

Class of 1922

Thesis

TACTICS

Submitted by

Captain W.T. Cluverius, U.S.Navy.

Naval War College
Newport, R. I.
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T A C T I C S

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T A C T I C S

A. FUNDAMENTAL TACTICAL PRINCIPLES

From the dawn of history participants in armed frays on land and sea have ever sought to concentrate their efforts in order to secure maximum effect of the delivered blow.

These efforts have been most elemental in character as in the day of sling and bow yet the flights of stones and arrows were invariably massed.

The rudimentary craft of the ancients surrounded and attacked indiscriminate groups of the enemy just as in later ages the galleys of the Romans bore down upon the foe in orderly numbers and, with pre-arrangement, attempted to isolate and destroy the enemy forces in detail.

Still later, the disciplined phalanxes of valiant warriors wedged through and annihilated equally valiant hordes of barbarians massed against them, indifferently trained, however, and without defined objective.

Then, in the days of sail, belligerents buffeted by wind and tide crashed in tangled masses or drifted impotently apart, subjected to weather conditions which so often precluded all semblance to concerted action, resulting in *mêlée* and confusion.

Seemingly, in the early days of sail propulsion the conception of co-ordinated effort was retrograde due to lack of control of the ship.

From mediaeval times land forces have comprised both mounted and foot soldiery with weapons changed only with the introduction of gunpowder.

The three combatant arms of infantry, artillery, and cavalry, have historically been unchanged in employment and armies have habitually gone forth to combat disposed with advance and rear guards in protection of a main body which was destined to bear the brunt of the assault.

Similarly has the object of warfare remained unchanged although the means of attaining the object has undergone constant modification.

Says Clausewitz:

"The complete overthrow of the enemy is the natural end of the art of war."

In the exercise of this art there has always been a strategical element and a tactical element employed in the order named.

The great teacher of war just quoted conceives tactics to be:

"The theory of the use of military forces in combat", and strategy to be:

"The theory of the use of combats for the object of the war."

The tactical element thus considered includes those activities having to do with the formation and conduct of single combats and its field reaches just as far as personal command reaches.

Von der Goltz, another teacher of the same school defines tactics as:

"The art of leading troops in action" and strategy as:

"The art of maneuvering armies."

At sea, then, the strategic factor includes the preparations and the plans essential to bringing properly equipped forces into the theater of war so that they may be tactically employed therein.

Of these factors, tactics transcends in importance strategy because the ultimate judgment is made on the field of battle. It is a "decision by arms." Of Napoleon it has been said,-

"Knowing that everything depends on tactical results and never doubting that he could obtain them, he has always and everywhere sought opportunities of fighting."

Marshall Foch, in referring to the paramount value of tactical results writes,-

"For that reason modern war can admit of no other arguments than those which help destroy an army: the battle, the destruction by force.. the strategy which aims at tactical results is the only strategy that counts."

Principles Common to Warfare on Land and Sea

An inquiry into the history of tactics demonstrates clearly that the underlying principles governing the employment of armed forces are to a marked degree common to both land and sea warfare and that these principles have basically remained unchanged since earliest days. Many modifications, however, have been made in them and will continue to be made in the warfare of the future due to improvements in weapons and in the methods of their use as well as to the introduction of new weapons.

The changes have been less marked on land. The weapons of the three arms used in land service maintain the same general characteristics since gunpowder enjoined so many drastic re-conceptions of the employment of the personnel. These changes refer chiefly to constantly increasing ranges and consequent extension of the territory comprehended in the battlefield. The proportion of these arms - infantry, artillery, and cavalry - as included in the land forces of different periods of warfare have remained practically the same. Since the invention of breech - loading fire-arms the out-and-thrust weapons have been relegated to secondary consideration and main reliance has been placed in the fire effect.

Henderson says:

"All maneuvers have one end in view, - the establishment of a superiority of fire: this decides the conflict."

"To establish a superiority of fire individually as well as collectively," writes Von der Goltz, "is the first tactical principle of modern times, and will be so in the future."

It is interesting to note that the rifle of today which has so greatly influenced modern applications of tactics was developed from the arquebus which retained the general form of the ancient cross-bow. It marked the 'transition from the mechanically thrown missile to the bullet'. Then came the unwieldy musket from which, when the flint-lock and bayonet were developed, was evolved the rifle. Gustavus Adolphus produced

the cartridge, and the American Civil War, the breech-loading rifle used, afterwards, for the first time in Europe at SADOWA in 1866.

The Effects of Changes in Weapons.

The advent of breech-loading weapons caused many military students to declare the obsolescence of even the elemental principles of tactics. True, the invention of smokeless powder (and the attendant flat trajectories due to the improved ballistic qualities), the machine gun, and modern field pieces in general, did cause phenomenal changes not only in range but in accuracy and destructiveness of fire. Fewer troops, therefore, were needed to hold positions or to cover communications. The frontal attacks of the preceding ages of warfare now had become incidental to the main issue and the tactical use of ground, systematically step by step, became an increasingly important factor.

The combined use of all arms on the battlefield - grand tactics, so termed - was now the principal consideration and the successful use of these arms in co-operation marked the great military genius.

It was Gustavus Adolphus, also, who first attempted the co-ordination of infantry fire. One radical result of the new fire-arm was the enforced deployment of troops into small tactical units and extended order formations. This became prevalent during the Civil War and was thereafter thoroughly established.

Von der Goltz on this subject, writes:

"Whenever it is possible the advance of a well-ordered deployment of the forces should precede entrance into battle...A careful arrangement of the battle secures the simultaneous and collective employment, if not of all the forces, yet of the major portion of them. It spares much bloodshed and in the course of battle readily recoups the time it has cost. The battle of the future will demand more preliminaries, a clearer comprehension of the object to be attained, a more careful arrangement, a more intimate co-operation of all three arms, and the simultaneous employment of all three arms to decide the combat."

Clausewitz similarly deduces the fundamental tactical principles to be (a) Attack from several quarters (b) Advantage of ground (c) Surprise.

Marshall Foch asserts as basic the idea of concentration:

"Economy of forces", he says, "consists in throwing all one's forces at a given time on one point, in using there all one's troops, and, in order to render such a thing possible, having them always in communication among themselves instead of splitting them and of giving to each a fixed and unchangeable purpose."

Recent Exposition of Principles.

It must be kept in mind that, in most recent exposition of tactical principles in land battle, trench warfare necessitated a departure from, or at least, a restriction in, the employment of many of the tactical experiences of modern history. In the World War there was no opportunity of initiating flank-turning or enveloping tactical movements. The element of surprise did not enter into the operations, although the preliminary bombardments, habitual to Nineteenth Century warfare were abandoned before the end of the war. Tactical dispositions became matters of divisional initiation after movements had begun and ultimate objectives only were designated.

Despite improvements in methods, "Modern tactics", said General Dragomiroff,

"remain what they were in the day of Napoleon.. whose tactics rest on a firm basis which cannot be affected by changes of armaments."

Application of Naval Warfare.

In naval warfare, however, both science and invention have not only caused great changes in weapons but also in the ships which carry them.

Early in the Sixteenth Century, there appears to have been the first indication of real organization of armed sea forces. This arose in an endeavor to prevent general disorder and confusion when an engagement occurred, to secure greater freedom for fire action, and to obviate as far as uncontrollable conditions permitted the interference of fire.

The result was the rigid employment of a follow-the-leader formation and adhere to it throughout.

The column, therefore, appears as the first tactical formation established afloat. There were at times displayed incipient ideas of concentration of the unimpeded fire thus secured so as to bring the enemy under heavier fire at points in his column than he could return. There is no indication that this principle was generally accepted.

Not until the coming of Nelson were there enunciated the fundamental principles governing sea combat and which have stood the test of time in the maritime warfare of nations without little deviation.

Throughout his service, Nelson studied and analysed dispositions and movements suitable to the conduct of battle and, whenever practicable, his ideas were put to test. To such exposition was brought Nelson's high professional qualifications and his unusual capacity as a naval commander.

To the student of Nelson, two facts are demonstrated. First, that the system of tactics due to Nelson having been intelligently theorized and practically demonstrated with unquestioned success can safely be regarded as a criterion and used as a pattern in war; second, that the successful tactician must also possess the art of command. Nelson's life indicates that a leader's skill is required properly to apply any system of tactics to the concrete situation.

Tactical principles are simple in the extreme; in the tide of battle, their application may become greatly involved.

The Nelson principles may be grouped readily and naturally as (a) Indoctrination (b) Initiative (c) Objective (d) Concentration (e) Simplicity. Considering (a),

In order to secure active and intelligent co-operation it is essential that all subordinates understand the plan of the commander, that is, are indoctrinated. A naval battle is a huge chess game with the players acting under the limitations

imposed by the rules of the game - speed, strength, and physical conditions are among them - with many moves being made at the same instant. Complete co-ordination is certainly required in order to checkmate and finally vanquish the opponent.

(b) Armaments had become so large and the units of a fleet so numerous that subdivision became mandatory in order to secure the co-ordination comprehended through indoctrination. Nelson's forces consequently were subdivided into squadrons over which their commanders exercised full authority for their tactical employment in conformance with the plan of the Commander-in-Chief. There was thus invoked a display of individual initiative on the part of these subordinate commanders. To-day, this has its expression in the departure from the rigid column formation of the pre-Nelson days and the substitution of the flexible division columns controlled by their own leaders conforming in general to the bearing of the battle line yet exercising individual initiative as the range and fire distribution.

(c) The objective is invariably the destruction of the enemy's fleet. No matter in what sea or under what conditions, the decisive clash of the fleets of maritime powers governs the issue of the war.

"The two fleets disputing with each other the command of the theater of operations must inevitably clash before the issues which brought about the war can be decided."

The fleet is the right arm of defense for upon it depends a nation's commerce and sustenance. No state is industrially self-contained and the markets of the world must contribute to the national existence. With the fleet annihilated, food routes are closed and commerce is throttled.

Basic Considerations.

(d) Nelson held that concentration of 'our own masses against

enemy fractions, in time, is basic'. The desideratum is superiority of fire and, in its modern application, the principle is stated by Admiral Niblack as follows:-

"The combined fire of as many guns as possible, concentrated according to a definite plan by means of a well-directed fire control, is the essence of naval warfare and the true basis of naval tactics...The object to be sought in fleet tactical dispositions - or formations in relation to that of the enemy - is to enable all ships to deliver an overwhelming concentrated gun-fire on a portion of the enemy's formation at the earliest possible moment, and at the same time have him in such a position that he cannot bring his concentrated gun-fire to bear on any one position of your formation on equal terms."

A guarantee of victory surely, and simplicity itself in theory, but requiring genius of high order to accomplish. Not far from Nelson's meaning but demanding Nelson's ability when two equally powerful and efficient fleets meet on the high seas.

(e) Nelson's plans of battle were simple. This quality he considered 'essential to a well-ordered battle'. Little maneuvering was entailed and signals were considered unnecessary after the action was joined. Chances of confusion of forces and interference in gun-fire were thus reduced to a minimum and, similarly, greater opportunity for mutual support during the engagement obtained.

This principle is as self-evident in battle as it is in the accomplishment of any task to which concerted human endeavor is directed.

The Arms in Tactics.

The strides made in naval ordnance and architecture have had their influence upon tactics in many ways. Since "tactics afloat, reduced to simplest terms, is gun against gun and armor on the high seas...Each new invention at sea threatened to revolutionize naval weapons: but the gun remains supreme."

Mahan says:-

"Naval tactics are based on causes the chief causes of which, namely the arms, may change; which in turn causes necessarily a change in the construction of ships, in the manner of handling them, and so finally in the disposition and handling of fleets."

The vehicle for carrying and utilizing the gun is the ship which has undergone numberless changes. Great variation between types has occurred particularly since the introduction of steam propulsion. Yet from a tactical standpoint, the value of types in terms of fighting strength has always been relative. Speed, size, and protection, are matters of degree. The introduction of the automotive torpedo followed by its increasing accuracy and range has its effects on tactical dispositions. The submarine and the airplane introduce new factors in dispositions.

Nothing yet, however, has voided the fundamental conceptions of Nelson - the elemental truths of war on the sea. His celebrated Memorandum to the captains of his fleet before the action of the Allied forces off CAPE TRAFALGAR is a comprehensive exposition of a working plan in which the principles before referred to are enunciated. Here is an example of definiteness of a well-reasoned plan and the expression of complete confidence in the ability of subordinates who are charged with the execution of the plan and the initiation of its details.

As Referred to the UNITED STATES Fleet.

The formulas - if such they may be called - which govern the tactical operations of the UNITED STATES Fleet, contain as radical factors and include no variables save those due to the individual ability displayed by the several commanders. They are based on the ancient axiomatic principle of concentration and relate to the approach, the deployment, the range, and the gaining of all controllable advantages, - all leading to concerted and expeditious descent upon the enemy.

Only hits count: the greatest number in the least time secures the victory.

B. THE SOLUTION OF TACTICAL PROBLEMS.

After the succession of defeats of the Prussian Armies in the first half of the Nineteenth Century it was determined that the man power of that nation would be instructed and trained in the art of war according to a standard plan. It was due to this decision that a systematic study of military situations and their solution was inaugurated in the commissioned personnel of the land forces.

Included in these studies were plans of attack, reconnaissance, defense of positions, disposition of advance and rear guards, military engineering, and the consideration of all operative elements of an actual field army. Map maneuvers were introduced in the solution of tactical problems and in these were included the preparation and issuance of orders. The form of the operation order developed at that time by Griepenkerl has served as a model in many military services ever since. Field maneuvers actually carried out the solution of problems on a grand scale.

In the service afloat, the Fleet is the school of tactics. Nothing can wholly supplant it in gaining the actual experience of solving tactical problems. As the Fleet is available for such purpose only at certain periods, it is difficult to gain sufficient experience in handling large forces. Search problems, for instance, are practicable only occasionally. Mobilization is expensive and the withdrawal of units from other duties cannot be accomplished at will.

The Naval War College of the UNITED STATES serves a most useful purpose in the solution of problems on the game-board in the tactical department of that institution, the board representing the theater of action.

In the Tactical Maneuver, as this function is termed, disposition of forces conform to established doctrine, movements are made by signal, communications are received by

actual methods, and operations are conducted throughout in accordance with rules covering maneuver and fire,--all based on predetermined conditions conforming to sustained actual experience.

When applied to simply composed forces the results attained are definite and illuminating and the professional knowledge gained is accurate. Latterly, however, since great multiplication of types appear in naval armaments, it is difficult to simulate and co-ordinate under real conditions, the operations of surface, sub-surface, and air craft engaged in combat at sea. Many mechanical restrictions are of necessity imposed on the game-board under present day circumstances, yet it will continue to be an adequate instrument for developing and exercising the fundamentals of tactics and serves excellently as a reference for tactical situations from which correct deductions can be made.

The capital ships of the Fleet include the game-board in their equipage and is made available for supplementing divisional and other maneuvers of fractions of the Fleet from all of which is derived much professional advantage.

While, with both land and sea forces, nothing can be substituted for the assemblage of troops and ships for maneuvers in the solution of tactical problems, there is no question of the mechanical means referred to for advancing technical knowledge and acquiring, at least, elementary tactical skill.

The systematic approach to perfection in military operations employed by the German nation since the Napoleonic era reaped the amazing victories of the Franco-Prussian War in the Nineteenth Century and held off the armies of the rest of the world for four years in the Twentieth Century.

C. HISTORICAL APPLICATION OF TACTICAL PRINCIPLES.

The Peloponnesian War, 431-406 B.C.

The outstanding exposition of elementary tactics in ancient history were the operations of the Athenian Navy in the Peloponnesian War.

The warships of this early period were triremes propelled by oars and fitted with sails for auxiliary use when the wind served. These craft were about 150 feet long and 18 feet beam. They were of shallow draft, probably not more than 4 feet. They were fitted with rams for charging the enemy. The speed was 10 knots, maximum, in smooth water for a short period but they could not keep the sea in any but best weather. Their mobility, then, was not of a high order.

The trireme was manned by about 200 rowers and carried from 50 to 100 fighting men equipped for hand to hand combat.

During this war the Athenian crews were free men and well paid. The Athenian triremes were skillfully handled and at high speeds.

Oftentimes, as many as 200 units were engaged on each side. Sometimes the forces were hurled at each other in line abreast at two-length intervals between triremes. The Athenians frequently essayed fast wing tactics and the value of turning the enemy's flank was well understood. So well, in fact, that an inferior force would cover its exposed flank by land to prevent envelopment. Column formation was employed in open waters generally and the ability to draw ahead in an attempt to effect a cap was demonstrated by the superior speed of the Athenian forces more than once. The taking of a flanking position in advance thus restricting enemy movements was employed as early as the Battle of Salamis in 480 B.C.

During the course of the many engagements of the Peloponnesian War it was demonstrated that individual combat or go-as-you-please tactics were not productive of decisive results, but that masses skillfully handled and brought into action from sound tactical positions gained these early victories.

(b) The Armada, on the defensive throughout, maintained a formation which was unassailable unless it could be attacked simultaneously on all sides, patently impossible.

The ability to re-form engaged fractions of the force and maintain the formation was remarkable in view of the assorted characteristics of the units composing the Armada.

(c) The column formation used by the English Fleet, seen by the Spainards for the first time, produced such flexibility in maneuvering as to create consternation in the Armada. The ability to deliver broadside fire and to avoid boarding throughout can be attributed to the English tactics.

(d) The necessity of communication was accented throughout the campaign both as to information of the enemy's whereabouts and for the transmission of instructions during engagements.

De Ruyter And the Texel, 1673.

The outstanding naval figure in the seventeenth century was the Dutch Admiral, De Ruyter.

An example of his tactical skill was displayed in the Battle of the Texel, 21 August, 1673 in which, with seventy ships, he attacked the Allied English and French Fleets of ninety sail, under Prince Rupert.

From a windward position by sending a detachment to block off the French Fleet he engaged the English on equal terms. The French Fleet attempted to surround the Dutch containing force which, however, broke through the French line and attacked the van of the English Fleet which was heavily engaged by De Ruyter.

Chiefly demonstrated throughout the career of this great leader are the tactical value of superior concentration and spirited offensive.

De Tourville And Beachy Head.

Another naval commander whose fame comes down as a tactician of the Seventeenth Century is the Counte de Tourville who commanded the French naval forces in the War of the League of Ausberg.

The engagement off BEACHY HEAD in which a French fleet of seventy-eight ships fought an allied force of English and Dutch ships under Admiral Herbert is of professional value.

The Allies approaching from windward failed to engage the French line in its entirety with the result that de Tourville sent an unengaged detachment to co-operate with the French van in concentrating on the van of the Allied Fleet causing heavy loss. A temporary drop in the wind caused a postponement of the engagement until the turn of the tide, at which time the French, in formation, pursued the enemy to the Thames.

Mahan looks upon the victory as complete but not decisive as the caution of de Tourville precluded a general chase which would have wrought great havoc among the dispersed Allies.

Suffren.

The operations of Commodore Suffren of the French Navy, in 1782-83, against the English naval forces in Indian waters under Sir Edward Hughes were fraught with the qualities of resolute and vigorous offensive on the part of the French commander.

Although disclaiming to be a tactician, Suffren essayed throughout the principle of concentration of effort and, with indoctrinated and equally resolute captains, would have been eminently successful.

The handling of the French convoy in enemy waters, without a base, was a noteworthy feature of this campaign.

Rodney.

Coincident with the campaign of Suffren and Hughes off CEYLON were the operations of the English and French fleets in West Indian waters.

The contacts of these forces culminated on 12 April, 1782 in an important engagement near the ISLAND OF DOMINICA, between the English Fleet of 20 ships of the line under Lord Rodney and the French Fleet, 30 sail, under Admiral De Grasse.

The fleets were engaged in the usual indecisive column movement on opposite tacks, while attacking, when a favoring shift of the wind permitted Rodney, followed by his second in command, to break the French line at two points isolating a detachment of the French fleet. This maneuver was followed by a concentration upon the detachment which included the flagship of Admiral de Grasse resulting in his surrender and capture, and in the flight of the French forces.

Here was exemplified a departure from rigid column tactics and the necessity of divisional employment of a large naval force in order to effect concentration on fractions of the enemy line.

Admiral Mahan refers to this engagement as "the greatest naval battle in its results that has been fought in a century."

Howe.

Admiral Lord Howe, a English tactician of great precision, completed a long naval career with the campaign of 1794 which culminated in the Battle of the First of June, some 400 miles off the French coast.

An English force of 25 sail under Lord Howe went to sea to engage the French Fleet, then consisting of 26 sail commanded by Villaret Joyeuse, which was cruising off the coast to safeguard the arrival of a large food convoy from the UNITED STATES urgently required to relieve the prevailing starvation conditions in FRANCE. As Howe's mission included also the interception of the convoy the accomplishing of both

purposes was most difficult. The result was that although the French Fleet was engaged decisively, the convoy reached BREST, its destination, unmolested.

This final engagement of the campaign began after several days contacts with the approach of the English fleet from windward on a north-west course in line of bearing, each ship heading for its opposite in the French line then standing to westward. Howe's plan was to attack the entire line, ship for ship, then pass through it each raking her target while so doing, then continue the engagement to leeward, being thus in a position to prevent the escape of crippled ships. The English force bore down in excellent alignment, with one or two exceptions. The French van opened fire which was returned and maintained by the English ships several of whom were able to break through the French line as intended despite the efforts of the French ships to shorten the distance between them by crowding on canvas. A mêlée resulted and in the collision of these forces great loss in both personnel and material followed many ships were dismasted and the French loss was particularly serious.

After two hours of this hand to hand conflict, the French commander ordered his remaining ships to leeward where he reformed the servicable units, recovered several others damaged, and left the scene steering northwest.

Soon after, Howe reformed his fleet and stood to the eastward without giving chase. For this latter, Mahan rather excuses Howe as many of the English ships were badly disabled and in addition, the best seamanship and highest quality of zeal had not been displayed by individual ship commanders and further risk of their ships was perhaps not wise, all circumstances considered.

Under the exigent conditions obtaining in FRANCE in the hands of Robespierre and his associates, the unexperienced French crews gave a good account of themselves. Disaffection

was prevalent and traditions of service had been scattered to the winds. The Frenchmen had little to fight for.

Howe planned no concentration. He considered, properly, the inefficient opposition he was likely to meet when contact was made and, in his desire to allow no chances for escape on the part of the enemy, he opposed equal individual strength along the entire line - neither concentrating nor dividing his fire.

Nelson.

It has been shown how the application of a system of tactics converts a mêlée of contending ships into an orderly encounter wherein skill enters largely and, in its exercise, superiority of fire, can be secured.

The Eighteenth Century campaigns, chiefly those conducted by the great French tacticians, demonstrated, however, that something more than the mechanical precision which tactics makes possible is required to win battles. This something is the will-to-win, permeating the entire command.

The exponent of this essential quality was Lord Nelson. To his professional equipment of soundest tactical conceptions was added the 'Nelson touch'. To everyone of his subordinates was communicated not only the plan of their commander but his resolute spirit as well.

Nelson, it has been stated, was a student of tactics who was enabled to put into practice the plans upon which he had labored. In the final action of his naval career he brought to bear the practical experiences of twenty years of naval warfare in achieving one of the most important battles of history.

Throughout his career, Nelson concerned himself with the probability of always having to engage superior forces.

As the captain of a single ship in the Battle of St. Vincent, seeing the approach of the leading enemy ships of a group attempting to unite itself with another group, Nelson

left his position in the rear of the English column and, single-handed, engaged and held a superior force until the arrival of re-inforcements brought on a general engagement of the enemy fleet.

In command at the Battle of the Nile, Nelson expected to encounter a superior force either underway or at anchor. In order to effect the concentration he desired, he subdivided his force into three parts, in mutual support, and planned to attack only one end of the enemy's line. When contact was actually made Nelson found at anchor an enemy in numerically equal strength. Five of the English ships at once passed ahead of the French Fleet and anchored inshore. The remaining English ships anchored offshore and the French van and center was subjected to a devastating fire. By reason of this expeditious and astounding maneuver, the French ships to leeward forming the rear of the line were unable to come to the assistance of those heavily engaged.

The result was an overwhelming English victory.

At TRAFALGAR in 1805, the surpassing genius of this great commander was demonstrated. The summation of all of his tactical conceptions was contained in his plan of battle and this plan, today, contains the guiding principles for gaining decisive battles at sea.

Briefly, the plan contemplated crashing one end of the enemy's line while containing the other and, to do this, was included Rodney's celebrated maneuver of breaking the line.

Nelson's order of sailing was his order of battle: two columns, himself leading one and Collingwood, the other. It was intended to approach from astern either from windward or leeward on parallel courses and the column nearer the enemy's line, when abreast, was to turn and pass through it, ship for ship. The other column then was to block off the enemy's ships in the van preventing them from ^{coming} to the assistance of the center and rear.

The plan for breaking the line in this manner could not be actually carried on the day of battle, due to the prevalence of very light westerly airs. At daybreak, the fleets were ten miles apart, both in column, the English steering north and the French, south.

Nelson gave the order to approach and this movement consumed five hours. While standing toward the French line the English ships were subjected to broadside fire for a long period and the leaders were seriously damaged. The line was broken in two places and one hour after this was accomplished, the French Commander, Villeneuve, had surrendered. Twenty-two of a fleet of thirty-three ships were captured and of the twelve French ships in rear of the break, only four escaped.

The English fleet consisted of twenty-seven ships.

John Paul Jones.

This early American naval officer believed that blows at the morale of the people of a maritime power were of more effect than the clash of ships of war at sea.

The descent of Paul Jones, on WHITEHAVEN, in 1777, while in command of the RANGER created consternation throughout the seaports of GREAT BRITAIN. Raids on the enemy's coast got on the enemy's nerves: actions occurring leagues at sea did not startle the man in the street.

There is, however, one example in the career of this intrepid fighter a concerted action with English naval forces which is unique.

A small nondescript squadron of which the BON HOMME RICHARD - a converted French transport of 1000 tons - was the flagship of Commodore Jones. The other ships were the ALLIANCE and VENGEANCE and the brig PALLAS.

22 September, 1779, Paul Jones learned that a convoy from the BALTIC escorted by the English ship SERAPHIS, 40 guns, and the COUNTESS OF SCARBOROUGH, 24 guns, was in the vicinity of

FLAMBOROUGH HEAD. When this force was sighted next morning, the convoy was standing to leeward with its escort interposed between and the Americans. The ALLIANCE was in the offing and the VENGEANCE, considered too small to be of service, was ordered to keep out of the action. The PALLAS was ordered to attack the COUNTESS OF SCARBOROUGH while Paul Jones engaged the SERAPHIS. The opponent of the PALLAS was no match for her and soon surrendered. A terrific duel at short range ensued between the two others, each trying to get athwart the hawse of the other in order to deliver a raking fire. The superior armament of the SERAPHIS soon had its effect on the BON HOMME RICHARD, and together with the freshening wind and rising sea, Paul Jones' ship began to make water freely causing the abandonment of the gun deck. A veering wind finally favored the American ship which forged ahead and attempts were made to grapple which succeeded when the BON HOMME RICHARD was laid alongside the SERAPHIS, head to stern. The battle begun at seven in the evening continued until ten-thirty, the American ship settling perceptibly. Grenades and cartridges of various sorts were used against the deck of the English ship. The ALLIANCE came within range two or three times and delivered broadsides which were probably more damaging to friend than foe. The Englishmen tried to board the BON HOMME RICHARD but were repulsed. An American boarding party succeeded and were sweeping aft when Captain Peareon of the SERAPHIS surrendered. The loss of men was appalling and the situation on both ships, desperate. The complement of Paul Jones' ship were transferred to the SERAPHIS. The BON HOMME RICHARD sank thirty hours later. The American squadron with its two prizes reached the TEXEL in safety.

Here was a marked example of the spirited offensive.

The War of 1812.

This war occasioned numerous notable contacts between English and American ships in which the individual professional skill of opposing commanding officers was pitted and the display of superiority in the exercise of such skill bringing success.

Victory to a marked degree depended on good gunnery combined good seamanship and the ability to take advantage of every favorable opportunity to inflict greater damage on the antagonist than it was in his power to do.

The aggressiveness of the American naval commanders throughout this period is a standard of conduct that will serve for emulation for all time.

There were few fleet actions worthy the name. That on LAKE ERIE between forces composed of heterogenous units is typical.

10 September, 1813, an English force of two ships of the regular service but of improvised armament and four smaller armed craft, all under command of Captain Barclay of the Royal Navy, while standing southeast down LAKE ERIE encountered to windward an American force of similar composition under Commander O.H. Perry.

The principal units of Perry's command, the LAWRENCE and the NIAGARA, were armed with 32-lb carronades of short range while the English DETROIT and QUEEN CHARLOTTE mounted lighter batteries of greater range.

Perry's squadron bore down on the English formation on a south-westerly course. The enemy hove to on the same course, awaited the attack, and were first to open fire. The American squadron closed ship for ship and a heavy engagement was waged throughout the entire afternoon.

Due to the varying characteristics of the units engaged, stations were indifferently kept by both squadrons. Through failure to keep closed up and an evident hesitancy

to shorten the range when Perry pressed ahead in the LAWRENCE and was subjected to heavy English fire, the NIAGARA was unable to support him. The LAWRENCE was damaged so severely that Perry transferred his flag to the NIAGARA and the LAWRENCE struck to the enemy. The line was reformed and so spirited an attack followed that the English force shortly surrendered with much loss.

Farragut

"I believe in celerity", said Admiral Farragut in announcing his intention of running the forts of the MISSISSIPPI. It was at this initial step in splitting the Confederacy in two that surprise did count, for, in spite of remonstrances, Farragut lead his squadron through river channels under the heavy fire of closely flanking fortifications protected by a "well-directed fire of our own guns". NEW ORLEANS, PORT HUDSON, and VICKSBURG failed to stop him. There was no attempt to reduce these forts and then go on. Celerity was at all times apparent. Later, at MOBILE BAY, finding his squadron off the planned course, Farragut continued on though the course took him across a line of torpedoes. There was ever present the will-to-win.

In tactics, as in other fields, the power to accept responsibility is a potent factor.

Mahan, in speaking of Farragut, says:-

"It is in the courage to apply knowledge under conditions of exceptional danger; not merely to see the true direction for effort to take, but to dare to follow it, accepting all the risk and all the chances inseparable from war, facing all that defeat means in order thereby to secure victory if it may be had".

Nelson, too, left something to chance.

Lissa, 1866.

It has frequently been held that the engagement between the Italian and Austrian forces off Lissa demonstrated a victory due to ramming.

The Italian fleet was in column when it met the Austrian fleet which attacked the Italian line in a concentrated wedge-shaped formation.

The Austrians succeeded in cutting the Italian line sinking one of the enemy by ramming and another by gun-fire.

Instead of continuing the action the Italians sought to re-unite their line and finally surrendered.

The Austrian victory was not actually due to the ram which the Austrians had planned to use against the Italian ships against whose armor the Austrian ordnance was considered ineffective. The deciding cause of the results obtained was the concentration of forces in order to employ ramming tactics. It was this formation which split the enemy's line with such disastrous consequences.

Battles of the Spanish-American War.

The chief interest in the naval encounters of the Spanish-American war centers in those of the Battle of Manila Bay and the Battle of Santiago.

In both instances the American forces were superior to the enemy and in neither was there any outstanding tactical feature. In the first, there was displayed a fine example of decisiveness on the part of the American Commander and in the other, a complete conformity to the plan brought complete victory to the American force.

1 May, Commodore Dewey with the U.S. Asiatic Squadron of 3 cruisers and 3 gun boats entered MANILA BAY located and engaged the Spanish Squadron under Admiral Montojo. The Spanish force was anchored off CAVITE partly protected by two small batteries. It was composed chiefly of obsolete units.

The American Squadron steamed back and forth across the Spanish line, in column, and in three hours all the units of that force were destroyed.

To reach his objective, Commodore Dewey had to steam through a fortified entrance into waters which there was every reason to believe were mined.

The engagement off SANTIAGO, CUBA, of 3 July was the result of a sortie of a Spanish Squadron, of 4 modern armored

cruisers and 3 destroyers under Admiral Cervera, from the harbor of SANTIAGO wherein it had been closely blockaded by the U.S. North Atlantic Squadron of battleships, cruisers, and gunboats under command of Admiral Sampson.

The Spaniards immediately attempted to escape to the westward and a chase ensued. In little more than three hours the Spanish Squadron was entirely destroyed and the ships composing it, beached on the CUBAN COAST.

The Spanish force had been sent across the ATLANTIC inadequately manned and outfitted. Two modern battleships had been omitted from the force - a division of strength - the addition of which would have added greatly to the effective power of the squadron. Such a force, combined with a display of tactical skill on the part of the commander, would have presented a formidable bid for the command of the sea in West Indian Waters.

The port of SANTIAGO had been blockaded for a month in accordance with a comprehensive plan promulgated by the American Naval Commander and included procedure in the event of sortie and movement thereafter in any direction. That indoctrination obtained was evidenced by the activities of the American forces as the sortie occurred at a time when the commander-in-chief was actually absent from the scene.

Certainly, it is apparent, in the attitude and conduct of the Spanish Commander, that whatever material deficiencies existed in his command, the absence of the will-to-win in his own professional equipment added not a little to facility with which his squadron has vanquished.

The deplorable strategy at the bases of the tactical failures of the Spanish naval forces at all points of contact is not here the subject of comment.

The Action off PORT ARTHUR 1904

The Russian Fleet forced out of its base at PORT ARTHUR by the solidifying investment of the Japanese Army, on 10 August, made a second attempt to van the blockade of Japanese naval

English cruisers succeeded in overhauling the enemy and sank one of them six hours after the chase had begun, another in eight hours, while the third escaped.

In addition, the German force lost three fuelers which were captured by a light cruiser in the vicinity of PORT STANLEY.

Throughout the combined action at the Falklands the determination with which the Germans fought their ships to the last was most marked.

The Dogger Bank, 1915.

Having learned that a German force consisting of four battle cruisers with several light cruisers and destroyers, intended to make a sortie from WILHELMSHAVEN on 23 January thence to proceed to the vicinity of the Dogger Bank - purpose of which was undefined - the Commander-in-Chief, Grand Fleet, ordered a general rendezvous of his fleet on the bank during the morning of 24 January.

Vice Admiral Beatty commanding the battle cruiser squadron, - a total of five units - arrived at the rendezvous at daylight and was joined by four of his attached light cruisers and thirty-five destroyers with three cruiser-leaders. The battle cruisers were the LION, TIGER, PRINCESS ROYAL, NEW ZEALAND, and INDOMITABLE.

A search was begun for the enemy which was discovered twenty-five minutes later to south-east and made out to be the battle cruisers SEYDLITZ, DERFFLINGER, MOLTKE, and BLUTCHER, together with six light cruisers and twenty-two destroyers, standing to the northwestward.

Upon discovery, the German force turned and fled to the south-east. A chase on parallel courses, at 26 knots, ensued with the Germans to the northward.

At 8:52, Admiral Beatty leading in the LION opened fire at 20000 yards on the rear ship, the BLUCHER soon followed by his other ships. The mean range maintained, throughout, was 17000 yards.

In the distribution of the English fire due to misconstruction of the instructions from the flagship, one of the German cruisers

was not kept under fire. In two hours the BLUCHER was so heavily hit that she dropped out and sank an hour later. The German fire was so well concentrated on the LION that she was compelled to leave the line shortly after the BLUCHER and turned toward her base at reduced speed. Through a misunderstanding of signals at this time, the other English battle cruisers diverted their fire from the German line to the disabled BLUCHER heading toward her with the result that the three other Germans escaped and returned to their base.

There were no contacts of any consequence among the light cruisers of either side. The English cruisers of this type which had maintained a position on the port quarters of the battle cruiser came under fire of the German line on one occasion and immediately drew off. They opened on the BLUCHER when that cruiser fell out and assisted in her final disposition.

The destroyers of the English force, at first ahead, dropped astern so as to clear the range. Subsequently when it appeared probable that the Germans would turn and attack and also direct a destroyer attack against the English line, the English destroyers were unable to take their station ahead to meet such maneuver.

The chase was abandoned shortly after the English flagship left the line for the reason referred to.

It is not clear even when explained by the confusion of signals why the second in command of the British force could have believed that it was his superior's remotest intention to have abandoned a well co-ordinated attack on the German line in order to dispatch a crippled unit already at the mercy of the torpedo.

Naval Attacks on Fortified Positions.

From earliest times fortified ports have been the object of attack by sea. Sometimes it was the descent of sea-rovers or pirates demanding ransom, sometimes the sacking of the town with no ulterior object in view.

It is with attacks on fortified points in the eventual attainment of a strategic end that we are here concerned.

An early example is presented in the several attacks on the Spanish city of CARTAGENA in COLOMBIA which began with the day of Drake. CARTAGENA was situated directly on the sea and strongly held. Because of its geographical location the enormous commerce of SPAIN with SOUTH AMERICA, MEXICO, and the WEST INDIES centered here. CARTAGENA was one of the richest possessions in the Western Continent. English and French alike coveted it.

The operations were all of them carried out with combined forces. The objective was occupation and the naval forces acted in conjunction with troops. It is noted that the exercise of a single commander in these attacks invariably resulted in successful outcome: the separate command failed.

Bombardments conducted by naval forces with a view of annihilation of enemy works with no landing operations in prospect have never been of permanent value. An enemy may be driven out of his position but always can return and again hold it. The bombardments, for instance, of the defenses of SANTIAGO demonstrated the futility of the proposition. Earth batteries, in which guns have been dismantled, were demolished by gunfire, and were again in commission in twenty-four hours.

Many times in its history has the coast of FRANCE been subjected to bombardment.

For nearly three years during the War of the Augsburg League the cities of DUNKIRK, CALAIS, DIEPPE, LE HAVRE, and BREST were thus attacked by Dutch-English Allies with inconsequent result and no effect on the outcome of the war.

In modern days, WEI-HAI-WEI and PORT ARTHUR withstood similar assaults by JAPAN.

The effects of bombardments on the morale of the defenders and the inhabitants in general have varied with the character of the people.

Certainly the attacks on English sea-coast cities during the World War did not instill the desired fright into their inhabitants but spurred the British in general to further endeavor against an enemy who in this latter day of civilization heedlessly destroyed non-combatants.

Tactics of Landing Operations.

Invasion of the continental territory of a maritime state from the sea is an operation no longer attempted in recent warfare. Rarely in the past has the result been comparable with the effort exerted and loss sustained. In the present day the mobile and fixed defenses are so complete and communications and transportation so greatly facilitated that such operations are rendered most dangerous. Almost always, after the initial foothold is secured the advantage is in the hands of the defender because all of forces cannot be brought into the assault in a single simultaneous movement.

An important attempt was the landing of an English expeditionary force at the mouth of the Scheldt with ANTWERP as an objective. This was at the time during the Napoleonic Wars when ANTWERP was held by the French, 1809.

The English fleet consisted of more than a hundred fighting units and 50000 troops. The train which transported the troops, the animals, and the munitions numbered 400 ships. Upon arrival 15000 soldiers were landed on the island of WALCHEVEN and its capital, MIDDLEBURG, was occupied without serious resistance. FLUSHING was then invested and after a bombardment of three days by the fleet, this city fell.

The way to ANTWERP was now clear but the English commander, Lord Chatham, decided not to land the remaining troops for the march on ANTWERP. Presumably he considered the task too exacting in not only maintaining the troops as they moved inland but his communications as well. At any rate the troops re-embarked, a garrison was left at FLUSHING (which was itself abandoned in a few months) and the expedition returned to

England. There was sustained stupendous loss in men and material with no gain.

The error here seems to have been a wholly inadequate estimate of the situation.

Landings in conjunction with attacks for the specific purpose of seizing points of vantage from which to conduct further operations have always been costly in the face of determined and well-entrenched opposition.

During the Civil War the closing of the most important port of the Confederacy - and from which was being carried on all European communications - was jeopardized for a long time through lack of co-operation being land and sea forces. The port was WILMINGTON, NORTH CAROLINA and its principal defense, FORT FISHER, finally fell in 1865, resulting from a combined operation. Even on this occasion, the lack of definite instructions to the naval division, which had been landed to move directly against the sea face of the fortification, caused a failure in co-ordination of effort with that of the troops moving upon the land face resulting in the enforced withdrawal of the naval division.

The most recent - and most varied - landing operations of history were those undertaken in connection with the Dardanelles Campaign in the World War.

From a strategic standpoint the firm holding of the dominating GALLIPOLI PENINSULA by the Allies would without question have materially affected the course of the war and, certainly have effected an earlier peace.

The British War Council originally decided that a naval expedition should, in February 1915, "bombard and attack this Peninsula with CONSTANTINOPLE as its objective". The subsidiary operation as planned finally became a combined major operation of the first magnitude.

Several attempts of a powerful naval force of French and English ships failed to reduce the batteries and force the

Straits incurring severe loss in so doing. The entrance forts had been silenced and the lower reaches of the Dardanelles occupied by Allied battleships after the third bombardment. At this time, also, landing parties completed the destruction of these positions encountering but few Turkist troops. Subsequent attacks failed to penetrate farther. The principal fortifications commanded the narrows and these could not be silenced.

The British War Office finally agreed with the naval authorities that it was necessary to support a naval attack with troops in order to secure permanent results. It was realized that the entire Peninsula was being more strongly protected each day and that all attempts at landing at this time would be strongly resisted.

The last purely naval attack - that on 18 March - caused the loss of four battleships chiefly through drifting mines and the withdrawal of the remainder from the Straits.

Troopships and supplies began to arrive at MUDROS BAY and later at LEMNOS and TENEDOS ISLANDS, nearby. It was important that the combined attack should take place without delay as the enemy effort was being solidified. Further delay, however, was entailed as the redistribution of troops and equipage among the transports was necessary in order to permit an expeditious landing and readiness to fight. This meant that the transports had to be sent to ALEXANDRIA, six hundred miles distant, where wharfs were available. It was patent to the defenders that a major attack was in contemplation.

A month was lost before the troops, now numbering 70000 effectives, re-assembled. The force consisted of English, French, Colonial, and East Indian divisions to which was added a naval division.

From complete plans in the possession of the Commander-in-Chief, General Hamilton, together with airplane reconnaissance it was indicated that the high ground of the Peninsula would

have to be occupied in order to command the Straits and their defenses and also to cut off the supplies to the fortifications all of which came from the Asiatic side. It was further determined that a direct attack on the shores of the Peninsula was the only feasible method. All of the shore line had now been placed in a perfected state of defense which included emplacements, trenches, entanglements and mines. An efficient German field officer, Von Sanders, had been placed in complete charge of the defenses of the Dardanelles, and nothing more need be said as to the thoroughness of his work.

The immediate objective was the Plateau of KHILID BAHR and it was planned to make simultaneous landings at selected positions on the southern end of the Peninsula and to push on directly toward the Plateau. The landing beaches - five in number - were restricted in extent and were, several of them, in range of the Asiatic batteries. A French brigade was to land on that side to prevent additional Turkish troops from crossing the Straits to re-inforce the troops on the Peninsula. The navy arranged to put the troops ashore and cover the landing. Ships cutters only were available and the difficulties of landing troops in piece-meal on shelving beaches, under heavy fire, are light in comparison with getting munitions and artillery ashore in this manner.

On 25 April the day selected for the landing, the sea was smooth and the weather fine.

At one point, two transports convoyed by a battleship and two cruisers brought the troops in with the cutters towing astern. This expedition was successful in maintaining the foothold which had been gained in the cliff above the beach. However, they could not be supported in their position as additional troops could not be landed in sufficient strength to withstand the steadily increasing opposition of the Turks. After an all-day struggle, the Allied troops were withdrawn at night.

At another point, the troops were brought in by a battleship, the boats towing alongside. The gunfire of the battleship kept down the defenders and the landing was effected with little loss. A foot-hold on the heights was gained after a hard struggle.

The landing at Beach W, so-called, required different treatment because of the character of the protection. Wire entanglements traversed the beach and extended into the water and mines filled the approaches. The cliffs commanding the beach were fortified and machine guns were located so as to converge in all parts of the beach. The difficulties were anticipated and arrangements were made to tow the cutters with steam pinnaces in several parallel columns casting off when shoal water was reached. The flanking columns sheered off to right and left of the beach proper in the approach.

The Turks held their fire until the men were in the water making for the beach and then poured a withering fire into them, handicapped as they were, causing great disorder. The flanking groups landed more quickly, however, and succeeded in a flank attack on the defenders driving them from their positions, and secured themselves.

At Beach S, a small vantage point, trawlers towed troops and ships landing parties in cutters while battleships covered the beach. Due to an unestimated current, a delay was involved at this point which would have been serious had the opposition been heavy.

At Beach V, thick wire entanglements in successive courses across the light between the headlands, from the water to the heights. On the summit were trenches which dominated the entire beach.

To meet the need at this point, a collier was prepared to carry troops and to permit ready exit through cargo ports. Accompanying the collier were lighters and stages. The collier steamed directly to the beach towing the lighters and was stranded.

The troops began disembarking using the lighters now placed between the collier and shore. The defenders, as usual, held their fire, until the men swarmed out of the ports and on the lighters when the fire was opened with terrific effect.

At this time the inboard lighter was broken adrift by the current and masses of troops were hurled into deep water or swept by infantry fire while helpless on the other lighters. After greater effort the lighters were again secured and the men poured ashore. Again the lighters broke adrift severing all further communication with the beach. The men ashore dug in behind the beach escarpment. When night came, they were relieved by fresh troops from the collier and the next day a permanent foothold was made and joined up with the adjoining positions.

Had the landing of the Colonial troops, further up the Peninsula, been carried out as planned the losses would have been as severe as elsewhere. A current which set heavily to the northward carried the boats of the flotilla well above the proposed location into a cove where an unopposed disembarkation was effected.

It is evident, when considering the variety of methods pursued, that although the landings were actually made - and principally from open boats - they could not have been successful in the face of heavy artillery fire despite the support of the ships batteries. The ships were able to shell the shore at will, throughout the operation. The inadequacy of ships' boats was evident. When it became necessary to land re-inforcements several months later, small steel motor lighters with a capacity of about 500 men were provided. These lighters formed a protection to the troops up to the moment of disembarkation. They were convoyed by destroyers and made for the beach, in numbers, landing many troops expeditiously.

The final withdrawal from the Peninsula which marked the dismal failure of this imperfectly conceived campaign is not to be considered in this paper except to note that the evacuation was conducted in a masterly manner and but little loss was incurred.

Analytical Studies of Tactics Before Jutland.

History has taught in naval warfare that indecisive engagements of forces profit little and that the true object of battle is, unmistakably, the destruction of the enemy's fleet.

The means for the attainment of this object is Tactics which have developed progressively since the earliest days when galleys clashed. But history has also demonstrated with equal clearness that the crux is in the application of the means wherein victory lies and genius is displayed.

Ante-Jutland history has indicated but one underlying principle of tactics, viz, "Superiority at point of contact", which may mean superiority of spirit, of gun power, of position: all of these are qualities of strength and strength must prevail.

This principle though basic is of complex structure and comprehends several elements which are essential to its establishment.

Thus, contributing most to this end, are:-

1. The assumption and retention of the offensive which denies initiative to the enemy.
2. The maintenance of a compact yet flexible disposition of forces which prevents fractional losses.
3. The indoctrination of subordinates which produces co-ordination of effort without which the individual skill of the commander avails nothing.
4. The celerity of movement which precludes the loss of controllable advantages and makes successful results possible before the enemy can be re-inforced or improve his tactical position.
5. That efficiency of personnel and condition of materiel of each unit which alone makes possible, to the highest degree, the effective employment of a fleet in engagement with the enemy.

Since "experience is the only source of truth", the methods employed by the masters of warfare in the application of these fundamental elements contribute the sum total of knowledge of

the subject and to this experience must the student of tactics turn.

Among the important precedents thus determined are:-

(1) The subdivision of large forces into smaller tactical units the operation of which is within the province of subordinate commanders.

(2) The minimum employment of tactical maneuvers which is made possible by adherence to a simple plan and a knowledge of the enemy as to dispositions and movement before battle is actually joined.

(3) The utilization of all available speed to secure tactical advantage in drawing ahead, closing the range, and concentrating fire.

(4) The arrangement of forces in homogeneous units to secure maximum effect in maneuver and gunfire.

(5) The delivery of a concerted attack in conformity with a well-understood plan of battle in which the entire effort is simultaneously applied to maximum effect in a timely and expeditious manner.

In successive periods of history some of these factors of a well-ordered engagement were but imperfectly understood and indifferently applied.

The rigid columns had remarkable success in its day. But when the 'line ahead' became so long that all of its component units were not available for engaging the enemy's line of inferior numbers the advantage was lost and division columns were finally evolved.

As early as 1781, Clerk of Eldin wrote his Naval Tactics which formed the basis of Nelson's reading. Clerk held that no decisive results with rigid column and ship to ship engagement could ever be attained and indicated the use of concentration.

Holding the weather gauge - a distinct advantage - even in the days of sail often allowed a partially crippled enemy to escape. To-day, there is danger of smoke and gas interference in such position.

Breaking the line with present day armaments would result in the concentration of an enemy from both directions while still unable to bring the whole battery to bear.

Seamanlike qualities exhibited in the handling of ships and fleets have varied yet without them a definite objective aggressively striven for only indecisive results were achieved.

Improvement in the power and accuracy of existing weapons and the introduction of new weapons have constantly increased the ranges at which naval forces fight.

It is apparent in all study of tactics that methods always have changed but that basic considerations of right principle were unalterable.

D. THE BATTLE OF JUTLAND

30 May, 1916, the British Grand Fleet left its several bases in North Britain to make one of its periodical sweeps through the NORTH SEA.

31 May, 1916, the German High Seas Fleet, in full force, left WILHELMSHAVEN before daylight to operate against enemy cruisers and merchantmen in the Skagerrack with a view of drawing into action the British Fleet either in part or under conditions advantageous to the German Fleet. Both forces were prepared for eventualities although neither knew that the other had put to sea.

The independent sorties of these two forces culminated in the Battle of Jutland.

The fleets were disposed tactically in orthodox manner with advanced forces, main body, light forces, and screens.

The British Advanced force was composed of six battle cruisers. Four of these were LIONS, each mounting eight 13.5-inch guns and had 28 knots speed. The two others were INVINCIBLES of eight 12-inch guns each and had 25 knots speed. Included, also, were four battleships of the QUEEN ELIZABETH type mounting eight 15-inch guns each and had 25 knots speed.

This force thus consisted of the newest types of the most formidable capital ships afloat, the aggregate gun power being 32 15-inch, 32 13.5-inch, and 16 12-inch guns. Herein was furnished a model example of a fast powerful force the chief function of which is to obtain information concerning the enemy for the use of the main body of a fleet. The battle cruisers were scouts. These were supported by fast battleships and attended by light cruisers to protect them against destroyer attack and, further, were accompanied by destroyers to co-operate in attack. The speed of this force insured gaining touch with the enemy and its gun power made possible the piercing of its screen in order to secure the desired information.

The British main body consisted of twenty-four battleships, three battle cruisers, and four armored cruisers. The fleet speed was twenty knots and the aggregate gun power of this main body was 16 15-inch, 10 14-inch, 110 13.5-inch, and 130 12-inch guns.

The British light forces consisted of 25 light cruisers and 78 destroyers. These were distributed between the advanced force and the main body.

The German Advanced Force consisted of five battle cruisers. Three of these were DERFFLINGERS each mounting eight 12-inch guns and had 28 knots speed. The other two were MOLTKE'S with ten 11-inch guns each and 27 knots speed.

The German main body was composed of sixteen battleships and six predreadnoughts mounting a total of 128 12-inch and 72 11-inch guns and having a fleet speed of 17 knots.

The German Light Forces of 11 light cruisers and 75 destroyers were distributed between the advanced force and the main body.

On the afternoon of 31 May typical North Sea weather prevailed with the visibility varying from three to eighteen thousand yards, a condition which frequently rendered the accurate determination of range impossible. Light winds obtained.

At 2 p.m. this day, the British main body was 150 miles NNW of the German main body each steaming, generally, toward the other. The advanced forces were midway between them and about 20 miles apart.

At 2:30, the light cruisers of the opposing forces made contact, sighting each other at the same time, the Germans bearing to eastward of the British.

Vice Admiral Beatty, commanding the British advanced force, headed to south and east in order to interpose himself between the German force and its base. He then brought his force to a north-east course.

Rear Admiral Hipper, the German commander of the advanced force upon receipt of contact steered northwest toward the enemy sighted.

At 3:30, Beatty and Hipper sighted each other. Hipper changed course to 158°, falling back on his main body. Beatty changed course to 122° in pursuit. Each took maximum speed, the Germans in column and the British in line of bearing.

There now followed:

1. The Battle Cruiser Fight

3:48, both forces open fire, range 18500 yards, the German salvos being first to find their target.

4:06, British battle cruiser INDEFATIGABLE sunk by gunfire.

4:08, Supporting British battleships open fire on Hipper, 20,000 yards.

4:26, British battle cruiser QUEEN MARY sunk by gunfire.

4:35, Destroyers of both forces make torpedo attack without result.

4:42, Beatty sights German High Seas Fleet bearing southeast and changes course to northward to draw Germans toward Grand Fleet. Hipper follows and action is continued.

4:57, Supporting British battleships change course to northward following astern of Beatty and come under fire of advancing High Seas Fleet at long range.

5:56, Beatty sights Grand Fleet bearing north, distant five miles, and changes course to eastward at top speed to take position ahead of Admiral Jellicoe commanding Grand Fleet. Hipper conform to easterly change of course.

During the run to northward the weather was thick and the gunfire, intermittent.

In this, the first phase of the battle, the English suffered most. The cruisers were fought well. There was no co-ordination of battleship effort. The damage inflicted by this division under Evan Thomas was negligible.

There now followed the

2. Main Engagement

Due to low visibility in which but few of the enemy ships could be made out at any time and because of inaccurate positions, the British Commander-in-Chief arrived on the scene of battle at twenty knots, still in a cruising formation without definite information upon which to base deployment into battle line.

6:00, the nearest enemy ships are made out 12000 yards to starboard of the right flank of the formation.

6:16, Admiral Jellicoe began the deployment of the Grand Fleet on the port wing division, to course 124°. Beatty took position ahead of Jellicoe and astern of a battle cruiser division attached to the main body under command of Rear Admiral Hood. EVAN THOMAS took position astern of the Grand Fleet, the speed of which now was 17 knots.

Although in excellent tactical position in action on the head of the German formation, the Grand Fleet, could not get the full advantage of its position because only a few of the enemy ships were visible from any one point of the formation the range varying at this time from 12000 to 14000 yards.

6:34, British battle cruiser INVINCIBLE sunk.

6:35, Admiral Scheer, the German Commander-in-Chief reversed the course of his entire fleet by simultaneous ship movement under cover of a smoke screen and stood to westward. This maneuver was not observed by the British.

6:55, Scheer repeats his movement and returns to an easterly course and against makes contact.

7:15, German destroyers launch attack which is followed up by the battle cruisers. Grand Fleet turns south and is now in excellent position to cap.

7:17, German Fleet reverses courses for third time and under cover of a smoke screen takes course southwest.

7:23, Grand Fleet turns away to ESE to avoid torpedoes.

7:58, Grand Fleet changes course to west then to southwest.

Forces now lose touch.

9:00, Grand Fleet having last seen German forces to northward, heads south at 17 knots breaking off action. Makes dispositions for the night.

9:06, High Seas Fleet turns south, speed 16 knots.

The Grand Fleet believed itself interposed between the High Seas Fleet and its base. Admiral Jellicoe stated that he did not intend to fight a night action as his fleet was not properly equipped for so doing. There were several chance encounters in the night between light forces but no further contact was made between main fleets.

During the night, the German Fleet crossed the rear of the British column undetected. The dispositions of the German forces for the night indicated that a night attack by the British was expected.

2:47, a.m. 1 June, the Grand Fleet turned north 'in search! Admiral Jellicoe has said that he abandoned his intention to close HORN REEF at daylight because of the scattered condition of his forces.

3:00, the High Seas Fleet reached HORN REEF and returned to its base without further incident.

3. Comment

(a) In the battle cruiser fight, the British commander maintained an active and sustained offensive in his endeavor to out off the Germans and force a fight. The torpedo menace did not deter Beatty from his objective.

The action of the German advanced force, in its defensive status, in falling back on its main body, was unassailable.

The tactics of both forces were of a high order, except that the lack of support of EVAN THOMAS, with particular reference to the period of the run north, appears inexcusable. At about 5 p.m. the situation was such that the co-ordination of the two portions of the British force would have certainly resulted disastrously to Hipper then turning north. Aggressiveness was obviously lacking at this stage of the fight.

(b) The German control of fire was excellent particularly in the early stages and before British shell found their target.

Except for somewhat better visibility conditions as a whole, it is not understood why no serious damage was inflicted on the German battle cruisers. The British could not have been entirely misled by the 'shorts' which were common and believed them to be hits, nor yet could they have been wholly 'thrown off' by the enemy's zig zags.

(c) At the outset of the main engagement, the British deployment away from the enemy netted no real loss to Jellicoe. The deployment on a center division would have been somewhat expeditious and would not have caused so great an extension of range. Despite Jellicoe's problem, however, in arriving is uncertainty as to the bearing of the enemy's battle line, it is submitted that an element of overcaution was here displayed. No decision in a fight can ever be gained by avoiding all chance of damage.

(d) The influence of the torpedo menace on the British Commander-in-Chief caused him to lose touch with the enemy when it was practically the last chance to push home an attack upon a slower enemy which would have been discovered in full retreat. Jellicoe had determined in advance to turn away from torpedo attack. Had he turned toward them, with his superior fleet, the danger of loss of ships would have been but little greater and there is every reason to suppose that a decisive victory would have been

gained for the British Empire. The historical American practice is to turn toward torpedoes.

(e) Admiral Scheer bluntly states that he has no explanation for driving headlong into the British line when contact was made. He turned away believing that he was copped so that his fleet would not be risked and did so in a manner which the British believed was incapable of accomplishment. In twenty minutes he had lost the range entirely and, finding that he was not followed, he turned again toward the enemy. Again he found the same situation and escaped in similar manner to the westward.

The initial error in the estimate of the German commander-in-chief was caused by an incorrect report from a cruiser that the British battle fleet was ahead of him instead of on his port bow. A change of course toward the southward would have cleared him and allowed the contact to continue with the Germans still operating on interior lines.

Nevertheless, at the final turnaway, Scheer had in fact accomplished his mission as expressed, - to seize every opportunity to attack in superior force. There appeared to be no further opportunity to do so after the Grand Fleet had formed line of battle.

The tactical engagement was indecisive - neither enemy was destroyed. The Grand Fleet though sufferingⁿ most damage still controlled the sea. The High Seas Fleet remained contained and again rendered impotent.

Commentators of Jutland have dwelt upon the arrival of Jellicoe on the scene of battle, that is, about five thirty p.m., with decreasing visibility and without definite knowledge of the enemy. He heard heavy firing to south and eastward but did not know whether the enemy battle cruisers with which his own were engaged were ahead or astern of the enemy main fleet. His force was at this time in a formation of division columns in line of bearing ninety and this formation was maintained until the moment of deployment at six

sixteen p.m.

In American practice the maintenance of such formation to the point of deployment would be a result only of accurate and continuous information as to the character and direction of the enemy's disposition. With us, contact scouting in order to obtain this information would be carried out by light forces. Before arrival on the scene, that is, before the main body is within striking distance this operation is strategic in nature and its object is to determine the composition, disposition, and movement of the enemy. This information, alone, makes possible the assumption of the tactical offensive. It is vital to a commander-in-chief that he has "reliable information of the bearing, distance, and course of the enemy at the earliest possible moment". Cruisers are the acceptable type for performing this duty. Jellieoe did not so employ his cruisers: he made no reconnaissance. He depended on Beatty for this essential information. What he received was not only intermittent but inaccurate.

Not having at hand the requisite knowledge of his enemy, should not Jellieoe have deployed earlier to a more flexible formation?

At six sixteen, there was little chance left for the receipt of further information available for opportune use. Moreover, the constantly decreasing visibility was adding to the difficulty.

From the outset Beatty was not tactically concentrated on the British main fleet. He was not even linked up to it. It is submitted that Jellieoe could not properly assume that no reconnaissance was enjoined upon himself.

Similarly, it would appear that the paramount duty of the second in command was to furnish information to his superior in certain, accurate, and continuous form.

The advanced forces of both sides had been engaged since three forty-eight p.m. The turn north by the British force

occurred at four forty-two; the Germans followed at four fifty. This was one hour and a half before Jellicoe began his deployment. At this time, then, more than at any other, every means at his command should have been used by Beatty in transmitting information to the commander-in-chief. In the tactics of the British forces certainly two defects are in evidence : in reconnaissance and in information.

In connection with the operations of the opposing forces at Jutland two other outstanding features obtained. On the part of the British, there appeared no factors of surprise or daring; to-wit, the arrival of the main fleet in cruising formation; a deployment entailing delay in engagement; a turnaway from torpedo menace; and the omission of all night attack. On the part of the Germans, the maneuvers throughout wherein greatest skill in execution was displayed were purely defensive in nature; to-wit, the use of smoke; the turnaway by simultaneous movement; and the massed attack with destroyers.

It is obvious that British strategy had undergone marked change since Trafalgar. British tactics certainly had. But tactics was influenced by strategy.

The British reasoning for Jutland appears about as follows:-

" The Grand Fleet controls the sea whether or not the High Seas Fleet is destroyed. Why, then, risk the loss of the Grand Fleet -and all that such loss may eventually entail with other Powers- in destroying the Germans when we do meet? "

Even if such were the thoughts of the British commander -if indeed they were- it is almost inconceivable that decisive action with the magnificent armament in his hand could have been resisted on that momentous day.

A spirited offensive, a forceful concentration, the will to win, and over all, the influence of the great Nelson: what a different tale to tell!

E. LATEST DEVELOPMENTS IN NAVAL TACTICS.

Jutland and the World War opened the doors to limitless possibilities to the development of future naval tactics.

Armaments were so powerful and the types employed by all belligerents so varied that the lessons to be learned from the tactical contacts of this war are most comprehensive. Engagements occurred on the surface, in the air, and under the sea in ways and with means never before used.

Among the developments which had their inception during the course of the World War and to which continued thought and investigation will be applied may be mentioned:-

1. In the Battle Line,

(a) Control of fire by divisions through use of one directoscope and the transmittal of visual range indications to other ships of the division.

The method simplifies and rectifies range-finding and standardizes the fire of divisions of the fleet.

(b) Spotting by use of kite balloons which greatly facilitates the establishment and determination of fire while increasing effective range.

(c) Maneuvering behind smoke screens laid by destroyers in gaining tactical position without being subjected to enemy fire. Soheer's example in his turns-away at Jutland is an excellent one.

(d) Maintenance of high fleet speed during action, an example of which was the battle cruiser fight at Jutland.

2. With destroyers:

(a) Salvo torpedo attack on enemy battle line in conjunction with attack of own main fleet. The descent of a flotilla of modern destroyers upon the van of an enemy battle fleet, in battle formation, already under concentrated gunfire from our own battle fleet is demoralizing.

The torpedo has now taken its place as an important weapon in the main engagement of fleets. The United States service with

its large number of destroyers - and tubes per destroyer - is particularly favored in this direction and even further development of the torpedo is assured.

Throughout all consideration of tactical development, there must be kept in mind, however, the fact that the gun remains the chief weapon of aggression. When, at Jutland, the Commander-in-Chief ceased his fire and turned away from torpedoes, his attitude became a defensive one and a decisive result could not be attained. The torpedo was overvalued with far-reaching effect on the outcome of the battle.

(b) Tactics of threat with object of turning the head of the enemy line have been effective elsewhere but will not find favorable response to such threat in the American practice. Turning away from torpedo menace or threat is costly in causing loss of range and disturbance of fire control.

(c) Bombing tactics of the anti-submarine screen will become general. It has been determined that the depth charge in barrage use was a determining factor in keeping down the submarine. Certainly it will dissuade from promiscuous exposure of periscopes and thus hamper attack against the battle line.

(d) Tactics of convoy employment in safeguarding troop and train ships in overseas transportation were perfected in the ATLANTIC during the past war.

The inclusion of cruiser types as escort was not a novelty except as to numbers engaged but the operations of destroyers in denying access of submarines to convoyed areas and the attack upon discovery were both new and efficient.

3. With submarines:

(a) The extensive and unlimited employment of submarines by the Central Powers in their warfare against commerce resulted in a most precarious maritime condition particularly in GREAT BRITAIN. So barbarous and wanton was the destruction of merchantmen and so serious was the effect of this new agency of commerce destroying, that its restriction was an important factor of the International

Conference of 1921.

(b) The employment of submarines offensively in conjunction with the main fleet will be further developed with the increasing speed of the submarine.

(c) Their use in search operations will similarly become firmly established. No other type for accurate observation of the enemy in his base or tracking when underway is comparable. The maintenance of position by hydrophone and the transmittal of information obtained has been practically demonstrated.

4. With Aircraft:

(a) The development of aircraft has gone on steadily since the war and the tactics of scouting, observation, and bombing by planes are in a fair way to become standardized. Great impetus in all naval establishments has been given this arm and much experimentation under service conditions made. Attacks in mass of airplanes of all classes - including the torpedo plane - will feature the next war.

The use of planes for spotting for the battle fleet defines a practical direction for gaining additional experience during gunnery exercises.

5. With Mine Layers:

(a) The tactics of concerted mine laying in formation throughout extensive areas were developed chiefly through the activities of the UNITED STATES Mine Force in the NORTH SEA where also were the tactics of sweeping placed on a definite basis through the operations of a new and practical type of mine sweeper.

(b) The tactics of sweeping in connection with fleet movements have also been established.

6. The use of radio telegraph and telephone in maneuvers and contacts of all types of craft is now essential.

The necessity of accurate information, rapidly transmitted before and during contact was accentuated throughout the war.

7. The lack of a doctrine of search was evidenced on several occasions. A marked incident was the entirely unexpected contact

of the advanced forces at Jutland.

In the United States Navy both the services of security and information have been given extended thought under the instigation of the Naval War College. It is inconceivable that scouting operations can wholly fail even under most exigent conditions.

The failure in North Sea activities generally in this important department of naval tactics will undoubtedly give impulse to further endeavor in the naval service generally.

F. SUMMARY OF TACTICAL PRINCIPLES.

In order to determine the tactical principles best adapted to modern warfare/^{by} an inquiry into the methods pursued by the great naval commanders of history in applying the art of coordinating combatant forces on the field of battle, the statement is confirmed that there is but one basic principle completely applicable to-day as in the past, that is

Superiority in strength at the point of contact.

This is attained only through

- (a) Superior professional skill in the handling of forces.
- (b) Maximum effectiveness in employment of weapons.

An equally powerful and valorous enemy is always pre-supposed. The victory which can be achieved only through bringing to bear against such a foe greater strength than is available to him, at that time and place, is dependant on the two foregoing factors and no others.

It is submitted that no matter what type of craft constituting a naval force has been employed or ever will be employed in battle, its efficient maneuver as a whole, and in individual unit, is an essential step. Having by this means attained a sound tactical position, the chances of success are further promoted by effectiveness of whether the weapon be on the surface, beneath or above it.

Summarized from previous consideration, professional skill embodies the ability to concentrate the factors of a force so

that all of these will contribute their share to the general attack while in supporting distance of each other. This can result from co-ordinated effort which in turn, is derived from indoctrinated understanding on the part of subordinates of the plan and purpose of the commander in the use of the factors of his force.

The reference of a major engagement is the battle fleet - that part of the whole force to which is assigned the principal units, the battleships.

With this in mind, the various means for attaining the required superiority may be condensed into the following expression:-

To bring the whole capital strength into a position where it can deliver, simultaneously, the full volume of effective fire against a portion of the enemy's battle line and destroy him in detail.

To accomplish this the battle fleet must be provided with information as to the disposition and course of the enemy; must be deployed in battle formation normal to the enemy's bearing; at the time of contact; must gain the initiative by assuming the offensive; must secure every controllable advantage of wind, gas, smoke, and light, consistent with good tactical position; must determine the range with expedition; and by a well-directed fire, must deliver a precise and determined attack in which every advantage gained is followed up with decision until the enemy is disintegrated.

The other units of a fleet are the auxiliary types, composed of the light forces - cruisers and destroyers - the air and submarine forces. These, in their indoctrinated activities before the battle is joined and their subsequent co-operation when the battle fleet is engaged, perform only functions that are contributory to the operations of the battle fleet and upon which the outcome depends.

These functions, nevertheless, are based also in the one

guiding principle of superiority. Similarly, the enemy's auxiliary forces are the object of attack only when in furtherance of the objective, - the destruction of the enemy's battle fleet.

Battles are won by fighting. In any encounter, however, the sequence is strike and parry. In the progress of the battle the defense may at times have to be taken; but this must be only in order to make a more aggressive offensive or in frustrating the offensive of an efficient enemy.

Nothing that history has shown has ever supplanted the blow, the offensive step of the sequence.

In a boxing contest between individuals, it is the 'knock-out' alone that can establish unquestioned and unassailable superiority.

In a sea-battle, it is the annihilation of the enemy's fleet that secures actual victory. Volumes upon volumes of memoirs, otherwise, are never convincing.

G. Doctrine of Employment of Types

The concerted official understanding of the employment of the various types of craft which now constitute a fleet, based on a proper conception of sound tactical methods and believed to accord with the requirements of unified and decisive action, is expressed as follows:-

1. Battleships are assigned to the main battle line and in the conduct of battle will operate in accordance with the tactical principle in all its outlined factors as stated in this paper. No other detail in regard to position, concentration, and attack, has to be noted here. The ability to carry out these prime considerations is dependent upon the professional skill of the commander.

It may be remarked that existing physical conditions may operate to prevent the application of the tactical principle and endanger the general plan. Fog and darkness, for instance,

introduce elements of such great chance and tend to destroy all systematic procedure, that it is rare that a major engagement will be deliberately planned for execution under these conditions. An engagement would be undertaken then only in order to prevent the enemy's escape from the field when the interposing a force between him and his base is impossible or when he is encountered in greatly inferior force or in decidedly disadvantageous position.

As applied to divided action, which is seldom undertaken, the tactical principle is still observed if, when a force divides its strength to meet a similar division on the part of the enemy, superiority is still maintained and continued concentration prevails. Fundamentally, no matter what the occasion of enforced division, tactical concentration of all units of the battle fleet must obtain.

As before stated the torpedo has become so important a weapon as to range and accuracy of fire that, ordinarily, the gun-fire range of the battle fleet must be outside the danger zone of the torpedo. To-day this implies a minimum range of 15000 yards in the battle line.

The principle of superiority can be preserved even in the pursuit of a retiring enemy the reference being the maintenance of effective gun range accepting the torpedo menace if necessary. In connection with pursuit, it is submitted that division columns in line of bearing offer the most orderly plan of pursuit combined with best chance of decisive results as opposed to the usual go-as-you-please chase former days where the enemy was wont to turn and demolish detached and unsupported units.

2. Initially the mission of the cruiser - every type - is to gain the information of the enemy which is essential to a Commander-in-Chief in his approach to the attack and to his deployment to a battle formation.

It has long been held that the type of cruiser best suited to this purpose is the battle cruiser because of its power and its mobility. The battle cruiser, however, is to find no place

in the United States Fleet in the near future. Perhaps the development, instead, will be toward faster battleships - the Hoods indicate that the types are merging. It is likely, moreover, that soon, this essential information will be obtained with aircraft. Certain it is, that if powerful, fast types of surface craft will continue to perform this function, they must be suitable for support of, or inclusion in, the battle line when contact is made.

All other cruiser types will, from a tactical consideration, operate to prevent attack on the battle fleet, and break up interference with its movement by enemy light forces. Consistent with the offensive characteristics of our fleet operations, this means that our cruisers will proceed to the attack of enemy cruisers and destroyers when the battle is joined. In addition they will act in support of our destroyers attacks against the enemy's line.

The stations in action of cruisers generally is ahead and astern of the battle fleet in extension of the formation, co-ordinating in movement therewith and continuing also by virtue of their outlying positions the transmission of information of enemy's movements throughout the engagement. The display of the initiative by commanders of light forces is given wide opportunity in the rôle with which they are charged.

3. The attack of the destroyer upon the enemy formation with torpedo salvo fire is portent of such results that the tactical disposition and handling of the destroyer force must be given prime consideration.

Herein is concerned co-ordination of effort, concentration of fire, and speed of maneuver, to effect the result that can be attained with this excellent type in conjunction with capital units. Initial position has much to do with efficient employment as well as readiness of formation for attack.

The value of the destroyer in smoke screen tactics by contributing to the safe maneuver of a battle fleet in action and the protection accorded the battle fleet in anti-submarine

tactics is unquestioned.

To facilitate their use, destroyers are placed in the van in position to attack the head of the enemy's line, and, as soon as possible, on the initial course on which it is intended to engage. In order to be prepared for countermarch, destroyers must be placed in the rear of the battle formation preferably in extension of the enemy's line of bearing.

Destroyers will attack enemy destroyers only of these latter operate to interfere with successful attack on the battle line.

4. Fleet submarines will operate to gain a position ahead of the enemy battle formation and to this end must know the general course upon which the action will be fought. All other types of submarines present with the battle fleet will be assigned to areas over which it will be attempted to draw the enemy, or through which he may pass.

If it is apparent that the enemy will retire, submarines will operate to cut off his retreat.

If it is indicated that we are to retire, submarines should be disposed on the flanks in position to attack the enemy battle fleet in its pursuit.

The general rule for submarines on contact of the main fleets is to gain position to attack without delay to maintain constant information between own units, and to exercise initiative in conformity with the general plan to the greatest possible extent.

5. As with all other types, aircraft of all classes will operate to contribute their maximum share to the success of the major engagement.

In such action, the attacks of aircraft against planes or auxiliary surface craft must be incidental to the attack of capital ships.

The air force of the battle fleet will serve to furnish information before and after deployment, to assist in the control of fire, as well as to attack the enemy battle line.

Primarily, he must inspire confidence. To this end, there must be established his own ability, decisiveness, boldness, and willingness to take responsibility, and all the other attributes of military character. These include, also, the recognition of similar qualities in the subordinate.

Such a leader can instil into every man of his command the will-to-win which is often referred to in history as an inherent factor of successful achievement and without which, though all material factor be present, the waging of battle is futile.

"The final determining factor in every undertaking great or small is the spirit of the personnel. The will-to-win guided by a clear conception of right and truth is paramount."

Our men have never in the navy's history been called upon to uphold wrong. Our cause is always just.

The commander of a fleet who has the fighting spirit can transmit that spirit to his followers. If he does not possess it, they cannot possess it.

Such a fleet going forth to meet the enemy will lack "Confidence in the justice and ultimate success of our arms". When it deploys for battle it will have already suffered defeat before even the ranging salvo is fired.

