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# TACTICAL EMPLOYMENT OF THE FLEET



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TACTICAL EMPLOYMENT OF THE FLEET

Presentation  
30 Oct 1937 by  
Capt EF Cutts, USN

In today's presentation we will discuss the employment of the fleet after contact has been made with the enemy fleet.

It is not probable that two opposing fleets will both seek decisive action, therefore one of the first things to determine is the tactical attitude of the fleet - should it be offensive or defensive. In determining this attitude, it is to be assumed that the strategical employment of one of the fleets has brought about such a situation that the other fleet has been forced to take action to maintain or to change the situation, and, as a result, the two fleets have been brought into tactical contact. The tactical attitude is determined by the strategical situation but it is not necessarily the same as the strategical attitude. For example, a fleet escorting a large convoy of troops toward enemy territory would be operating offensively in the strategic sense but its tactical attitude would be defensive. The fleet seeking to destroy the convoy would be acting on the defensive strategically but its tactical attitude would be offensive.

Threat of invasion or serious threats to vital lines of communications may bring about such an unbearable situation that an inferior fleet will be forced to take the offensive in order to relieve the situation. The inferior fleet will not seek a decisive engagement with a superior fleet but it may endeavor to reduce the superior fleet to equality or inferiority by defeating unsupported detachments of the superior fleet. In conducting operations of this nature there is always the possibility of an encounter between the two opposing fleets. The Battle of Jutland was brought about by operations of the German Fleet which were undertaken for the purpose of creating a situation favorable for the destruction of isolated detachments of the British Fleet.

When contact is made between two fleets, the tactical attitude of both Commanders-in-Chief will be governed by the

strategical situation. Before the contact is fully developed the tactical attitude of both may be offensive, but when the complete composition of the force opposed is ascertained, it is probable that one of the fleets will seek to avoid decisive engagement and the other will exert its maximum effort to destroy the other fleet. One Commander-in-Chief will assume a defensive attitude and the other an offensive attitude, or it may be that neither fleet will be willing to risk decisive action under the existing conditions. It is only by assuming an offensive attitude that victory can be gained. Victory over the enemy fleet is the goal of every Commander-in-Chief.

#### THE NAVAL BATTLE

Naval warfare differs from land warfare in that the size and composition of the opposing fleets cannot be changed to any great extent after the outbreak of war. There are no reserves from which to draw and the construction of a major ship requires so much time that only aircraft, submarines and the smaller types of ships can be added to the fleet during the continuance of the war. For this reason it is probable that there will be no more than one decisive fleet engagement during the war. It is for this naval battle that the fleet is trained during peace. The various types of ships develop and perfect type tactics and the tactics of the various types are studied and coordinated so that the weapons and the capabilities of the various types may be used most effectively as a whole.

The present day conception of the naval battle is an "admiral's battle", and not a "captain's battle", as in the days of sailing ships, when "no captain could do very wrong if he placed his ship alongside that of an enemy". Today the fleet fights as a whole; there must be cooperation and coordination of all the various types of which the fleet is composed. The

weapons used are guns, torpedoes, bombs and mines. Under favorable circumstances any one of the weapons is sufficiently destructive to prove decisive; nevertheless, owing to the development of the defense against it, unaided, not one is capable of winning a decision against a combination of all. Because of its protection against destruction, and because of its great range, accuracy, rapidity of firing, hitting power, and ammunition supply, the gun is the most effective weapon for sustained effort, and for that reason the tactical effort in a fleet engagement is centered around the main gun action. Other weapons are brought into the engagement to aid the gun or to take advantage of situations created by it. Only by the coordinated use of all weapons can each be made to exert its maximum destructive effect on the enemy. While the tactical effort is centered around the main gun action, its aim is to bring about such coordination of effort of all weapons that, by their concentration, they will destroy the enemy fleet.

The weapons that must be concentrated on the enemy are carried on ships of various types. As a general rule each type has been developed to utilize one of the weapons as its primary weapon and, though it may carry other weapons, they are of secondary importance - the ships of a type are operated in battle to make their primary weapon most effective. Our battleships and heavy cruisers have only one weapon - the gun. Some foreign battleships and heavy cruisers have the torpedo as a secondary weapon. Light cruisers have both guns and torpedoes; the gun is the primary weapon against destroyers and other light vessels and the torpedo, the primary weapon against heavy ships. While destroyers carry both torpedoes and light guns, the torpedo is their primary weapon and destroyers are operated to bring these torpedoes against the heavy ships. The gun is used to break down opposition to these attacks or to repel enemy destroyers

attempting to deliver a torpedo attack.

Anti-submarine craft carry depth charges as the primary weapon against submarines. At present, we use destroyers for anti-submarine craft and, while being used for this purpose, the primary weapon of the destroyer is not available for the concentration of weapons on the enemy. Mine layers carry mines as their primary weapon. Submarines carry guns and torpedoes, and may carry mines. The torpedo is their primary weapon. Aircraft may carry bombs, torpedoes, or guns as their primary weapon. The bomb or the torpedo is the primary weapon against heavy ships; the gun is the primary weapon against aircraft. Aircraft are classified as fighters, observation planes, scouts, bombers, torpedo planes and patrol planes. Observation planes are operated from the battleships on which they are carried; cruisers carry scouting planes, and the patrol planes are operated from bases, either fixed or mobile. Fighters, scouts, bombers and torpedo planes are carried by aircraft carriers. The primary weapon of the aircraft carrier is the airplane. Aircraft carriers are mobile bases, operated to the end of getting their planes to a position from which they can be launched to make the most effective use of their weapons.

With so many weapons carried on such different types of ships, it is apparent that if we are to get the maximum effect of all weapons, there must be perfect coordination between the types carrying them. As the heavy gun is the most powerful weapon, the efforts of each type of ship are directed either directly or indirectly against the ships that carry the heavy guns. The gun fight between heavy ships becomes the dominating phase of the naval battle. Vessels carrying torpedoes attack the battleships for the purpose of forcing them to accept the torpedo menace or to make a sacrifice in gunfire or in position by maneuvering to avoid the torpedoes. Against such attacks,

we have the counter made by fast light forces which, by their speed and gun power, can prevent opposing light forces from obtaining a position favorable for delivering their attack. Attacks of submarines, directed against the battleships, are countered by anti-submarine craft carrying depth charges. Air attacks can be countered only by anti-aircraft guns or air forces but they may be prevented by damaging aircraft carriers in such a way that they cannot launch their planes.

From the foregoing it is evident that, in the tactical employment of the fleet, we are concerned with the movements and actions necessary to get home the attacks of our weapons while preventing the enemy from getting his attacks home. As the entire action will center about the battle line, the approach and deployment for battle must always be such as will not only place our battle line to the best advantage for engaging that of the enemy but also will place the ships carrying other weapons where they can deliver their attacks in coordination with the main gun attack, and where they can prevent the enemy delivering similar attacks.

Time is required to maneuver the battle line into the most advantageous position and to dispose the other forces in favorable positions. This time is made available by the use of scouts at some distance from the fleet and by the use of a screen around the fleet. The time required for deployment is kept at a minimum by maintaining the battleships in a formation from which they may be deployed quickly and by disposing other forces as near their deployment stations as measures required for security will permit.

#### ACTION TAKEN BEFORE DEPLOYMENT

The initial contact between two fleets may be made by aircraft, submarines, or surface vessels. However the contact is made, and regardless of the distance of the contact from the

heavy ships, full information of the enemy forces is required by the commander of the fleet, that is, the numbers and types of ships, their location and the direction of their movement. This information can be obtained only by tactical scouting. The enemy will desire to deny this information and may be expected to have screening vessels at considerable distances from his major units. Under favorable flying conditions, aircraft from carriers or cruisers, because of their high speed and ability to approach undetected, are most suitable for obtaining this early information. During low visibility or when aircraft are not available for scouting, information must be obtained by surface vessels. Submarines may be in a position from which some information may be obtained but this would be only chance information. The submarine, because of its vulnerability, cannot remain on the surface near an enemy fleet and, because of its low submerged speed and limited vision when submerged, is not a type upon which reliance may be placed for scouting.

The surface vessels used for obtaining the initial information must be sufficiently powerful to pierce the screen by driving back or destroying the screening vessels. Heavy cruisers are the best type we have for this purpose. Light cruisers and destroyers may be used to advantage for tracking during low visibility.

The information obtained by tactical scouting will determine the immediate tactical attitude of the two fleets. The weaker fleet may seek to avoid action until the strength of the superior fleet has been reduced. The slower fleet may endeavor to reduce the speed of the faster fleet. Operations to accomplish these objectives may be undertaken simultaneously by the two fleets. Offensive action and defensive action will be taken by both fleets. In fact, from the time contact is first made until all contact has been lost, both fleets will be employed in attacking

and warding off attacks. Only a part of the fleet may be engaged in attacking at any one time; the physical objective of every attack should be selected with a view to furthering the task of the fleet as a whole.

Before the fleets are deployed for heavy gun action, aircraft may be employed to reduce the speed or strength of the enemy fleet, or to reduce the strength of his air forces. The speed of the enemy fleet may be reduced by slowing down a sufficient number of his ships by bombing attacks to cause the entire fleet to be slowed rather than abandon the ships which have been damaged. The strength of the enemy fleet may be reduced by concentrating the bombing attack on a few of his ships. The strength of his air forces can be reduced by damaging the decks of his carriers. Submarines should be employed to attack heavy ships at every favorable opportunity after contact has been made. Submarines require information from other forces if they are to attain positions favorable for delivering attacks on the enemy. Under conditions of low visibility or darkness, destroyers may be employed to reduce the strength and speed of the enemy fleet by torpedo attacks. The same conditions are favorable for attacking troop transports being escorted by an enemy fleet. The attacking destroyers may require the support of cruisers to ensure the attack reaching its objective. The employment of light forces for attacking prior to the main gun engagement should be carefully considered as to consequences as to cost. Will the probable damage be sufficient to compensate for the possible absence of the attacking light forces from the main gun engagement? When the enemy fleet is faster but weaker this may be the only way of "fixing" it so that it may be brought to action. As our fleet is slower than all other fleets this is a problem which should receive our serious consideration.



To counter possible attacks before the fleet is deployed for the main gun action certain defensive measures are taken. The fleet is normally advanced in a cruising disposition in which the heavy ships are screened by light forces which occupy defensive lines at varying distances from the heavy ships, the distances depending upon the visibility conditions and the nature of the more probable attack. The outer screen gives information of impending raids, or attacks by submarines, aircraft, destroyers or other surface craft. This screen and its supporting screens cooperate to deny information to the enemy, and to ward off the attacks. An anti-submarine screen in close proximity to the heavy ships defends these ships against submarine attacks. When flying conditions permit, aircraft patrols are sent out beyond the screen to gain earlier information, and anti-submarine aircraft patrols are maintained in close proximity to the heavy ships. During darkness or low visibility the screen cannot be as extended as during high visibility. During low visibility destroyer attacks are more probable and the primary role of the screen is to break up these attacks before they reach the heavy ships.

When in a cruising disposition the light forces are necessarily dispersed. However, they should be so disposed about the heavy ships that they can concentrate quickly in the areas which they will occupy when the fleet is deployed. The dispersal should be the minimum consistent with the needs of the existing situation for security and to obtain information. When contact is made, and the bearing and distance of the enemy determined, the approach begins. In making the approach there are many things to be considered, - can the fleet be interposed between the enemy and his base? What bearing from the enemy is best to gain the advantages of sun and light? Under the weather conditions must the fleet seek the weather gauge or is the lee gauge

satisfactory? What bearing from the enemy will give a battle course least handicapped by wind, sea and spray? Is there land or restricted waters which will restrict freedom of maneuver? Each of these points or a combination of them and others can easily become a decisive factor in a battle. The commander having power to do so will conduct the approach so as to gain the most advantageous position for deploying to engage the enemy. During the period of the approach the screen must continue to protect the heavy vessels against submarine and air attacks and possible raids. As soon as the commander of the fleet is sure of what the approximate bearing of the enemy battle line will be when the main gun action begins, he should order the concentration toward deployment stations, of all forces on that side of his disposition that is away from the enemy. The forces on the side of the disposition toward the enemy should retain their stations until enemy pressure forces them to seek support, which they do by falling back towards the battle line and concentrating in the approach disposition. The approach disposition should be such that the forces mutually support each other. In the approach disposition the probable bearing of the enemy battle line is the axis about which the light forces are disposed. When the direction of the deployment is uncertain or if the disposition of the enemy light forces is unknown, it may be desirable to have the light forces in three groups of about equal strength, one group being on the axis and the others to the right and left of the axis. The battleships should be in such a formation as will permit their quick and simple deployment on either of two courses normal to the axis. From this approach disposition the fleet can be deployed quickly either to the right or left and the center group of light forces is in a position to go to either flank or to interpose between enemy light forces and the battle line. The assumption of the

approach disposition too early is undesirable because it does away with much of the defensive screening when it is much needed, and besides, if the bearing of the enemy changes much while in this disposition, the disposition must be re-oriented to keep its axis pointed toward the enemy.

#### DEPLOYMENT

The time and direction of deployment are influenced by numerous factors.

Necessities of design give heavy ships their maximum hitting power when firing on or near the beam, hence when deployed, battleships naturally take a formation approximating column and endeavor to hold the enemy about abeam and under the fire of all heavy guns. A column of ships moving in a direction at right angles to the bearing of the center of the enemy forces being engaged is in a position to deliver its maximum gunfire at the least mean range. Hence it is evident that any fleet commander will endeavor to deploy his fleet on a course at approximately right angles to the bearing of the center of that part of the enemy battle line he expects to engage. The position equally favorable to each of two engaged battle lines is when they are abeam of each other. The most advantageous position one battle line can gain over the other is the "capping" or "T" position. In this position the full broadside of the battle line may be concentrated on a few ships while the enemy can reply only with the end on fire of his nearest ships. This is a situation more likely to be brought about by chance than by premediated maneuvers. However, it might be brought about by superiority of information or the failure of the enemy to correctly appreciate the information in his possession. At Jutland, the first "capping" of the German Fleet was brought about by the superiority of information in the possession of the British, the second may have been brought about by the incorrect appreciation of the information which Admiral Scheer had received. The enemy might

for some reason or other be compelled to maintain his general line of advance in one direction, but even in this case the opposing fleet would require a decidedly greater speed to reach a "capping" position. In the battle of Tsushima Admiral Togo attained a capping position primarily because of geographical considerations. The long range of the modern gun makes the attainment of this position extremely difficult, the slower fleet may easily prevent it by changing its course or redeploying so as to keep the enemy abeam.

The deployment should be made before the battle lines come within effective range of each other. It should be made as late as is commensurate with being fully deployed when gunfire opens. Too early a deployment may require a reorientation of one's own forces before the battle lines close to gun range. This may involve long maneuvers at high speed for the flank forces, and may result in the action beginning before the flank forces are again in position. Too early deployment may leave the choice to the enemy as to whether the engagement shall take place on the same course or on opposite courses, and may permit him to put the major part of the opposing light forces in his rear while the major part of his own light forces are on his opponent's bow. On the other hand, if the deployment is too late, the enemy may obtain an advantageous concentration of fire. Some of the conditions which may influence the direction of deployment have already been mentioned in connection with the approach.

If the fleet is superior in strength, time is available, and speed permits, a deployment across the most probable line of retreat of the enemy may be advisable.

If inferior in strength, the direction of deployment of the fleet should be such as to permit its keeping between its own nearest base or an advantageous direction of retirement and the enemy fleet.

The location of land and shoals may influence the direction of deployment. Action in waters which restrict own movements should be avoided. A fleet which accepts action in restricted waters is very vulnerable to light force attacks and may be forced into maneuvers which permit superior enemy heavy gunfire concentration.

The relative distribution of forces between the two battle flanks of each fleet, and the relative positions of the two fleets may make a deployment in one general direction more advantageous than a deployment in an opposite general direction. In determining the direction of deployment consideration must be given not only to obtaining a favorable position for the battle line but also to placing the light forces in a favorable position for attacking the enemy battle line and warding off enemy light force attacks. The most favorable position for a light force attack being forward of the beam, both fleet commanders will probably attempt to deploy in such a direction as to have a superiority of light forces in the van. The disposition of own or enemy light forces when deployment becomes necessary may be the determining consideration of the deployment course. This might well happen in low visibility when the enemy is unexpectedly located at such a relatively close distance that there is insufficient time to dispose the light forces as desired on each flank.

When a fleet is escorting a convoy it has little choice in the selection of the direction of its deployment, the attacking fleet can probably select the position from which it will attack and can also select the direction in which it will deploy. The escorting fleet must conform to the deployment of the attacking fleet otherwise the convoy will be uncovered.

The location of mine fields and submarines, both enemy and own, may influence the direction of deployment. A weaker

fleet may well deploy in such a direction as to draw the enemy fleet across its mine fields or into a position favorable for attacks by submarines which attained their positions prior to deployment. Neither fleet is likely to deploy in the direction of known enemy mines or submarines.

Conditions of wind, sea, and light may determine not only the more favorable position but may also have a determining effect on the direction of deployment. If the wind and sea are heavy, the windward position is advantageous for destroyers to attack and to use smoke screens. The difficulties of enemy light forces attempting to attack to windward are greatly increased, their speed is reduced and spray may interfere with their gunfire. This position also facilitates the operation of aircraft from carriers. The windward position is also advantageous for eliminating spray interference both from the sea and from shells which fall short. In the windward position, the wind, being on the disengaged side, will blow gun and funnel gases to the engaged side which may cause serious interference with gunfire, while the enemy, if on a similar course, will have a clear field of view. Heavy seas may cause roll, pitch, or yaw, depending upon the direction of the ship's movement relative to the sea. Heavy roll, pitch and yaw may seriously interfere with gunfire, especially that of the secondary batteries of the heavy ships, and all the guns of light vessels. However, ships firing to leeward are less handicapped by the effects of roll than are the vessels firing to windward. Considering all factors, the windward position is considered the more advantageous for the fleet as a whole. The direction of the wind and sea must be considered in deploying the fleet. The course should be selected which will cause the fewer handicaps, and an attempt should be made to impose equal, or greater handicaps on the enemy.

The direction of the light, too, may have an important influence on the clearness with which the enemy may be seen and the results of gunfire observed. When the sun is low and behind the target, the glare of the sun may seriously interfere with gun pointing, and the observation of the fall of shot. On the other hand, if the sun is obscured, or just below the horizon, ships with the lighter horizon behind them may be silhouetted and make much better targets than those ships having the darker background.

Many considerations may affect the direction of deployment, some are strategical and some are tactical. The Commander-in-Chief should consider all of them and endeavor to deploy the fleet on the most favorable course and in the most advantageous position for inflicting the maximum amount of damage on the enemy.

ACTION TAKEN AFTER DEPLOYMENT

As soon as the deployment course is determined, its direction should be announced to all units of the fleet. When deployment is ordered, the fleet takes up the prescribed battle disposition. A battle disposition is the arrangement of task forces in positions that mutually support each other, and from which coordinated or simultaneous attacks upon the enemy battle line may be made. The battle line would normally be in a formation whose line of bearing is approximately normal to the bearing of the center of the main enemy forces being engaged and from which it can place the enemy battle line under maximum effective fire. The light forces may be stationed on one or both flanks. The destroyers are usually near the battle line and beyond these are the light cruisers and then the heavy cruisers. The cruisers may be used effectively in breaking up enemy destroyer attacks on the battle line. Knowledge of the range and speed of enemy torpedoes will indicate the most favorable relative position for cruisers to occupy in order to break up torpedo attacks before the torpedoes can be brought in to effective ranges.

These positions are also favorable for supporting own destroyer attacks. The destroyers, in a daylight engagement, can best be used in close cooperation with the battle ships and when they have the gunfire support of the battle line. They may make offensive torpedo attacks for the purpose of sinking enemy capital ships in order to reduce the enemy's strength, or for the purpose of reducing the speed of the enemy's capital ships in order that own battle line may engage at ranges which are favorable to it. Defensive torpedo attacks may be made for the purpose of causing the enemy to maneuver so that own battle line may disengage itself from an unfavorable tactical situation. We had an excellent illustration of this use of the destroyer attack in the Battle of Jutland when the German Fleet was about to make its second



turn away from the British Fleet. By retaining the destroyers near the battle line, they are also in a position to defend the battle line against attacks by enemy destroyers.

When the fleet is deployed into a battle disposition the aircraft carriers should usually be in an area which is protected in a general way by the fleet and from which they can launch their planes to carry out their assigned tasks. Submarines, because of their slow submerged speed, cannot be considered a part of the battle disposition. They can only endeavor to attain positions from which torpedo attacks can be made on enemy heavy ships.

After deployment, the opposing battle lines, except in the case of unexpected contacts, may be expected to be moving initially approximately parallel to each other. They may be moving in the same or opposite direction. When moving in the same direction the resulting action is called a normal action. It is the type of action which will probably be sought by the stronger fleet, especially if it has superior speed. The battle line having the superior speed may attempt to draw ahead to approximate the "capping" position. Normal action would probably result when two opposing fleets both seek a decisive engagement. The battle lines require but little maneuvering to maintain the line of bearing normal to the bearing of the enemy.

In a reverse action, that is, when the opposing battle lines are on approximately parallel and opposite courses, more frequent changes in the line of bearing would be required. A reverse action may be sought initially by the fleet with the slower battle line. After deployment for normal action one of the battle lines may reverse course to avoid an attack or the threat of a torpedo attack on its van by the light forces of the other fleet. Deployment in the reverse direction after the enemy has already deployed with the greater part of his light forces in

the van will place these forces in a disadvantageous position for attacking. Even if the enemy battle line reverses course so as to engage in a normal action, his superiority of light forces will remain in the rear and the situation cannot be improved until his light forces are redistributed. Reverse action is less likely to continue for as long a time as normal action, changes in the tactical situation may be brought about very quickly by maneuvers to reverse course. Alertness is required to exploit favorable situations and to avoid being caught at a disadvantage.

In the normal action it is advisable to have the greater part of the light forces on the van battle flank in order that they may be in favorable positions from which to initiate torpedo attacks on the enemy battle line and at the same time they will be where they may repel enemy light force attacks which are the most threatening. It is desirable to have some light forces on the rear battle flank as a potential threat to deter the enemy battle line from reversing course, or as a force in readiness to attack, should the enemy battle line reverse course. Light forces retained on the rear battle flank would be in a favorable position for repelling enemy light force attacks should own battle line reverse course.

In the reverse action, light forces in the rear are favorably placed for attacking the enemy's van and light forces in the van can be employed profitably only in defending the battle line against attacks by enemy light forces and in order to do this, they should not be permitted to become widely separated from the battle line. Therefore in reverse action, it is usually necessary to have light forces on both flanks and it is desirable to distribute them about equally on each flank unless the distribution of the enemy's light forces is such as to make a different distribution more desirable.

When one battle line moves so as to impose a following movement by the other, we have a retirement action, and a pursuit action.

A retirement action has the advantage of placing the light forces of the enemy abaft the beam in a disadvantageous position for attack. It permits the light forces of the retiring fleet to fire torpedoes from a greater range than if the enemy battle line were abeam.

A retirement action would probably be sought by a fleet having a weaker but faster battle line, particularly if it possessed a superiority in light forces. It may also be advantageous for a fleet defensively weak in light forces.

The battle line should maintain a formation, line of bearing, and course that will permit maximum gunfire on the enemy. The tactical attitude remains offensive in a retirement action and the battle line should be quick to take advantage of any confusion in the enemy battle line caused by torpedo attacks.

In retirement action, it is usually desirable to have light forces on both flanks. They should both be in favorable positions for attack. If the enemy battle line is following on the quarter, the destroyers on the rear battle flank should keep closed in on own battle line prior to starting an attack.

In pursuit action the following fleet is in a disadvantageous position. The battle line is subject to torpedo attacks from long ranges and may be drawn over floating mines or into positions favorable for submarine attacks. The light forces are in unfavorable positions for torpedo attacks. In pursuit action the battle line should maintain a formation which will permit maximum gunfire and which also permits the pursuit to be continued. The line of bearing must permit of quick deployment to either flank. The light forces can best be used to repel attacks by enemy light forces.

In connection with the various types of action there is another factor which warrants consideration, and that is the position of disabled ships. In a normal action, the disabled ships of each adversary will drop to the rear and will to a certain extent be protected by the movements of their own battle line. In a reverse action, disabled ships of both adversaries are not protected by the movements of own battle line but are left behind in such a position that they can be destroyed by the enemy. In a pursuit action the disabled ships of the following fleet are protected by the movements of their own fleet while those of the retiring fleet are quickly left behind and soon fall into the hands of the approaching fleet.

The type of action which will result when two fleets are brought into contact with each other is seen to depend upon a number of considerations. Each fleet will, by the movement of the fleet as a whole and by the relative movement of the units within the fleet, endeavor to bring about a concentration of superior strength against the enemy either for engaging it decisively or for defending itself against attack. The resulting relative motion of the two fleets determines the nature of the action. The fleet which has superiority both in strength and in speed has a much better chance of controlling the relative motion than has a fleet which is in superior strength but inferior in speed. Superiority in speed is very much of an advantage both in making the approach and in maintaining a superior concentration and in controlling the direction of effort after the enemy has been brought under gunfire. The fleet having superior speed may be able to avoid action entirely, or, having accepted action, break it off at will, as long as a superiority in speed is maintained. The fleet which seeks action, or one which desires to continue a favorable action, must, if it is to gain a decisive victory, have some method of "fixing" or holding an enemy that is unwilling to fight.

How the slower fleet is to bring an unwilling enemy to action and "fix" him when once brought into action may be a matter of grave concern to the officer in tactical command of the United States Fleet in time of war as long as the speed of its battleships remains relatively low.

At Jutland, Admiral Jellicoe brought a superior, and faster fleet into action with the German Fleet, on a favorable relative bearing, and yet the weaker and slower German Fleet withdrew from the action. It may not always be possible to "fix" the enemy, but if some of his ships are slowed he will probably slow the entire fleet rather than abandon his damaged ships to be destroyed or captured. An early concentration of gunfire on a detached part of the enemy fleet or on a few ships in the battle line may be successful in damaging some of the ships enough to cause them to slow; torpedo attacks by destroyers, aircraft or submarines may cause sufficient underwater damage to reduce the speed of some of the ships. Methods of "fixing" a fleet before it has been brought to action have already been mentioned in connection with the approach.

Time is an important factor in bringing the enemy to action and in effecting his defeat after brought to action just as much today as it was in 1805 when Nelson issued his famous memorandum directing "that the order of sailing shall be the order of battle". He directed this disposition in order that no time should be lost in bringing the enemy to battle in such a manner as to make the business decisive. While the order of sailing of a modern fleet is not the order of battle, the order of sailing in the cruising and approach dispositions is such that all forces can quickly reach their stations in the battle disposition. The high speeds of the forces engaged preclude delay; decisions must be made quickly. Once a fleet begins to reduce the relative strength of an enemy, that enemy's loss of remaining strength multiplies rapidly. The

fleet that can hit hard first has made a long stride toward winning the battle.

Priority of hitting will reduce the relative strength initially and the effect of hitting the enemy while not being hit may be expected to raise the morale and efficiency of the hitting ships. The range at which effective fire can be delivered will depend upon visibility conditions and the availability of aircraft for spotting. The advantage of priority<sup>of</sup>/hitting is so great that every effort should be made to obtain this advantage. This may be obtained by opening the action at effective ranges which are in excess of the enemy's maximum effective range, by concealing the firing ships in smoke, or by taking advantage of the existing conditions of light. If the action is opened at extreme ranges, consideration must be given to the expenditure of ammunition as compared with the damage inflicted. At extreme ranges the percentage of hits may be expected to be relatively low but sufficient damage may be inflicted on the enemy to warrant the expenditure of the ammunition. A slower fleet cannot expect to continue the action for very long at extreme ranges, the faster enemy fleet may be expected to either close the range or withdraw from the action. Ranges at which damage received is greater than the damage being inflicted on the enemy should be avoided. The time in these unfavorable ranges may be reduced by opening or closing the range as quickly as conditions permit. While at unfavorable ranges it may be possible to maintain such relative motion as to present the ship's armor at such an angle to the enemy's line of fire that the probability of armor penetration is reduced to a minimum; however, if the volume of gunfire is reduced by a decrease in the number of guns which will bear on the enemy the resulting relative damage received may be greater.

The direction in which the hitting power of the battle line

is applied may have a very deciding influence on the damage inflicted. A concentration on ships which are powerful offensively but weak defensively, or on ships at ranges which are favorable for a higher percentage of hits, may be effective in inflicting greater damage than is received. In effecting concentrations, the advisability of keeping under fire all enemy ships which are delivering effective fire should always be considered. It is essential that there be centralized direction of the fire of a number of ships in company, either by doctrine or by a system of signals. In high visibility, fire distribution presents no difficulties. But as the gun ranges may frequently exceed the visibility, only a part of the enemy's fleet may be seen by the officer in tactical command, or it may be that he can not see any part of his own or enemy battle line being engaged. Fire distribution under these conditions is difficult to control. In his despatch reporting the Battle of Jutland, Admiral Jellicoe wrote: "Fire was general in the battle fleet, but the use of distribution of gunfire signals was out of the question, only three or four ships being in sight at a time from the van, although more were visible from the rear. Ships fired at what they could see, while they could see it." In other words there was little or no organized control of the battle fleet's hitting power. In low visibility, confusion of battle, or under conditions when the control of fire distribution by a senior is impracticable, there may be favorable opportunities to inflict overwhelming damage on the enemy if the senior officer on the spot directs the fire distribution. In his book "Naval Warfare", Commander Creswell suggests that for Nelson's famous order "But in case signals can neither be seen or perfectly understood no Captain can do very wrong if he places his ship alongside that of an enemy", we now substitute, "But in case target identification is difficult or an organized distri-

bution of gunfire would cause delay, no Captain can do very wrong if he brings an effective fire to bear on a ship of the enemy".

Another factor to be considered is the timing of destroyer attacks. Destroyers can be most effective when they are supported by the effective gunfire of the battle line. When the enemy battle line is under effective gunfire its main batteries are unlikely to shift/<sup>fire</sup>from the ships delivering the effective fire to the attacking destroyers, and the secondary batteries are probably less effective because of the interference caused by the fire of the main batteries and possible damage received. More destroyers can probably reach a favorable firing position. The target is not free to maneuver to avoid torpedoes unless it sacrifices some of its gunfire. In discussing the various types of action, the favorable positions for destroyers relative to the battle line have been indicated.

In a fleet action, destroyers should be employed to further the plan of battle, they should be used in cooperation with the battleships and their attacks should be delivered at such times as will aid the battleships. The fact that destroyers are in a favorable position to attack does not necessarily mean that they should attack immediately. An immediate attack might cause the enemy battle line to maneuver out of a situation which is very favorable for own battle line. On the other hand, if own battle line is in an unfavorable position, an immediate destroyer attack may be desired, regardless of the position of the destroyers in order to force the enemy either to maneuver out of its favorable position or to accept probable damage from torpedoes. The existing situation as regards own battle line rather than the position of the destroyers should determine the time for making the attacks. As it may be difficult, if not impossible, for the commanders of destroyers to know how the battle is progressing, there probably will be more effective cooperation between the destroyers and the battleships if the officer in tactical command controls the initiation of destroyer attacks. He may do this by signal or



by specific instructions in his battle plan. Under certain conditions it may be desirable to make a destroyer attack without effective gunfire support of the battle line. At extreme and long ranges the gunfire support would probably be ineffective and yet a destroyer attack might appear to be the only way of slowing an enemy which would not permit own battle line to close to more effective ranges. In making destroyer attacks a large number of destroyers attacking simultaneously is probably more effective than an equal number of destroyers making successive attacks in small groups. Simultaneous attacks from different directions make it difficult for the enemy to maneuver to avoid all torpedoes.

The timing of aircraft torpedo attacks should, in general, be governed by the same considerations as govern the timing of destroyer attacks. They can be most effective when coordinated with destroyer attacks. Aircraft are not dependent upon gunfire support to the same extent that destroyers are, but, when their targets are under effective gunfire, attacks with either torpedoes or bombs can be expected to be more effective. Bombing attacks develop quickly and are quickly over. They should not be the cause of maneuvers being made by the enemy battle line which would be unfavorable to the gunfire of own battleline. In a fleet action, early bombing attacks may be successful in producing the priority of damage which is so advantageous. The employment of aircraft will depend upon the existing tactical situation. Aircraft are capable of performing many tasks, but in any one action there will probably never be enough aircraft available to accomplish all, therefore the officer in tactical command should assign only those tasks which are most essential to the success of his plan of battle and which are within the capabilities of the aircraft available. The assignment of too many tasks may lead to such a dispersion of effort that very little will be accomplished which will have a decisive influence on the outcome

of the action.

### THE "FOLLOW-UP" ACTION

As soon as any fleet finds the center of its strength breaking, it cannot but realize that to continue on as it is then going means only greater disaster. When this point has been reached the fleet naturally will attempt to withdraw from action. If a weakening fleet can withdraw successfully, the battle, even though lost, may not be decisively lost. For the other fleet to win a decisive victory it must "follow up" the withdrawing fleet and complete its destruction. The tactical attitude of the withdrawing fleet will probably be defensive, it may be expected to conceal itself and avoid action as much as possible while seeking a safe refuge. The winning fleet should be quick to recognize the change in the tactical attitude of the enemy and take action to prevent a successful withdrawal. If the enemy should withdraw as an organized force, action should be taken to regain contact with a view to renewing the engagement under favorable conditions. If the withdrawal be effected during darkness or low visibility contact should be maintained in order to resume the engagement the following day or when visibility improves. Light forces may be used to attack the withdrawing enemy, or they may be employed to break up enemy light force attacks.

If the enemy's forces are disorganized, there may be a wide dispersal, or scattering of enemy vessels. Under these conditions action should be taken according to the circumstances of the situation. The action taken will determine the decisiveness of the victory. No enemy units should be allowed to escape. There must be coordination of effort on the part of the various units of the pursuing fleet, the fleet can no longer act as a concentrated whole, but all available units should be employed in

running down the enemy, vessels of a type chasing enemy vessels of a similar type and the faster units chasing the faster enemy units. The chasing units should be in adequate strength to ensure destruction of enemy vessels of a similar type. The efforts of aircraft may be directed against fast enemy vessels which otherwise might escape, particularly capital ships. The success or failure of the "follow up" action will largely determine whether or not the fleet has attained its strategic objective.

#### CONCLUSION

The tactical employment of the fleet to attain its strategic objective has been shown to be influenced by many considerations. The same factors and considerations which may influence the action and movements of two fleets have a similar influence when detachments from the opposing fleets encounter each other. Victory is likely to be gained by that force which has the will to fight and which, by its movements, can attain a position from which its weapons can be more effectively employed than those of the enemy. This may be summed up by the conclusion that, an offensive attitude, combined with a superiority of force at the point of contact, will result in victory.