for they have both flight and well decks.

Multipurpose-assault ship (LHD). These large ships resemble the LHA but incorporate many changes as a result of experience with the *Tarawa* class. LHDs operate air-cushion landing craft (LCACs) and heavy helicopters. They function as sea-control ships, when necessary, by operating antisubmarine helicopters and AV-8B Harrier V/STOL (vertical/short takeoff and landing) airplanes.

Amphibious command ship (LCC). LCCs serve as floating command centers, providing control and communication facilities for embarked sea, air, and land commanders and their staffs.

Underway-Replenishment Ships

If they are going to be combat-effective, warships must be able to remain at sea for weeks at a time with fuel, provisions, parts, and ammunition. The U.S. Navy is highly proficient at underway replenishment (UNREP) techniques that use special cargo-handling gear to make transfers from one ship to another while the two are steaming abreast or, in some cases, astern. Vertical replenishment (VERTREP) is a form of UNREP in which cargo-carrying helicopters are used to transfer goods from one ship to another. Much of the UNREP capa-

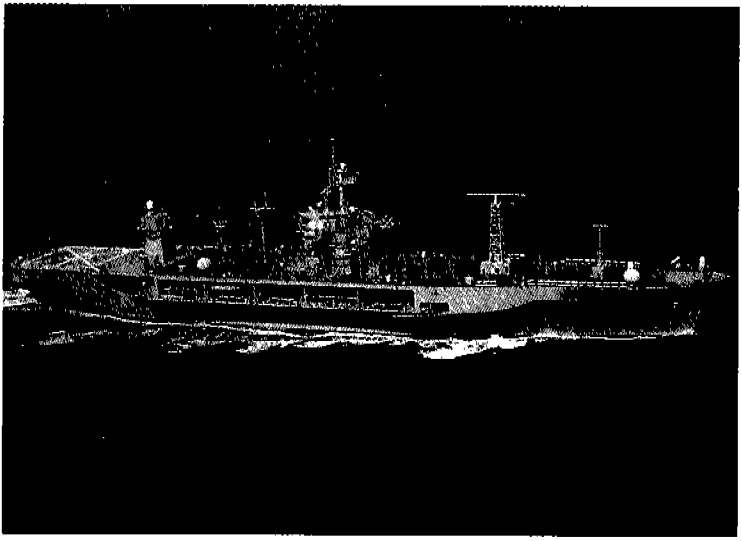

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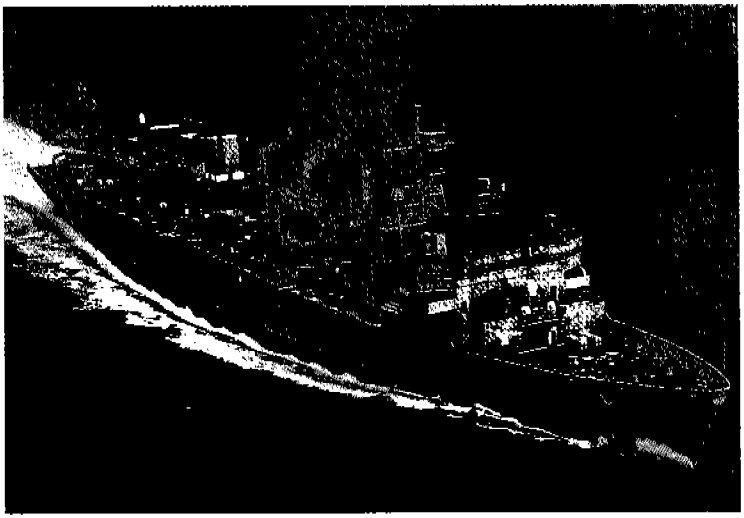
Figure 13.13. The amphibious command ship USS *Mount Whitney* (LCC 20).



National Steel and Shipbuilding Company

Figure 13.14. Fast combat support ship USS *Rainier* (AOE 7).

bility of the Navy today is carried out by MSC ships (such as T-AOs and T-AEs) but *Fast combat–support ships (AOE)* are the largest and most powerful of the Navy's noncombatant seagoing units. Because of their high-speed capability, these 50,000-ton sea-going warehouses are capable of operating with fast task forces. AOEs carry fuel, ammunition, and stores.

Fleet Support Ships

UNREP vessels are only one type of the auxiliaries that help carry out the Navy's many missions. A number of other ships play vital roles in keeping the fleet operating at peak efficiency.

Tenders. Submarine tenders (AS) and destroyer tenders (AD) are full of maintenance and repair shops and are manned by technicians with a wide variety of skills so that vessels coming alongside can receive rather extensive repairs or have major maintenance performed on them.

Salvage vessels. Rescue, salvage, and towing ships (ARS) provide rapid firefighting, dewatering, battle-damage repair, and towing assistance to save ships that have been in battle or victims of some other disaster from further loss or damage. Equipped with specialized equipment and manned by salvage divers, these ships can also perform rescue and salvage operations underwater.

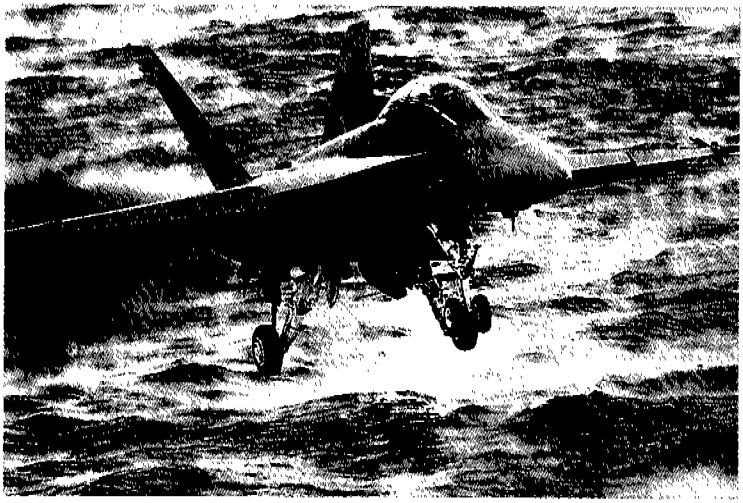


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Figure 13.15. F/A-18 Hornet.

Command Ships (AGF)

Two former amphibious ships have been converted into command ships to serve in a command-and-communications role in the Middle East. They are painted white to help their air conditioners cope with the intense heat of the region and are equipped with a great deal of highly sophisticated sensors and communications systems.

Service Craft

Also among the Navy's waterborne resources is a large and varied group of service craft. Some are huge vessels like the large auxiliary floating drydocks that can take very large vessels aboard and raise them out of the water for repairs. Barracks craft accommodate crews when their ships are being overhauled or repaired. Lighters are barges used to store and transport materials and to house pier-side repair shops. Some gasoline barges, fuel-oil barges, and water barges are self-propelled; those that are not depend on tugs. Floating cranes and wrecking derricks are towed from place to place as needed. Diving tenders support diving operations, and ferryboats or launches, which carry people, automobiles, and equipment, are usually located at Navy bases where facilities are spread out over large distances. Best known of the service craft are the harbor tugs, large and small, that aid ships in docking and undocking, provide firefighting services when needed, perform rescues, and haul lighters from place to place.

Aircraft

Naval aircraft are an essential component of seapower. The U.S. Navy has thousands of aircraft in its inventory, performing a wide variety of missions, many from the decks of ships and others from naval air stations. The many kinds of fixed-wing and rotary-wing (helicopter) aircraft flown by the Navy include fighters, attack, combined fighter-attack, antisubmarine, patrol, early warning, general utility, inflight refueling, transport, and trainers. Naval aircraft are organized into *squadrons* and these are further grouped into *air wings*.

Basic Aircraft Nomenclature

Because aircraft are such an important component of the Navy, you should be familiar with certain basic terms concerning the structure of airplanes and helicopters.

The *fuselage* is the main body of the aircraft. The *wings* are strong structural members attached to the fuselage. Their airfoil shape provides the lift that supports the plane in flight. Wings are fitted with flaps for increased lift and may carry fuel tanks, guns, rockets, missiles and other weapons, engines, and landing gear. Helicopters (also called "rotary-wing aircraft"), instead of having wings in the traditional sense, have rotors (which are actually wings that rotate).

The *tail assembly* of a fixed-wing aircraft consists of vertical and horizontal stabilizers, rudder(s), and elevators. These components are key elements in the flight controls of the aircraft.

The *landing gear* usually means the wheels, but in certain aircraft these may be replaced by skids, skis, or floats.

The *powerplant* develops the thrust or force that propels the aircraft forward, providing mobility and (in combination with the wings) the lift necessary to keep the aircraft aloft. In the case of helicopters, the powerplant provides the power to keep the rotors spinning, which keeps the aircraft aloft and allows it to hover as well as move through the air. The powerplant may consist of reciprocating (piston) engines that drive propellers, jet engines that develop thrust (turbojet and turbofan), or turbine engines and propellers or rotors in combination (turboprop or turbo shaft).

Another useful term is *Mach,* which is commonly used to measure the speed capability of an aircraft or missile. Formally defined as the ratio of speed of an object to the speed of sound in the surrounding atmosphere, it is used as follows. An aircraft traveling at Mach 1 would be moving at the speed of sound. One going Mach 2 would be

going twice the speed of sound, and Mach 1.5 would be one-and-a-half times the speed of sound. Depending upon the altitude, temperature, and some other variables, the speed of sound varies, but a rough figure to use for approximation is 650 miles per hour. So an aircraft flying at Mach 2 would be moving at a speed of *approximately* 1,300 miles per hour. An aircraft that is able to fly faster than the speed of sound (Mach 1) is said to be *supersonic* and one than cannot is called *subsonic*.

Aircraft Designations

Many types, designs, and modifications of aircraft form the naval air arm of the Navy. Like ships, aircraft have names, usually chosen by the designers or developers and approved by the Navy. For example, one type of the Navy's combat aircraft are named "Hornets," while its most prevalent patrol aircraft are known as "Orions." A more revealing system of letters and numbers (aircraft designations) is used to distinguish among the many types and variations of naval aircraft in service. Both the names and the designations are applied to all aircraft of a given type; individual aircraft are identified with a unique number.

The aircraft designation is a letter/number combination that tells you certain basic facts about the aircraft. All the various letter/number combinations can be confusing to the uninitiated, but it helps to remember that the one thing common to all aircraft designations is the hyphen. Where the various letters and numbers are placed in relation to the hyphen will help you to keep their intended meaning clear in your mind. "F-14," for example, indicates a Tomcat fighter plane. The *F* before the hyphen represents the *basic mission* (or *type*) of the aircraft and stands for "fighter." The "14" following the hyphen is the *design number*. To reduce confusion, these designations are used by all the U.S. armed forces so an F-14 in the Air Force means the same thing as an F-14 in the Navy. One other thing to keep in mind (to avoid confusion) is that this system has not always been in effect; earlier in aviation history other designation systems were used, so if you are reading about aircraft in World War II, for example, the aircraft designations will not be the same.

Basic Mission and Type Symbols

A	Attack	C	Cargo/ transport
B	Bomber		

E	Special electronics installation	S	Antisubmarine
F	Fighter	T	Trainer
H	Helicopter	U	Utility
O	Observation	V	V/STOL (Vertical/short takeoff and landing)
P	Patrol		

Future modifications to the F-14 would call for a *series symbol* indicating an improvement on or a major change to the same design. This symbol is placed after the design number. The first such change would cause the aircraft to be called an "F-14A," the next major modification would result in an "F-14B," and so on.

When the basic mission of an airplane has been considerably modified, a *modified-mission symbol* is added before the original basic mission symbol. For example, an F-14C modified to act primarily as a reconnaissance plane would become an "RF-14C."

Modified-Mission Symbols

C	Transport	O	Observation
D	Director	Q	Drone
H	Search/rescue	R	Reconnaissance
K	Tanker	V	Staff transport
L	Cold weather	W	Weather reconnaisance
M	Mine countermeasures		

Finally, there is the *special-use symbol,* a letter prefix indicating that the aircraft is being used for special work and experimentation, or that it is in planning or is a prototype.

Consider our imaginary RF-14C. If it were to be used as an experimental aircraft to test some new design modification, it would have an *X* added to the designation and become an XRF-14C. Despite this, the basic airplane is still the F-14, and most Navy personnel would recognize it as such despite its changes. To avoid confusion, these special-use symbols are different from other letters used in aircraft designations.

Special-Use Symbols

J	Special test, temporary (after test, aircraft will be returned to its original configuration)

N Special test, permanent (aircraft has been too drastically altered for testing to permit returning it to its original configuration)
X Experimental (developmental stage in which basic mission has not been established)
Y Prototype (only a few procured for development of design)
Z Planning (used for identification during planning)

Types of Naval Aircraft

There are many different types of aircraft in the U.S. Navy's inventory. Some of these were designed specifically for naval use, but many are used by the other armed forces as well. Some are fixed-wing while others are helicopters.

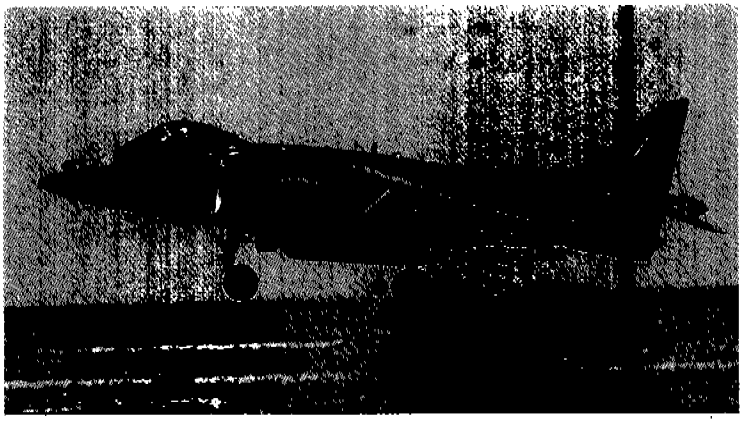
Fighters

The primary function of fighters is to destroy other aircraft and incoming missiles. They are the aircraft you would normally see involved in a "dogfight." Fighters are very fast and highly maneuverable. They intercept and engage enemy aircraft, defend surface forces, escort other kinds of aircraft when they are carrying out their missions in hostile areas, and support ground troops.

The Navy currently operates two types of fighter aircraft. The **F-14 Tomcat** is a twin-engine, variable-sweep-wing (meaning that the wings can be swept backward or forward depending on what the pilot is trying to accomplish), all-weather fighter-interceptor. It has a powerful gun system and fires air-to-air missiles to destroy enemy aircraft. The aircraft's sophisticated radar/missile combination enables it to track twenty-four targets simultaneously and attack six with missiles while continuing to scan the airspace. It can select and destroy targets up to 100 miles away. The F-14D has improved computerization, radar, communications and electronics, and weaponry. It can fly at Mach 1.88 and has a range of nearly 2,000 miles without refueling (less when involved in high-speed maneuvering).

The **F/A-18** Hornet is designed to carry out *two* missions: the *F* stands for *fighter* and the *A* for *attack*. This is a supersonic (meaning it can fly faster than the speed of sound), twin-engine jet that can carry a variety of armament depending upon the mission, including various missiles, rockets, and bombs. It has an effective combat radius of several hundred miles and can fly in virtually all weather conditions.

A newer, more capable variation of the Hornet is the **Super Hornet,** which will eventually replace the F-14 Tomcat as the primary fighter aircraft on carriers.



JO2 Charles Neff

Figure 13.16. Marine Corps AV-8B Harrier.

Attack

The attack aircraft's main job is to destroy enemy targets, at sea and ashore, with rockets, guided missiles, torpedoes, mines, and bombs. As already mentioned, the F/A-18 Hornet performs this role for the Navy. The **AV-8B Harrier** also serves as an attack aircraft. Its vertical landing and takeoff ability means it does not need a runway (or even a full-length aircraft carrier flight deck) to function, which makes it particularly well suited for ground combat-support operations. A light-attack, single-engine aircraft, it is flown by Marine Corps pilots from shore sites or amphibious assault ships. The Harrier's armament includes cluster, general-purpose, and laser-guided bombs, as well as rockets, missiles, and guns.

Patrol

These large airplanes, with lower speeds but very long flying range, have the primary mission of antisubmarine patrol. They also can be used to drop mines or bombs and can fire missiles. They have infrared, acoustic, and magnetic-detection devices for finding and tracking submarines. The **P-3C Orion** is a propeller-driven, land-based, long-range, over-water antisubmarine patrol plane. Since the prototype first flew in 1958, the P-3 has undergone many improvements and continues to play a major antisubmarine role for the Navy. The P-3 flies with a normal crew of ten (pilots, flight engineers, sensor operators, and in-flight technicians). It has a maximum speed of 473 MPH but normally cruises at 377 MPH. Its maximum-mission radius is more than 2,000 miles.

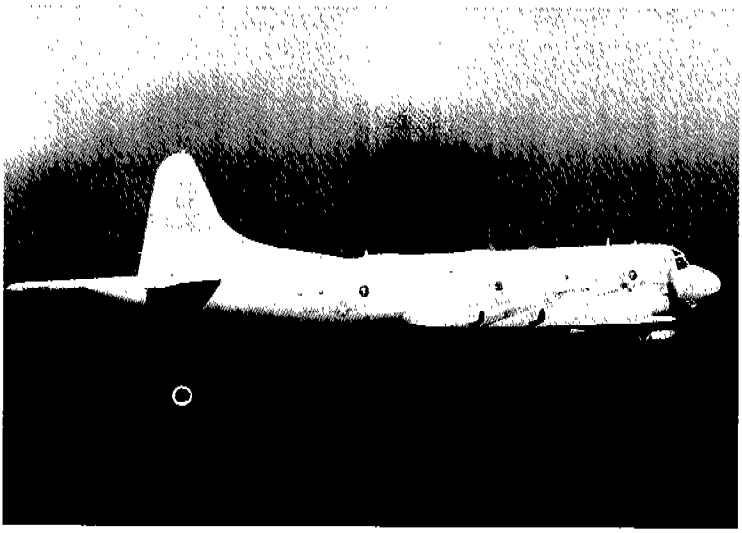


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Figure 13.17. A P-3C Orion patrol aircraft.

Antisubmarine

Searching out submarines visually, by radar and magnetic detection, or by signals sent from floating sonobuoys, these aircraft attack with rockets, depth charges, or homing torpedoes.

The P-3 Orion [see above] is a land-based antisubmarine aircraft, but the **S-3 Viking** is carrier-based. A subsonic, all-weather, long-range, high-endurance turbofan-powered aircraft, the Viking can locate and destroy enemy submarines, including newer high-speed, deep-submergence, quiet versions. With a crew of four, the Viking can operate independently or in tandem with long-range, land-based

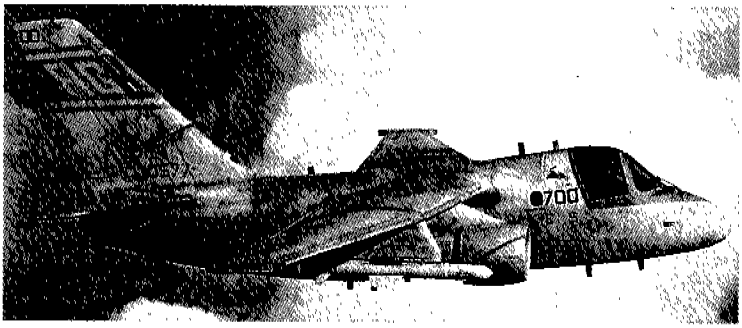

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Figure 13.18. A carrier-based S-3B Viking antisubmarine warfare aircraft.

antisubmarine units, such as the P-3. Weapons carried by the S-3 include various combinations of torpedoes, depth charges, missiles, rockets, and special weapons.

The **SH-60B Seahawk** is a helicopter designed to operate from surface ships to increase their antisubmarine capability. The SH-60F version is designed to operate from aircraft carriers for the same purpose. These sophisticated helicopters employ a long-range dipping sonar in addition to dropping sonobuoys to track submarines. They are capable of attacking as well as detecting enemy submarines. An older seagoing helicopter, the **SH-3H Sea King,** is still in service and it too can play a role in antisubmarine operations.

Mine Warfare

Helicopters are particularly well suited for both laying and sweeping mines. The **MH-53E Sea Dragon** is used on CVs, LPDs, LHDs, and LHAs for minesweeping, mine neutralization, mine spotting, floating mine destruction, and channel marking.

Command and Control

Maintaining communications is absolutely vital in modern warfare. The land-based **E-6A Mercury** is used in conjunction with ballistic-missile submarines to insure a viable strategic deterrence role. The **E-2C Hawkeye** is a carrier-based, propeller-driven aircraft that provides airborne early warning, threat analysis, and air-control functions for carrier battle groups. By flying high above the battle group, the E-2 uses its powerful radar system to watch over and control a much larger area than could be covered by shipboard radar systems.

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Figure 13.19. A shipboard-based SH-60B Seahawk helicopter.

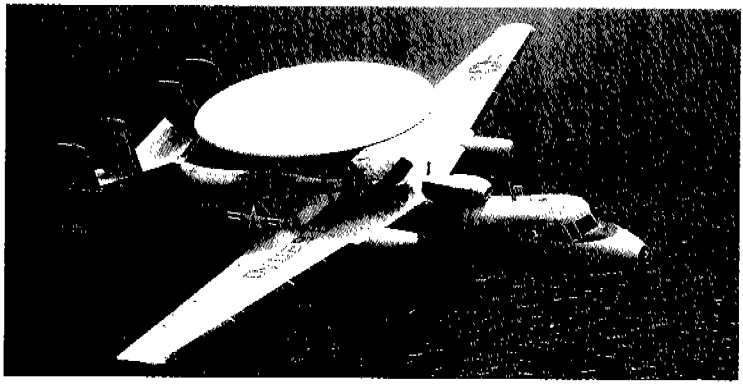

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Figure 13.20. An E-2C Hawkeye command and control aircraft.

Its sophisticated communications systems help to control the employment of the aircraft sent aloft by the carrier.

Electronic Warfare

The **EA-6B Prowler,** the first Navy plane designed and built specifically for tactical electronic warfare, is an all-weather, four-seat, subsonic, carrier-based plane. It is the most advanced airborne electronic-warfare aircraft in existence. Its missions include the jamming of enemy electronic signals to render them incapable of performing and thereby provide a significant tactical advantage.

The **EP-3E Orion (Aries II)** is an electronic surveillance version of the P-3 Orion. Operating from land bases and using the highly

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Figure 13.21. The C-9B Skytrain can carry more than 16 tons of cargo.

sophisticated Aries II surveillance system, this aircraft is capable of collecting valuable electronic data from real or potential enemies while remaining in international airspace.

Transport

Transport planes carry cargo and personnel. Some are land-based and others can be operated from aircraft carriers.

The **C-9B Skytrain II** is a Navy version of the commercial DC-9 series airliner that can carry a significant payload of cargo or passengers.

The **C-130 Hercules** was originally a transport aircraft for personnel, weapons, and supplies for all the services, but this four-engine, turboprop aircraft is also used by the Navy in a variety of roles. As an EC-130, it is an electronic surveillance aircraft. As a KC-130, it is used for aerial refueling of tactical aircraft from jets to helicopters. Probably the most versatile tactical-transport aircraft ever built, the Hercules is also used in search and rescue, space-capsule recovery, landing (with skis) on snow and ice, and special cargo delivery. It has even landed and taken off from a carrier deck without the benefit of arresting gear or catapults.

The **C-2A Greyhound,** a twin turboprop aircraft, has the primary mission of transporting people and cargo to and from aircraft carriers (called "carrier on-board delivery"—COD). The Greyhound provides critical support between shore facilities and aircraft carriers deployed throughout the world. Its cabin can be readily configured to accommodate cargo, passengers, or a combination of both. It is used for

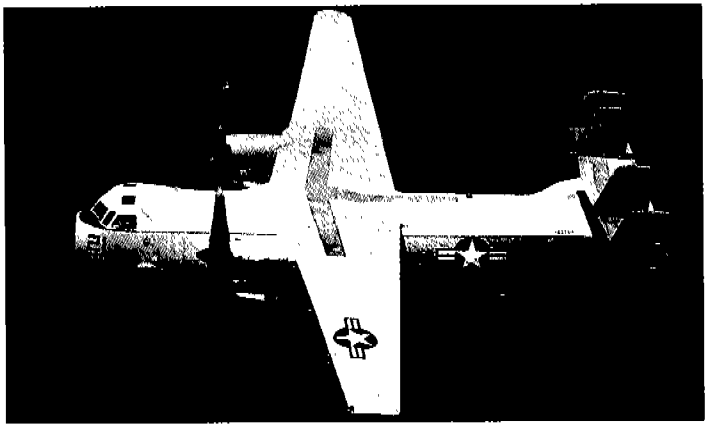

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Figure 13.22. The C-2 Greyhound transports people and cargo to and from aircraft carriers at sea.

transporting personnel, mail, key logistics items, mission-essential cargo such as jet engines, and litter patients for medical evacuation.

The **CH-46 Sea Knight** serves as a vertical-replenishment helicopter in the fleet, meaning that it is used to lift cargo from one ship and place it on another while the ships are underway. It has a crew of three and can carry approximately 6000 pounds of cargo in a sling beneath the fuselage.

The **CH-53 Sea Stallion** transports supplies, equipment, and personnel. It is useful for personnel evacuations or can be used to insert troops where needed. It can carry thirty-seven fully equipped troops, twenty-four litter patients plus four attendants, or 8000 pounds of cargo.

The **CH-53E Super Stallion** is the largest and most powerful helicopter in production. Despite its large size, it is shipboard-compatible and configured for the lift and movement of cargo, passengers, and heavy, oversized equipment. It can move large quantities of cargo, transfer damaged aircraft or vehicles, provide mobile-construction support, move nuclear weapons, and participate in various mine-warfare missions.

Trainer

Trainers are generally two-seat airplanes that allow instructors and students to go aloft together to learn or perfect the techniques of fly-

Maritime Photographic

Figure 13.23. The CH-46D Sea Knight serves as a vertical-replenishment helicopter in the fleet.

ing. There are several types of trainers in use, but the most sophisticated type is the **T-45A Goshawk** used in the training of prospective tactical Navy and Marine Corps jet pilots.

Aircraft Squadrons

Naval aircraft are organized into squadrons for administrative and operational purposes. Some squadrons are carrier-based, spending part of their time on board aircraft carriers. Others are land-based and, if their mission requires it, periodically deploy to other locations. Some squadrons are subdivided into detachments and are scattered to ships or various bases.

Squadrons are identified by letter-number designations that, like ship hull numbers, tell something about their mission while giving them a unique identity. The first letter in a squadron designation is either a *V* or an *H*. The latter is used for squadrons made up entirely of helicopters. *V* indicates fixed-wing aircraft. If a squadron has both helicopters and fixed-wing aircraft, it is designated by a *V*. In the days when there was a third type of aircraft, the lighter-than-air (or dirigible) type, those squadrons were designated by a *Z*. The letter or letters following the *V* or *H* indicate the squadron's mission or missions. For example, a squadron whose primary purpose is training pilots to fly fixed-wing aircraft would be designated "VT." By adding a number, an individual squadron takes on a unique identity; for example, "VT-3." The numbers, in most cases, have some logic to them—such as even numbers indicating Atlantic Fleet squadrons and odd numbers designating Pacific Fleet—but movement and the periodic establishment and disestablishment of various squadrons has clouded some of the original intended logic.

Aircraft Squadron Designations

HC	Helicopter combat support
HCS	Helicopter combat-support special
HM	Helicopter mine countermeasures
HS	Helicopter antisubmarine
HSL	Light helicopter antisubmarine
HT	Helicopter training
VA	Attack
VAQ	Tactical electronic warfare
VAW	Carrier airborne early warning
VC	Fleet composite
VF	Fighter
VFA	Strike fighter

VFC	Fighter composite
VP	Patrol
VQ	Reconnaissance/strategic communications
VR	Fleet logistics support
VRC	Carrier logistics support
VS	Sea control (antisubmarine warfare, etc.)
VT	Training
VX	Test and evaluation

Air Wings

Aircraft squadrons are typically grouped into larger organizational units called *air wings*. A carrier air wing (CVW) is usually made up of about eight squadrons, each serving different but integrated purposes. With these various squadrons on board, an aircraft carrier can carry out a wide variety of missions. Table 13.1 shows a typical carrier air wing.

Table 13.1. Typical Carrier Air Wing

Squadron	*Function*	*Type*	*Aircraft Number*
VF	Fighter	F-14	14
VFA	Strike Fighter	F/A-18	12
VAW	Early Warning	E-2	4
VAQ	Electronic Warfare	EA-6B	4
VS	Sea Control	S-3	8
HS	Antisubmarine/Rescue	SH-60	8
VRC[a]	Carrier Logistics	C-2	2

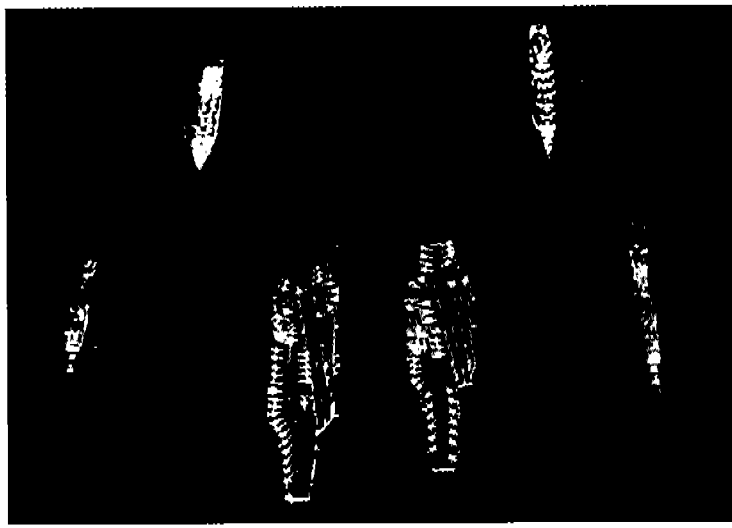
a. Detachment

14

Ship and Squadron Organization

Because the missions and number of people assigned differ for each type of ship or aircraft squadron, each one is organized differently. An aircraft carrier, for example, has more departments and divisions than a destroyer, which is much smaller and has fewer people assigned. An aircraft carrier has need of an air department, but a submarine does not.

Despite these differences, all ships and squadrons have certain things in common. All commissioned ships and aircraft squadrons have a *commanding officer* who has overall responsibility and an *executive officer* who is second in command. All are divided into *departments,* and these are in turn subdivided into *divisions*.



PH3 David A. Levy

Figure 14.1. Different kinds of ships will be organized differently, but all will have some things in common, such as a CO and XO and departments that are subdivided into divisions.

Ships

Every Navy ship operates under the authority of an officer assigned by BUPERS as that ship's commanding officer. The CO, as she or he is sometimes called, may be a lieutenant if the vessel is small, or a captain if the ship is very large. But no matter what the rank, the commanding officer is always called "Captain."

In case of absence or death, the CO's duties are assumed by the line officer next in command, whose official title is executive officer. The XO, as he or she is often called, is responsible for all matters relating to personnel, ship routine, and discipline. All orders issued by the XO have the same force and effect as though they were issued by the CO.

Executive Assistants

Depending on the size of the ship, certain officers and enlisted personnel are detailed as executive assistants. All answer to the XO, but some, such as the ship's secretary, will work directly for the captain in some matters. These jobs may be full-time assignments or may be assigned to individuals as collateral (secondary) duties, depending upon the size of the ship's crew. Some are always filled by officers, others are always enlisted, but many can be either. Even those with "officer" in the title are sometimes filled by qualified enlisted personnel. A lot depends upon the size of the command and the relative qualifications of the individuals concerned.

The executive assistants are listed below in alphabetical order for convenience. Those listed are the most common; there may be others on board your ship as well.

Administrative assistant. This individual can be an officer or a senior petty officer and his or her duties are to relieve the XO of as many administrative details as possible. This individual will, under the XO's guidance, manage much of the ship's incoming and outgoing correspondence, take care of routine paperwork, and assist the XO with various other administrative functions.

Chaplain. Normally assigned only to larger ships, this specially qualified staff corps officer's duties are primarily religious in nature, but she or he is also involved in matters pertaining to the mental, moral, and physical welfare of the ship's company.

Chief master-at-arms. The chief master-at-arms (CMAA) is responsible for the maintenance of good order and discipline. The CMAA enforces regulations and sees that the ship's routine is carried out. This duty is normally carried out by a chief petty officer.

Career counselor. The career counselor runs the ship's career-counseling program and makes sure that current programs and opportunities are known and available to crewmembers. His or her job is to stay informed about all of the Navy's current programs affecting the actual or potential careers of the men and women in the ship's crew.

Drug/alcohol program adviser. Every Navy command is required to have at least one drug and alcohol program adviser (DAPA) on board. In larger commands, there should be one DAPA for every 300 personnel assigned. DAPAs advise the CO and XO on the administration of the drug and alcohol abuse program aboard ship, and on the approaches necessary to cope effectively with any problems that may exist in this area. The adviser must stay informed on all Navy policies and procedures on drug and alcohol education, rehabilitation, identification, and enforcement.

Educational services officer. The educational services officer (ESO) assists the XO in administering and coordinating shipboard educational programs for crewmembers.

Lay leaders. When a chaplain is not available to meet the individual needs of crewmembers, a lay leader is appointed. For instance, if a unit has a Protestant chaplain, but no priest or rabbi, the command may appoint Roman Catholic and Jewish lay leaders. Those appointed must be volunteers, either officer or enlisted, and will receive appropriate training.

Legal officer. The legal officer is an adviser and staff assistant to the CO and XO on the interpretation and application of the Uniform Code of Military Justice (UCMJ), the Manual for Courts-Martial (MCM), and other laws and regulations concerning discipline and the administration of justice within the command.

Personnel officer. Assisting the XO in personnel matters, the personnel officer is responsible for the placement of enlisted personnel and for the administration and custody of enlisted personnel records. She or he will supervise the personnel office (if there is one) and oversee the processing of all enlisted performance evaluations, leave papers, identification cards, and transfer orders.

Postal officer. The postal officer looks after the administration of mail services to the command. He or she must learn and stay current on all applicable postal regulations and supervise those personnel who handle the ship's mail.

Public affairs officer. The public affairs officer prepares briefing material and information pamphlets, assists with press interviews, generates newsworthy material about the unit's operation, and publishes the command's newspaper.