

Class of 1923

Thesis

TACTICS

Submitted by

CAPTAIN T.C. HART, U.S.N.

Room E-12

Naval War College

Newport, R. I.

28 April, 1923

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PART I

TACTICAL PRINCIPLES; BATTLE PLANS.

I. FUNDAMENTAL TACTICAL PRINCIPLES.

Object of Battle:-

In the earlier days of the human race, groups or bodies of men settled their differences by combat without prevision or plan, which naturally became fortuitous mêlées. As the race progressed, there came the development of some sort of organization of the forces with which to fight. If one side was deprived of this organized force it became powerless, in the main, against the other which possessed it. In consequence, the object of battle became and is:-

To destroy the enemy's organized forces. For such objective employment of force, under any circumstances, the enemy's force can be separated into three factors:-

Material Force - the numerical or material factor; men, weapons, units; concrete objects for destruction, i.e. for elimination.

Moral Force - the human factor; heroism, resistance to fear, pugnacity, will to win, psychologic endurance; abstract object for destruction.

Organic Force - the cohesion and cooperative habit between units and groups, the channels for the directive function; without which there is no organized force; indirect objects for destruction.

A weakness or impairment in any of the three factors means weakness in the whole - the organized force. While it has seemed advisable to thus analyze force it must be kept in mind that, particularly in sea battles, a blow - any blow - may be simultaneously destructive of all three factors of it. But, in any battle, destruction tends to closely follow a sequence:-

- a. Partial destructions in material forces, accompanied by or entailing, -
- b. Disorganization or demoralization, or both, closely followed by, -
- c. An avalanche of destruction of all kinds, - failing which the battle is indecisive and may be fruitless.

- - - - -

Now to focus down to Battles at Sea:-

The objective is clearly the same, - to destroy the enemy's organized sea forces.

But it is needful to recognize that a certain difference over land fighting has existed, and still exists though tending to lessen. In armies, the man is both material and personnel - is the instrument of combat; at sea, the instrument is the ship. Sea forces can develop, per man included therein, far more power than can land forces. Putting it another way, no nations use in the full development of their power on the sea any where near as great numbers of men as in the similar employment of their land power.

That truth shows in an adverse tendency during peace to reckon sea power in terms of ships alone and not to give adequate attention to personnel. We properly combat that tendency but must not become blind to the truth that in sea forces the weapon, the inanimate material, is of considerably more relative importance than in armies.

Basic Formulation of Principles.

Wars being no longer continuous, the modern normal condition is that no one has war experience and we use that of others - we search history. Several men adequate to the task have done so and written their results for us. They deduce the principles of war and when they restrict to broad lines they are severally in agreement. Knowing those principles and enunciating them is an easy task for many men. It is in the application of principles that the difficulties lie - and wherein the dozen or so of really great leaders have excelled all others. They have frequently succeeded by entirely new applications - have thus surprised. Able to estimate the attendant conditions better than others, they have often subordinated theory and rules to the needs of the

moment and have even discarded them. In so doing, those leaders have seemed to disregard principles. But in all cases having that appearance it has rarely, if at all, been violation of fundamental principle but rather new application which surprised by diverging from the stereotyped methods that inferior men had come to regard as thoroughly established principles. In that same way will the "great" leader of the future surprise his enemy.

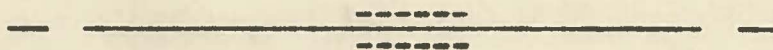
Mahan writes that while the old wars are valuable mainly for the student of strategy, the fundamental principles of tactics are also found therein; that the latter do not change but that their application does. It is historically correct that changes have followed changes in the weapons rather than the latter's following the advance of tactical ideas. The gun - though frequently disputed as such - has been the real primary weapon of ships for some centuries. That portion of the period most prolific in grand sea battles is the century preceding Trafalgar, - the sailing ship-of-the-line era. In that battle Nelson, while following a fundamental tactical principle, ventured a new application which perhaps did not surprise Villeneuve himself but did win decisively in an engagement between very large forces. It upset tactical ideas and methods which had nearly universally been held for a long time before. Now wherein were they erroneous? It is now seen that they were wrong at least in the conception of naval battle. The desirability of conserving ships loomed too large and, though other causes participated, it is apparent that considerations of pure defense were held too important and in a false aspect.

All combat is offense or defense. Von Clausewitz believed "the defense to be the stronger form of war". On land it sometimes is; - an army sheltered by natural obstacles in

a position which its enemy must attack in furtherance of his ends, etc. But it is different at sea where for surface ships at least, there is no real protection except in the armor carried on the sides. Manifestly, a defense at sea can at best retain - it cannot gain anything. However, the adherence at all costs to the strict line-ahead formation was due to requiring always the same kind and degree of support between adjacent units and most participants inclined to think of defending themselves rather than of attacking.

Concurrent with the defensive idea, was held as of supreme importance what might be called that of "gunnery tactics"; meaning thereby methods of gaining, here and there, minor advantages - hoping that in the aggregate the fire effect would be sufficient to win or, better perhaps, not lose. That was "making the results of battles depend upon small tricks." (Baudry)

Now has not the evolution of the last generation or so been too much based upon tactical ideas wherein dissymmetry of position is to be avoided as defensively wrong, while seeking decisive victory mainly through various minor superiorities in "gunnery tactics" - of large ships? If the criterion be the relative expenditure of thought and energy, such would seem to be the situation - perhaps in all Navies. Unless this be untrue, it is conceivable that some future Nelson will win his war by some seemingly new application, - some unexpected way of suddenly slamming in with a mass of force of some variety or other.



The object of battle being to destroy, before -(in order to prevent)- the destruction by the enemy of one's own organized sea forces, presupposes a superiority of destructive power - of some sort. Such superiority means force at the

point where it is operable; not superiority of all the force possessed, though the aim must be at least a readiness to apply all of it. Refining down then, the principle underlying all is, as commonly stated:-

"Superiority at the point of contact".

Now in modern Fleets there are various types - all embodying power, force. Adherence to our main principle in the ideal, and the ideal should be our aim, necessitates the full and, in effect, the simultaneous development of the power of all the types - at the right place. That spells their co-ordination - wherein lies the art of tactics. In more elaborately defining the underlying principle, a War College publication formulates about as follows:-

The Fundamental Tactical Principle of Fleets:-

"Is to bring a superior force to bear simultaneously, with full effect and with despatch, upon a portion of the enemy fleet which is unable for the time being to be so effectively supported by the remainder as to be equal or superior to the attacking force".

That seems to exactly express Nelson's final tactical idea both as he conceived and executed. It still holds and fundamentally we can indeed go no farther. It is the tactical idea in the ideal.

However, Nelson's fleet was simple - the Battleship only was engaged. In the future, other combatant types included in Fleets are highly important. They have not come into being because tactical ideas demanded them; but they are here and tactical ideas must follow and develop their potentialities. Moreover, there are other things of quite general application to be appended to the fundamental principle. Therefore it is well to attempt to work out for our guidance, in reducing the fundamental principle to practice, certain corollaries thereto which, rather than principles, are rules or theorems for applications of principle.

Of Universal Application,-

are the following:-

(a) The Spirit of the Offensive is essential to success.

The defensive wins nothing and is the proper attitude only if it can result in more favorable conditions for a future offense. A force with the fighting spirit and the will to win usually has the high morale without which there is not strength. Furthermore, the enormous advantage of surprise, through doing the unexpected or by sudden rapid maneuver, is practically attainable only when acting upon pure offensive.

(b) There must be Battle Plan, Indoctrination and Initiative for Subordinates' Actions.

That is really an expression of command principles which must pervade all, not only the tactical field. The Battle Plan will naturally take into account all factors - favorable or otherwise - as based on available information. A plan that attempts to cover all possible contingencies will probably prove worse than no plan. But it must show unmistakably what the leader seeks to do - and should be so drawn as to be flexible as to method.

The late developments in communication material tend to permit closer control by the Commander than was the case ten years ago. Possibly, such personal control over all units of a large fleet can be exercised-as far as communicating is concerned. But vision is still limited and from a ship no one eye can hope to hold the picture of a modern fleet battle as a whole - complete and correct. Indoctrination of subordinates in the Battle Plan and in the leader's intentions and tactical ideas is essential to success. Marching along with thorough indoctrination is initiative of subordinates, in correct latitude, without which there may be no energetic display of the offensive spirit, instant seizing

of openings and proper action in contingencies unforeseen.

(c) Gaining an Initial Advantage is highly Important.

The M-square law shows the material effect. Of even greater value is the effect on enemy morale and obtaining the initiative by an early success often wins by itself. Conversely, if the plan concedes an initial advantage to the enemy, the adverse effect on own forces must be minimized - to do which it is best that no surprise be entailed. A phenomenon confined to sea-fights is the very brief time in which one side obtains the upper hand. That feature must be an uppermost one in the leader's mind.

(d) The Choice of Place is important to results.

Strategic considerations must largely govern and, with respect to proximity of fortified harbors, the decisiveness of battle is thereby largely influenced. In the strictly tactical field, advantage can be gained or lost through presence of land or shoal water. It may not be possible to gain thereby but the leader should at least so arrange that his forces do not lose.

(e) The Choice of Time of Day is likewise important.

The factor affected is visibility - which has a momentous influence on minor as well as on major tactics. The criterion is the relative effect on own and enemy forces. If superior on all counts, early forenoon action should be sought in order that good visibility may permit the development and coordination of all types and that it continue long enough for decisive results. On the other hand:- suppose, for instance, enemy to be the stronger in types needing good visibility and the weaker in others:- clearly, it might be correct to join battle with him just before dark. General engagement in darkness or in fog, however, enormously increases the value of the luck or chance factor. Therein - a

night battle, perhaps a mêlée - may lie the only hope of a weaker force. Strategic considerations also may justify or require engaging while more or less blind-fold. Tactical dispositions, rules and ideas must contemplate the requirement, and be ready.

(f) In so far as controllable, battle should be joined with weather conditions favorable to own forces.

The possibly all-important weather factor must be differentiated with those involving time and place for the engagement. The respects in which weather may favor own or enemy forces in battle have to do with visibility, wind and sea:-

It is sometimes the case that visibility is better in one direction than in its opposite because of atmospheric conditions alone; more frequently so, because of the direction of a low sun. These phenomena resulted in very considerable handicaps to one side in two battles of the World War. Whatever effect is thus entailed may be increased or be diminished by the funnel smoke and gun gases from the engaged ships. In this respect - and only in this one, as will be shown - the lee position is the better. It is to be noted that natural atmospheric conditions or direction of light may rapidly change and cannot be counted upon. Moreover, aids to vision are developed which tend to cope with anything unfavorable. And, in evaluating the effect of smoke and gas, it is to be remembered that modern gunnery installations have reduced the number of individuals who need to see clearly. Also, under this visibility heading should be mentioned smoke-screen effect. It is at once apparent that though the windward position is more likely to be worst, considering only other visibility factors, it is the only position which favors smoke-screen tactics.

The direction of wind and sea are of greatest importance to air-craft, light surface forces and - to a less extent -

submarines. On these counts the windward position highly favors both offense and defense. Also, such favor exists throughout the day and night and can be counted upon in its absolute value. Upon the whole, it would seem that the windward position is so likely to be the best that engaging from it may almost be accounted as a tactical principle.

(g) Information of the Enemy needs be Early and Continuous.

Presumably, operations in the strategic field will have afforded considerable information of the enemy. As the situation nears the tactical field, the Commander requires early information of position, course, speed and disposition of enemy Fleet in order that his movements and disposition may gain for own forces such advantages in time, place and weather conditions as are controllable.

The information thus needs be early and it also must be continuous. Otherwise, the full value of the offensive cannot develop, there is slight chance of gaining advantage through surprise, - and every chance of being surprised.

(h) The Initial Disposition of Forces must insure readiness to meet the requirements of the fundamental tactical principle.

Nelson ordered - "the cruising order will be the order of battle". He meant the disposition to be such as would require a minimum of maneuvering and station changing between contact and engagement. It is hard to see why there should have been any other disposition - but as an axiom it has often been unobserved, and still is.

It is essential that formations be the means, not the end; geometric systems of tactics must be only the means.

Co-ordinated attack really implies no reserves. But, while wide dispersals are unwise, forces should not be bound to each other - rigidly and in a particular relation, each

to each; they support each other if simultaneously engaged. The important thing is position, with respect to the enemy - not their particular arrangement. And, flexibility in maneuver must accrue; to that end, group formation and command must obtain.

(i) Approach maneuvers should be sudden, rapid and surprising.

During the approach, the direction of deployment and of the battleline should be made known to or be clearly apparent to own forces - and be very uncertain in the mind of the enemy. Initiative needs not only be seized but be retained. To this end, deployment should be as late as can be; and following that tenet reduces the chances of an effective surprise by an enemy maneuver.

(j) Maneuvering while engaged should be a minimum.

Having gained all controllable advantages and turned loose the fight, the leader had best simply let it go on to a decision. Should the result be tending toward own defeat, the leader must act to prevent the reverse from becoming a decisive one - his forces will incline, if their morale be right, to fight too long; the leader must initiate the retirement and do it in time. If his force is successful the leader next needs to act to insure a proper following up of the victory.

(k) A victory must be followed up at once and with all remaining power.

Real decisiveness of victory is gained only by the destruction during pursuit. History records many indecisive results through failure to observe this requirement and often when the defeated side had but little power of resistance remaining. It is quite likely that a modern fleet may attempt withdrawal while a considerable part of its destructive power remains; also, smoke screens, torpedoes and mines are some-

what favored by retiring tactics. Therefore, the follow-up also requires forethought, something of an indoctrinated plan and skill in its execution. It is to be remembered that a stern chase is still a long chase; the follow-up will consume time - probably more time than the approach and battle. In one respect leadership is made easier - there will be more time for thought and decisions.

As Applying to Capital Ships,-

are the following general rules:-

- (1) Keep own line of bearing normal to center of enemy line. Units are free to maneuver to dodge torpedoes. Avoid cap by faster enemy by turning away. Use speed superiority to gain favorable position of fleet or of detachments.

These rules are too axiomatic to need discussion. But as regards a fast detachment, - its superior speed should be used initially to upset the plans of enemy light forces and to forward those of own light craft. In such operations conflict with similar enemy force is to be expected and accepted, but without coming under fire of enemy's line unless thoroughly supported by own line.

As Applying to Light Surface Forces;-

the principal weapon being the torpedoes of Destroyers, there is the following:-

- (m) The objective is to destroy enemy large ships and to protect own from similar damage.

The Cruisers are for assisting the attack of own destroyers and to defeat such attempt by the enemy; that is, cruiser tactics are subordinate to those of Destroyers. Gun engagements between light forces will naturally ensue but should not be accepted solely to destroy enemy light forces. The primary objective being the large enemy ships, light forces should engage enemy's similar forces only when a necessary prelude to reaching the large ships - or when essential to protect their own.

(n) The most favorable initial disposition is at the van of the battle line.

When certain that, from strategical or other considerations, he can impose his own battle plan upon the enemy, the Commander may well dispose all cruisers and destroyers ahead of his main line. When entirely in doubt as to the direction of deployment, the light forces must be equally divided between the two flanks. There is a range between the two extremes and on probability that the initiative can be retained, it is a good rule to dispose two-thirds in the probable van.

(o) Torpedo Attack must be pressed well home.

Large ships capable of maneuver can usually avoid torpedoes seen fired at long range, from one direction; if attacked from two or more points and the torpedoes arrive at about the same time, it is not so easy. However, such is exceptional and doubtful. Unless the launch is from within half torpedo range, about the best that can be gained is a maneuver forced upon the enemy.

(p) The Supported Attack is the most valuable.

And only it follows strictly the fundamental principle of co-ordination. Destroyer attack made when major forces have engaged should at the least force a maneuver unfavorable to the enemy. Moreover, during high visibility, only supported attack is likely to result otherwise than disastrously to the attacker.

(q) Unsupported attack is profitable only at night or during low visibility.

It is questionable if, except under eminently favorable circumstances, destroyer attack is advisable before the Fleet Battle. If successful, it may result in the initial advantage but when in considerable doubt of the result it is best to withhold. Unsupported attack during low visibility after

the main engagement is a proper "follow-up" measure for all light forces remaining fit for it.

- (r) As a part of disengagement tactics unsupported attacks should economize forces.

Such attack must be successful in its purpose of retrieving a situation, under the continuance of which the battle will be lost, - even at great sacrifice of Destroyers. However, the object temporarily is economy of force and an attack which cannot achieve concrete results should not be driven in with all force when only a part or even a threat, a smoke-screen, etc., will obtain the end sought.

- (s) Smoke screens should be used freely for unsupported attack but in supported attack must not embarrass own line.

At the worst, assisting unsupported attack with smoke can only get in the way of own light forces - there are no others to be hindered. During the main battle, smoke between the lines can seriously hamper own line - though it is also possible to employ it to put a part of enemy line out of action. Under such circumstances screens should be laid only under wise discretion and with forethought as to the effect some time in the future.

- (t) Destroyers which have exhausted torpedoes assume the defensive stations and duties.

These duties include defensive screening and readiness to counter enemy attacking light forces. In the beginning, such duties are assigned to destroyers which are probably also fit to attack. When thus relieved, they may be used for sustaining the attack on enemy's line.

Note:- Any principles concerning tactical mines would be properly placed at this point; I have no ideas or convictions sufficiently crystallized for inclusion herein. My impression is that the best use of fast mine layers is in the strategical field. Tactically, co-ordinating this weapon seems most difficult and failure therein may be more menacing to own forces than to the enemy's. Seeing no way to overcome that, would have to

confine offensive use of fast mine-layers to periods before and after the main battle; during it, would use them in the defensive rôle, for screening, etc.

As Applying to Submarines:-

the following is to be observed:-

- (u) Submarines will attack on all opportunities, their co-ordination being impracticable.

Fleets are likely to use full fleet speeds for considerable periods during approach and deployment. There are a few Submarines, built or building, in which other characteristics are largely sacrificed, that can hold such fleet speeds during goodweather. But the vast majority cannot and it is unlikely that any considerable number which can will be in service for a long time. Submarines are becoming faster but 17 knots is still a high figure. It should therefore be apparent that the principle of tying Submarines in positions with reference to own forces is likely to reduce the chances of their gaining favorable positions with respect to the enemy. And in connection therewith, it is to be remembered that submerged full speed and corresponding radius are too low to, of itself, greatly improve the relative positions after diving. For these reasons, co-ordination of attack is difficult; it remains to be inquired if the value of attack made simultaneously with other types is sufficiently greater to justify attempting to overcome the difficulties therein, up to the point of practicability.

The value of a highly destructive blow compressed within a few minutes is well known; obtaining an initial advantage is also highly favorable. It is questionable if a few torpedo hits from submarines after the main battle begins are as valuable as if they were delivered during the maneuver stage. Then, on this score, there seems insufficient reason for assuming the difficulties and uncertainties of

co-ordination, - particularly if such will decrease the total destruction accomplished.

One important reason for co-ordination in attack - of general application - is a defensive one:- mutual support is a defensive necessity for surface ships. But the submarine's defense lies in concealment and is not aided by support of own forces - of any type. Therefore this - ordinarily basic - necessity for co-ordination does not exist. There is a qualifying circumstance applying to that pronouncement, - a minor one, but deserving statement:-

It is most unlikely that a properly handled submarine maneuvering within an enemy formation will be seen. And it is claimed to be equally unlikely that in the bedlam of under-water noises made by such a body of surface ships, any hydrophone service will succeed; the hydrophone aids the submarine more than it does anything else. At the instant of actual attack - assuming the desirable close attack and in the presence of a thick screen - the condition changes. Due to the required periscope exposure and particularly to the "splash" of the impulse charges, commotion caused by the torpedoes, etc., there is then something to see. And though probably too late to save the target ships, the attacking Submarine is likely to be seen and to suffer from the counter-measures. If the attack be "co-ordinated" and occur during the main engagement, the defensive screening measures are likely to be much less effective than during the approach, for instance, when all material is in order and personnel at its best. For this reason, submarine attack during the main engagement would be best. But it is held to be only for this reason - which is insufficient to justify undertaking the difficulties and assuming the uncertainties of co-ordination.

(v) Submarines should be initially disposed in dispersed positions well advanced toward enemy.

For their strictly offensive purposes, Submarines are interested in the positions and movements of own Fleet only in the influence upon those of the enemy. Their approach maneuvers are solely for gaining positions favorable for attack; that is, their positions with respect to the enemy only is important.

When conditions are such that there is no assurance that direction and proximity of the enemy's forces are even approximately known, a type of formation having screens in concentric rings has found favor. Submarines are very suitable for the outer ring and can be kept as far out as the "linking-up" will serve. Defensively, this variety of formation is most promising. Offensively, it must result in many of the Submarines, probably half, being left out of the action—unless there be a retirement. It is, however, entirely suitable from the submarine standpoint, when there is dearth of information.

But it is to be expected as a normal condition that the strategic scouting will have made known the enemy's general locality. In such case, all submarines should be well out and none abaft the beam of the main body. Any that are thus disposed will be left out of the picture, if our Fleet acts to force an action. In fact our unusually slow submarines should be disposed well forward of the beam. The degree of dispersal proper depends upon the state of development of Submarine minor tactics, involving collective action submerged, and upon the size of the limiting area of positions favorable for attack. At present development, submarines cannot be handled in mass while diving without loss of unit effectiveness. And its unlikely that the enemy's movements can be so closely defined

that one small area is bound to be a favorable position. Consequently, a fairly wide initial dispersal is to be sought.

It is axiomatic that, in order to gain the surprise in which lies their potentiality, submarines must not be seen by the enemy. If properly handled they will not be sighted by his surface ships; they might be seen by his submarines but their main danger lies in air observation. Only planes have the advantage in visibility over submarines on the surface and even they lose it if the submarines are diving. Irrespective of the possible presence of planes, there is a war routine of proved efficacy under which Submarines dive before daybreak - in order not to be surprised by surface craft during the period of tricky visibility. It is quite likely that this time, day break, is just when air scouting will be thickest and that submarines must remain submerged for a time to avoid discovery from the air. Therein lies the possibility that the Admiral in order to make early use of the destructive powers of his Submarine Flotilla can and will conduct the other forces with regard to the Submarines' daylight positions - as the "pivot of maneuver". If not advantageous to do so, the Submarines can risk discovery and seek new positions.

We have deduced the general necessity for early and continuous information. Its importance to Submarines maneuvering to attack is of the highest. After proper initial disposition, only a flow of full information remains essential to developing the power of the Submarine Flotilla. Such information should include current and prospective movements of own Fleet and the Admiral's intentions - as well as all that is known of the enemy. Submarines can receive radio while diving as well as on the surface but transmission to them needs be assured by special detail if necessary.

The most practicable tactical unit now is three submarines. The unit commanders must estimate the situation from what is heard, and the little seen, and strive to get their sections in for close attack whenever possible. Failing that, there remains the usual "browning" torpedo tactics of Destroyers. There may be interference between units but that chance must be accepted; study, indoctrination and continued association of these unit commanders will reduce the probability but will not insure against mutual interference. It may be held that such method violates the principle of "unity of command". It probably does more than is the case in other operations based on doctrine; but the units cannot see each other and whatever departure there is must likewise be accepted. The minor tactics of Submarines demand higher efficiency on the part of leaders than in any other type. Not because the job is so very difficult but because no subordinate can see and have sufficient knowledge of the whole situation to be of much help to the Captain in his own work. Therefore he must play a lone hand and must be efficient if the boat is to be. It is conceivable that a surface ship with a mediocre captain can be efficient - its happened. Not so with Submarines; therefore if the Submarine Flotilla is a fit war instrument, its unit leaders can be expected to meet the unusual demands of the principles explained herein.

As Applying to Aircraft -

there is the following:-

- (x) The function of air craft is obtaining information and denying it to the enemy from similar agencies.

No fleet unless very superior is likely to engage in the presence of large numbers of enemy shore-based planes. Our main consideration then lies in air forces afloat - notably those in plane-carriers. Development in that type is not enough advanced for final data but the indications are that

a carrier of capital-ship size can, if her complement contains no other variety, carry about fifty planes which are in themselves potentially destructive; i.e. torpedo planes or bombers. Now the average destructive effect of those fifty planes, on any one day, cannot be claimed to be higher than 150 gun-projectiles of highest caliber. And the probability of actually hitting the enemy does not, - in so far as is possible to compare under the divergent conditions, - seem greater for the plane-ship than for a gun-ship. The latter, however, a battle-ship of the same size, would have about 1000 projectiles. The only superiority of the plane-ship - in this attempted comparison between potential destructive powers - seems to be in the greater range of its projectiles; say 200 miles as against 15. In spite of that superiority, it does not seem that the possibility in direct air attack makes it a profitable appropriation of capital ship tonnage; therefore submit that information service is the proper purpose of air-craft carried afloat.

The radius, speed and advantage in vision makes of air-craft a scouting agency of the highest value. The out-and-in radius covers several hours' steaming of fleets toward each other; the very high speed insures quick results - positive or negative; lastly, the viewpoint gives possibilities of accurate information of composition and disposition of the enemy fleet which can scarcely be gained by any ship observers. It would seem that, in favorable weather, air-craft are the best possible means of tactical scouting; that, if successful nothing else is needed and that such success is well worth a considerable sacrifice in other types.

The same advantages in vision also make air-craft the best means of "spotting" own gun-fire. Under favorable weather conditions, the initial advantage is possible by thus

controlling gun-fire at long range, - assuming that similar observation is denied the enemy.

It is most likely that both sides will strive and contend for this observing and transmitting of information from the air. In consequence, there will be fighting between the planes from each side for control of the air. (It would therefore seem that the ideal aircraft for ship use would be an all-purpose type able to observe and transmit information and to defeat enemy planes.)

(y) Plane Carriers should be disposed near the Main Body.

As a type, these vessels have only low powers of direct offense and are highly vulnerable. They must be protected by other types - which is best accomplished by the main body. There are carriers of such high speed as to derive protection from that alone. Speed seems most valuable for use in strategic air scouting. During the tactical scouting phase, high speed in carriers enables them to take advanced or outlying positions - if such will facilitate the operations of the planes. (Otherwise it would seem that fleet speed is sufficient for carriers.)

II. BATTLE PLANS.

a. In War with RED.

The scene of the conflict is assumed to be the Western Atlantic which both sides seek to control through decisive defeat of the opposing Fleet. Both Fleets are based in the disputed area and the grand strategic necessities of the one cannot be foreseen as greater than the other's, - though BLUE's ability to recover from damage is undoubtedly the greater. Thus while the attitude of both sides is in all respects offensive, it cannot be assumed that either Fleet

will of own volition join for decisive battle unless favored by what is thought a sufficiency of the "controllable advantages". Therefore, both Fleets require some tactical weapon with which to force the other into engagement. Such may be done only by a superiority in Fleet speed or by interposing in force in a position which must be passed by the other;- This latter is really a strategic matter and in any case beyond the present scope.

In speed, RED is equal or superior in all types except the Light Cruiser class in which BLUE has the speed guage but is, as we shall see, much weaker in fighting power. RED's fleet speed is one knot higher than BLUE's; this advantage is accentuated by two knots additional speed in five BBs and by four knots in five others - besides which there are four CCs that are still faster, by five knots. As the two Fleets stand in the beginning, RED's speed gives the tactical initiative which can be employed in maneuvering for positions of advantage and to force or decline action.

Strength Comparisons:-- Air superiority cannot for some distance in the future be foreseen for either side and for our present purposes the two forces will be considered as equal. (That assumption greatly favors BLUE for the present moment, at which RED only has Fleet Carriers available.)

In Capital Ships, RED has a superiority of about 4 to 3, - in a comparison based on War College rules and data. The RED CCs are counted therein and, it needs be also noted, their dual rôle must be somewhere evaluated:- Employed as cruisers up to the opening of the main engagement they may, while only slightly compromising their potentialities therein, seriously damage opposed light forces unless the latter renounce the freedom of action which they might otherwise enjoy.

In Cruisers, RED's superiority is very great, if all on

the list be counted, and on any reasonable estimate of numbers present with the Fleets, the comparison cannot be more favorable to BLUE than 2 to 1. As noted, use of CC's as cruisers will enhance the RED superiority.

In Destroyers, the total numbers are 205 RED to 303 BLUE; speeds are about equal, RED individually better with guns; BLUE disposing more torpedoes. All requirements briefly considered, a BLUE superiority of 2 to 1 can be safely estimated. In view of the enormous number of Destroyers, they are a heavy factor in the total power of either Fleet.

In Submarines, RED can probably not have available more than 40 SS, the individual qualities of which are very good. BLUE's Submarines are not so good but it is proper to estimate that a total of 80 can be effectively employed. RED should be the weaker in anti-submarine craft. Counting that factor, at a high value, as an offset to the defects of BLUE's submarines and considering numbers probably effective, a 2 to 1 superiority will be assumed for BLUE.

In Tactical Mining, there should be no great difference, in the possibilities, if it is considered that Cruisers will really carry that weapon. For that reason and because there is expressed herein no clear ideas as to their proper use, equality of strength and of effect will be assumed and further consideration of tactical mines omitted.

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The foregoing comparison is sufficient to show where the advantages lie, - in the various factors of basic strength. It is conceivable that BLUE could be so favored by "controllable advantages" as to win a line-to-line gun engagement. That could be only by taking all, or nearly all, the small tricks that lie in gunnery tactics and in view of RED's initial speed superiority such an outcome seems too improbable for a promising basis of a Battle Plan.

The only basic superiority of BLUE lies in the agencies for underwater attack, - Destroyers and Submarines. Their effective utilization then must be the foundation of the BLUE Plan. The time for their effect can be either such as inclines to an initial advantage or as an over-powering blow during the Line engagement, - or both. We have seen that it is difficult to co-ordinate the Submarines for simultaneous attack and that a promising time for them is the Approach Phase. The further advantage of thus timing the Submarine attack lies in the reduction of RED's Fleet speed, by torpedo hits distributed along his Battle Line, to the point of gaining the speed guage for BLUE, - and the passing of all advantage that lies therein.

As for the Destroyers; their attack needs support. Their time then can be only when the Lines engage. They distinctly need the windward position - which BLUE can be sure of retaining only if the Submarines succeed in gaining the initial advantage. Furthermore, the Destroyer Attack Squadrons, to insure being ready for their real function, should be held under the close support of their own Line during approach and deployment. Otherwise, there is too great risk of their incapacitation by RED Cruisers during those phases. The above is sufficient to establish the salient points of a BLUE Battle Plan:-

- a. To gain an initial advantage by early Submarine attack distributed along RED Battle Line with primary object of reducing Fleet Speed.
- b. To gain and hold the windward position while retaining powerful Destroyer forces, for attack, under close support of the Battle Line.
- c. To engage the Enemy Line with Capital Ships and drive home supported Destroyer Attacks in heavy force.
- d. To employ Cruiser, Air and other Forces in preparation for and support of the offensive operations thus planned.

The decisive engagement which we plan for will have an early result in one Fleet's getting the upper hand; whereupon the other will attempt to withdraw. What then happens also needs be planned - failure therein is in some measure to blame for the indecisive sea-battles of history. Although we anticipate victory and regard the "follow-up" as the important thing, it is not renouncing the Spirit of the Offensive to give thought to our procedure if defeat does approach. Such consideration may apply somewhere in our plans for the other contingency; therefore we will pass to it first.

If we are obliged to retire, RED's fleet speed will probably be superior and enable his line to keep touch - at least until dark. BLUE should have a considerable Destroyer force remaining; their menace is most dangerous to a pursuit if the retirement be to windward, which position also permits the direct protection of smoke screens. Here again is the windward position of great advantage and, having it, retirement should be to windward. If fast mine layers are present and have been reserved, they can be most effective in detaching their own line from the enemy's. Another deterrent to pursuit would be Submarines in the pursuer's path. If, after they have done what they may in attacking the enemy line, Submarines take up positions to cover a retirement of own Fleet they might thus serve. But in view of their low speed, they will quite likely not be in positions such that the retirement could also be to windward. In view of that and also because there seems to be a better employment, it seems best not to count on Submarines to protect a retirement but to rely upon the possibilities of cover and defence by light surface forces, while going to windward.

In following up a victory over RED Fleet there is, in addition to the usual difficulties attending the pursuer's

task, the possibility that several of the fast capital ships will have retained their speed and will get clean away. If so, the very fact that they will be faster than any of BLUE capital ships will mean an ever-present menace to BLUE's exercise of sea command, unless they are closely blockaded - and that has become quite impracticable. They must be stopped if possible and here again there seems no possibility in success except through the torpedo-armed vessels. Destroyers can be expected to overhaul such fast ships and, though the support of own large ships would not be likely, may bring them to bay if their retirement is to leeward. The remaining type is the Submarine; in so far as their speed permits they are able, after the battle passes and nothing is to be gained by continued diving, to take up positions to cut off an enemy retirement.

As for the major forces, there is a preponderant danger in direct stem to stern chase; a general quarter position with respect to the enemy seems the more favorable. If it be gained by first bending to leeward the head of the enemy line, the effect will tend to prevent him from breaking to windward unless he approaches the possible position of the submarines. As far as they are concerned such is the best tactic; failing in that, there remains the strategic device of an intercepting position for submarines in the proximity of RED's Base.

To summarize, we will express the Plan for the "Follow-up", in outline, as:-

- (e) To force the enemy to leeward and in direction of own Submarines then in positions as favorable as attainable; also to attack with Destroyers, supported or otherwise; primary objectives in pursuit are the fastest capital ships.

Similarly, planning for forced retreat of own Fleet:-

- (f) To retire to windward and frustrate enemy's tactics in pursuit by smoke screens and counter-attack, or

threat thereof, by own light surface forces.

The MISSIONS, (and Doctrines) of Subdivisions.

1. Of Air Force. To gain control of the air and exercise it for Observation and Information service and to prevent similar service or direct air attack by the enemy.
2. Of Submarines. To gain an initial advantage by early and sustained attack distributed along enemy battle line; then to cut off a retreat by attacking the fastest remaining capital ships.
3. Of Destroyers. Attack Squadrons to remain covered by own Line until it engages then to make supported attack in power and continuity such as to insure defeat of enemy's Line. Following up such defeat by stopping enemy's fastest remaining Line ships, through torpedo attack, supported or otherwise.

To defensively screen own Line and assist in protectively screening it but Attack Squadrons to engage enemy light forces only when enemy torpedo attack on own Line cannot be otherwise countered or when essential to success of own attack. Destroyers with torpedoes exhausted to take over the defensive duties of those remaining intact.

To cover a forced retirement of own Line by smoke screens and threat of attack and to actually counter-attack at whatever sacrifice if such measure becomes essential to successful retirement of own Line.

4. Of Cruisers. To assist and support the Destroyers in the execution of their mission and in carrying out their doctrine.
5. Of Capital Ships. To gain and hold the windward position and to approach and deploy in such manner as will contribute to the success of the under-water attack on the enemy Line. To gain such position and gunnery advantages as are controllable and finally defeat enemy Line in decisive gun

engagement. Following up such defeat by forcing enemy to leeward and toward own Submarines from a quartering position with respect to enemy.

To retire to windward if forced to break off the engagement.

FORMATIONS

Despite the weight often ascribed to the factor, there is no all-pervading virtue in any formation of a Fleet and winning a victory does not particularly lie in that direction. The Offensive Spirit, Unit Efficiency, skilful and indoctrinated Leaders of Units, a proper flow of Information, etc., are submitted as more important. However, organized force necessarily includes formation of the sub-divisions of such force and an initial formation is an indispensable basis of any operation. In fixing upon such a basis, it seems advisable to start with the most difficult external conditions which may be held to be, - enemy near but direction not known and at night or during low visibility:-

We adopt therefore, for our foundation, a type of Fleet Formation with screens in rings concentric to a reference point, to which Main Body and other sub-divisions not of screens proper also preserve a fixed relation. We have no types of ships for offensive screening other than Submarines; to use light surface forces for that function or for a protective screen which is denser than is necessary for information and warning alone, is only to give enemy cruisers the opportunity they desire. The distances between the concentric rings - and instead of actual circles, hexagons are more practicable and also meet the requirement - should be just within the limit of visibility between types stationed within them. However, such distances should not be less than about

3 miles and when visibility is less than that, linking up will have to be by sound - in some form. Beginning at the outer-most, the composition and disposition of the screens is:-

1. The Submarines in units of three equally spaced throughout. This amounts to both an offensive and a protective screen and is the only guard against penetration by enemy cruisers.
2. The Pickets, composed of DMs and DDs up to a limit of one eighth their total numbers, spaced somewhat within their visibility limit from each other.
3. The Outguards, nearly all the cruisers, equally spaced around the hexagon.

The Point of Reference needs be actually marked; that is best done by the Cruiser Flagship of the Destroyers. The Attack Squadrons of the latter should be distributed in the area within the Outguards, somewhat symmetrically about the reference point if sea is smooth but, otherwise, displaced to windward. For better protection of major ships against enemy Submarines, the Attack Squadrons should spread out by Divisions but not farther than permits ready command by the Squadron Commanders.

The Main Body, composed of the Battleships and Plane-Carriers, should maintain a position in rear of the reference point dependant upon its speed of advance and upon the distances at the time obtaining for the outer screens. The defensive screen for the Main Body should be composed of the anti-submarine craft present, and effective, with such addition of Destroyers as is necessary-up to a limit of one-sixth the total.

Tactical Scouting - Doctrine.

Whenever weather conditions permit, the most efficacious scouting agency is the Air Force. We can also scout, concurrently, with Cruisers and Destroyers but at risk of loss

not commensurate with the probable gain, in as much as aircraft should be able to cover all necessary areas much more efficiently. During high winds or in poor visibility, or both, another means becomes necessary. In heavy weather, enemy will scout with cruisers probably in force too great for our cruisers and destroyers to pass; moreover, any that attempt to do so will likely be run down by enemy heavy cruisers. Recourse then needs be to Submarines and it is only necessary to advance them in sufficient numbers from their positions in the outer screen. When the air handicap lies in poor visibility, the same doctrine of scouting by submarines should obtain. However, luck then becomes a greater factor, less risk attends scouting with cruisers and destroyers and there is greater chance of their penetrating to where the information is. Summarizing:-

To rely upon air scouting when conditions permit it. Otherwise to scout with advanced Submarines and supplement them by Cruisers or Destroyers Detachments, or both, when visibility is low.

Course Changes.

Being in the Concentric Formation, there need be no swinging of other forces around the Main Body in order to change the direction of the Fleet's Axis. Therein lies one of the main advantages of such a formation.

A change front signal is executed by all the screens simply by a change of direction of the units composing them. Their relation to the Point of Reference, which changes the direction of its movement at the same time, and to Main Body changes only with respect to the Deployment Stations; these automatically change as being based upon their location in relation to the new course - which is always the Axis of the Formation. The Main Body, being dissymmetrical to the reference point, proceeds to take up the same position in

relation to it, in the new axis.

A course pennant signal is for a temporary change of course, to be executed simultaneously by all units; its effect is to make a "transfer", without changing front and with no alteration in deployment stations.

The Deployment - doctrine for.

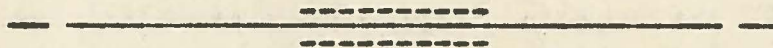
Assuming the Fleet in the concentric type of Cruising and Approach formation and that it has gained the windward position from which to deploy:- It remains to fix the approximate direction of the Line, as deployed, whereupon the various units will automatically know whether battle station is in van or in rear and the position in relation thereto. The tactical theorem is that unless fairly certain that the enemy can be forced to action in one certain direction, the best distribution of light forces is two-thirds in van and one-third in rear; such is doctrine, to be departed from only under directions serving for the occasion. Therefore, based on the new Axis of the Formation, the Direction of Deployment:-

Van Stations for all units from 20 degrees abaft the engaged beam around ahead and to 40 degrees abaft the other beam. Rear Stations for the remainder.

Now the positions in those general stations:- The important point is disposition with respect to the enemy. But we have deduced that the RED Cruisers will force our light forces under cover of own Line until it engages. Stations for Destroyer Squadrons are assigned then from about 3000 yards ahead of the Line, running out about 30 degrees on engaged bow and so spaced that outer most will be covered by the line ships; the first to arrive taking the advanced stations. The Cruisers take such stations as will best further the operations of the Attack Destroyer Squadrons; other things being

equal, the outer positions are the most suitable. The Rear Stations are in all respects similar - on the engaged quarter.

To attain the assigned stations, units will proceed independently - at best speed. The Main Body may or may not at once deploy into line of battle. It is the more likely that it will continue its approach and close for sometime after the Fleet deployment is directed. Whenever possible, during this phase, Main Body will maneuver to facilitate the deployment of the other forces.



The formations, methods and doctrine outlined in the foregoing are under assumed conditions which will not always obtain. It remains to see if they properly fit a condition of fair visibility with the location, or perhaps only the direction, of the enemy approximately known - and both Fleets bent on at least an approach for engagement.

It is readily seen by diagramming probable movements that at least some of the units of light forces may have grave difficulty in reaching battle stations from their stations in this, ring-type, formation. Despite their legend speed, some of the units disposed to rearward may never get into the battle, if the seas be rough, unless the Admiral foregoes advantages otherwise controllable. It is quite true that, unless the outer screens are unduly thick, the light surface forces which may thus miss the action will be a small proportion of the total. But it being inadvisable that even a small handicap be assumed, the necessity becomes evident for a formation intermediate to the battle formation, in which a part of the rearward disposed light units are brought up farther toward the enemy. It is a relatively small matter

and can be readily provided for as simply a modification of the standard ring formation.

Passing to the Submarines, however, the problem becomes difficult and highly important if the Submarine's part in our Battle Plan is important. The difficulty lies mainly in the unusually low surface speed of BLUE Submarines. Their best sustained speed in average weather is probably lower than the Admiral would otherwise desire as a Fleet cruising speed during war. It is manifestly impossible for Submarines disposed rearwardly with respect to the advance to have much chance to engage before the decisive phase of the battle ends. To achieve the mission assigned in our Battle Plan, Submarines must be well advanced and gain favorable positions with respect to enemy's line. As an attempt to reduce this theory, which is surely a correct one, to practice, submit:-

1. Retaining the advanced 120 degrees of the Submarine "ring" as such but at a distance from the pickets as great as permits retaining touch - through any agency. Such position will be, on the whole, favorable for the offensive of one-third the Submarines. Furthermore, under the assumed conditions, it will make the Fleet Formation as a whole nearly as strong in defense against forays by heavy enemy cruiser detachments as will the complete ring.

2. Sending the rearward 120 degrees of the Submarine ring, each side, to general positions broad on the bow, on the corresponding side, of the advance. That would mean one-third of the Submarines on each bow - and really out of the formation since no distance can be properly specified. They must not overrun the enemy but should be free to take up such position on own side of the advance as, based on the information received, seems to the Senior Unit Commander the most promising position from which to intercept the enemy

Line. In these general positions, the different units of the two Submarine Groups should be within sight contact of each other but otherwise well dispersed. Under average weather conditions, the dispersion of each Group would be over an area about 15 miles by 5.

Admiral's Station and Flagship.

It has been a theory and practice in all large Fleets for the Commander-in-Chief to take Battle Station on a flank of the Center Squadron, preferably its leading flank. As far as may now be seen, that is his most advantageous station. In choosing a Fleet Flagship there seems required a compromise between:-

- a. Not infringing the requirement that the strongest ships be in the flank Squadrons.
- b. Using a ship with sufficient "life" and suitable for the exercise of the command function.
- c. Taking Battle Station with the Center Squadron.

In practice, "b" conflicts with either "a" or "c". As a fair compromise, one of the two "Pennsylvania's" seems the correct choice at the present state of development of Fleets.

Merely as incidental to the above, it is ventured to look forward to a future development, possibly to become practicable:-

The advance in command methods over the old conditions when one man managed the battle operations of his forces, personally and in detail, was solely due to the tardy recognition of the fact that one man can no longer do it. The reasons why he cannot are twofold:- the complications and magnitude of modern battle are deemed too great for one man to cover with the detail necessary and no one eye can see enough of the battlefield anyhow. Hence the modern idea of Plan and Indoctriation, as the basic command principle. Now it is an ordinary axiom that a job which can be done by one

man had best be done by one. Focussing down to sea-battle, it is to be first noted that Nelson, the first and perhaps the best advocate of the modern command principle, was undoubtedly also an excellent leader under the older command method - such as, say, Napoleon was on land. Nelson is reputed to have had an excellent eye for taking in a situation afloat, the "seaman's eye" -(even if he had but one). It cannot be said that Nelson, had he been able to see his whole battle-field to the utmost advantage, would have personally attempted to control all his units in a grand battle. And since his time, the magnitude, complexity and mobility of Fleets have all increased. Yet it is conceivable that one man, a super-man perhaps, might, if he could see everything perfectly, be able, under personal control of his sub-divisions in considerable detail, to manage them in a Fleet battle more efficiently than will result from principles and methods of command now current.

If such a premise be granted, there needs be considered the possibilities that might accrue from providing the Admiral with a special air-craft, equipped to exercise the command function, and from which he would have the best possible view of own and enemy fleet during approach, deployment and engagement. Such an idea would lead to the employment of a plane carrier as the ordinary Flagship. (Perhaps, "its something to think about").

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b. In War with ORANGE.

The scene of the battle will be the Western Pacific and its ultimate object the control thereof. BLUE while advancing to seize a Base from which to gain and exercise such control will be on the offensive strategically - but tactically on the defensive. A very casual comparison of forces

shows ORANGE to be very weak for a pitched battle at the outset but that the mobility of his first-line forces undoubtedly gives them the tactical initiative. Under such circumstances, a conflict spread over several days with the object of so weakening BLUE that if he arrives he cannot even control those sea areas vital to his own essential communications seems a far more likely plan for ORANGE than to stake all his sea fortunes upon a single blow. Rather than seeking a Trafalgar, ORANGE will strive to emulate the English fight against the Armada.

Strength Comparison. In the air the situation cannot be forecast. BLUE should be the stronger in ship planes and should control the air unless he comes within range of ORANGE shore-based planes; whereupon the control will probably pass to ORANGE. (In the following only air-craft actually available at date are considered.)

In Capital Ships; BLUE's superiority in fighting strength is more than 2 to 1 and ORANGE can afford to engage decisively only against a detachment quite inferior. But ORANGE Fleet speed is so far superior that his capital ships cannot ordinarily be forced into action by BLUE's.

In Cruisers; The totals in fighting strength are not far from equal, BLUE's cruisers being fewer but individually more powerful. Speed likewise is generally equal. A probable use of ORANGE CCs is as Cruisers. In such event there will result a power-speed combination of ships which is very much superior to any possible BLUE combination.

In Destroyers; BLUE may have over four times as many as ORANGE but, having such a mass of large ships to protect from torpedo attack, must use a great number, perhaps half, in the defensive screens. Nevertheless, ORANGE should be the weaker, in Destroyer fighting strength, under the

probable circumstances. Individually, ORANGE destroyers are powerful and are very fast. All things considered, it is not likely that BLUE's destroyer force will be any more adequate to its task than will the enemy's.

In Submarines: The numerical comparison is uncertain because of the distances which BLUE will have traversed. BLUE has over twice the numbers available and despite their individual shortcomings, the necessarily low Fleet cruising speed will permit disposing Submarines in large numbers wherever they are desired, with relation to the other forces. They can seriously hamper the operations of ORANGE Cruisers - and are about all that BLUE has with which to counter the CCs. The unit effectiveness of ORANGE Submarines under the conditions obtaining will be very high. But their number is few for their probable task.

In comparing strengths and the probable nature of the fighting, an unusual point arises which may be expressed as BLUE's passive resistance, - the ability to absorb punishment as compared with the ORANGE capacity for administering it. To defeat BLUE's advance, a great amount of power of destruction is required. For instance, the BLUE battleships after absorbing a lot of torpedoes will still have fighting strength but little diminished and retain speed enough to cover their train at its best speed. In view of that, the ORANGE objective may be the train but it also, probably without defeating the Fleet's purpose, could take a lot of hammering, - which must go through, over or under his fighting ships. (The pugilist Johnson, in excusing his defeat, said that "there was too much of Willard to lick"! The BLUE-ORANGE fight may be something like that.)

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Since the tactical initiative, and the offensive, rests

with ORANGE, his probable battle plan is a major consideration in evolving one for BLUE. Based on the comparisons of forces and the strategical and other circumstances obtaining, the following are assumed as the major elements of the ORANGE plan:-

1. While disputing control of the air to gain information of disposition of BLUE forces, and their movements, upon which to base other operations. Having gained control to additionally use it for making direct air attack on Main Body and on screens if the latter too greatly hamper other operations.
2. To employ all tactical mines that can be brought to bear.
3. To make sustained Submarine attacks.
4. To destroy BLUE light forces by repeated raids on the screens, using CCs, CLs and DDs.
5. To support the above operations with BBs.

The air and submarine operations are expected to be by day. Those of surface forces may be but are quite likely to occur during darkness. Finally, if BLUE nears his destination without damage sufficient to prevent attaining his Fleet's objective, or if considerations of policy and strategy in any case require taking grave risks, ORANGE will attempt a real blow in full force in the hope of driving in and settling the argument. Arrived at that point, ORANGE has less to fear from a m le  than has BLUE; consequently such attempt is quite likely to be by night. In all operations, ORANGE is most likely to work from the windward side.

The fundamental idea of the ORANGE plan, up to a certain point, being attrition - the principle of economy of forces must loom large to BLUE. Generally speaking, the latter awaits attack; he must strive to make each attack as costly as possible to his enemy but when little can be accomplished in that direction - and such is likely to be the case unless the attacker makes mistakes - must, in the main, dodge, parry and strive to get off without damage.

Course changes for evasion of underwater attack should excellently serve BLUE's purposes for a time. Assuming that both sides can gain information from their air-craft, each may be expected to learn the other's location, disposition and course just before dark and again at sometime after day break. After dark, BLUE's purpose will be to avoid mine damage and a night foray of cruisers. The early night hours then are a good time to change the direction of advance and dispositions. The morning air flight will particularly serve ORANGE's Submarines in gaining positions for attack. Therefore, sometime after day break is a favorable time for a course change to avoid them.

It is already evident that, in this case, Fleet Formation becomes a matter of unusual importance. Such is manifest from the fact alone that BLUE train will cover 15 to 20 square miles of ocean. However, BLUE's defense, other than evasion, lying in the parry and the counter, his problem is largely a matter of screens and supports thereto. There are, however, two general ideas from which to choose:-

In the one, to symmetrically dispose all fighting forces in screens and supports until attack actually develops.

In the other, to have a detachment of considerable power with no fixed station, ready to take up that position which, based on information of the enemy, appears to give best promise. Such detachment can even move outside the screens, scout offensively and actually cover Main Body and convoy under circumstances easily conceivable.

The latter idea can, whenever necessary, be applied to serve the purposes of the first. By following it, BLUE will be ready to seize a favorable opportunity and to take advantage of an ORANGE mistake; otherwise, the full possibilities might not be availed of. Therefore, this idea - which amounts to the old "Covering Force" principle - seems preferable. From the foregoing we may define the main points of a BLUE Battle

Plan:-

- a. To employ a "covering force" of the best BBs, CLs and DDs which has no fixed station when enemy is in proximity.
- b. To employ all remaining forces in a strictly defensive, concentric ring type of formation around convoy. With strong defensive screen and weak protective screens of surface vessels; diameter about 35 miles by day and 25 by night. An outer-most screen, about 270°, of submarines.
- c. To form convoy as densely as maneuvering will permit.
- d. To guard the windward side most strongly - unless major enemy forces are elsewhere located.
- e. To make evasive course changes evening and forenoon.
- f. To economize forces, particularly in the air and to develop maximum air defense while nearing enemy shore air-stations.

Following such plan, am of the opinion that BLUE can cope with ORANGE and gain its objective unless defeated by a powerful air concentration of shore-based planes. In so stating, there is in mind a direct advance to LUZON, with the intention of holding MANILA BAY, consolidating the position, arranging new supply lines from neutrals south and west, (and perhaps westward to our ATLANTIC COAST); then initiating a campaign to the Northward.

The major strategic factors connected with the advance itself are:- To refuel all short-radius ships at MIDWAY; otherwise a direct advance to MANILA, unless the latter stages develop too great difficulty and chance of failure; in such case to lodge the expedition in an Eastern LUZON Harbor and force through SAN BERNADINO STRAIT, - distant from MIDWAY 3500 miles.

MISSIONS - and Doctrines.

- a. The Covering Force. To cover the convoy and protect it by interposing before major enemy forces. To act offensively, when such attitude will best serve the Mission, and

not decline engagement with all of the enemy forces whenever conditions, particularly for gun engagement, are not unfavorable.

b. The Submarines. The "Rovers" - about one fourth the total - to perform tactical and offensive scouting when enemy's general direction is known; otherwise to hold an anti-submarine line about 20 miles ahead. Remaining Submarines form the outermost screen. All Submarines attack Capital Ships and Cruisers whenever essential information purposes will not thereby be compromised.

c. The Pickets, are primarily to give warning of an advance and will retire therefrom. Light Mine-layers, however, will seize any favorable opportunity against enemy ships where floating mines will not endanger our own.

d. The Outguard and Support, are to defeat any attempt of enemy light forces to penetrate. If sufficiently supported by own Battleships will deny penetration by a force including Battle Cruisers.

e. The Defensive Screen, is to employ usual anti-submarine tactics; and may detach Destroyers at discretion to hold down located Submarines. At night; - Destroyers by Divisions augment the Support; Sweepers continue screening but assemble by units. Necessary replacements of Destroyers in the outer screens will be made from those of Defensive Screen.

The Battleships not detailed to the Covering Force will deny any heavy enemy forces positions from which the convoy can be damaged.

All forces not detailed to Covering Force will ordinarily maintain stations without regard to its movements, unless actually engaged in the near vicinity.

Radio silence except for contact reports is doctrine

for all forces. Also, obscured ships, little smoke, no floating refuse, etc., are of high importance.

FORMATIONS.

As previously mentioned, the character of the Formation and the disposition of ships therein is very important - far more so than in the RED Battle Plan. The success of this plan, in all its features, considerably depends upon the dispositions made and the efficiency of the units in maintaining them. The Fleet Forces chosen and their general assignment are as follows:-

The "Covering Force":- BBs-34, 35, 40 to 46 and 48 (ten); OCV-1; six CLs; four Desrons, (76-DD); Nine SSSs, Commanded by Comdr Batfor.

The Escort:- Fleet Flag, OCA-11 and 2-DDs as Tenders; BBs-30 to 33 and 36 to 39, (eight). OCAs-4, 5, 7, 8, 12, 13, 18 and 19, (eight); four CLs; three OCLs; eight Desrons, (152-DD); 14-DMs; 36 AMs; 51-SSs, (31 S-Class and 20 R-Class). Commanded by Comdr-in-Chief.

The Convoy:- Army Train of 74 ships; Navy Train of 90 ships plus 4 air-craft auxiliaries; (the latter to be attached to Covering Force if used in air operations en route; only air forces probably available are assumed). Led by the Comdr. Train.

The accompanying sketch shows the general disposition of the forces, by day, normal visibility, wind and sea a-beam, no information of the enemy. Under such conditions, Covering Force remains inside the Support - and makes a maximum strength of the escort from ahead; its light forces are shown displaced to windward.

The screen of Submarines is shown with its opening displaced to leeward. The "Rovers" under the assumed conditions,

BLUE FORMATION - day.
Advancing with train
vs ORANGE.

TRAIN :- Comtrain in charge,

Fleet Train	90
Auxiliaries, (air)	4
Army Train	74
	<hr/>
	168

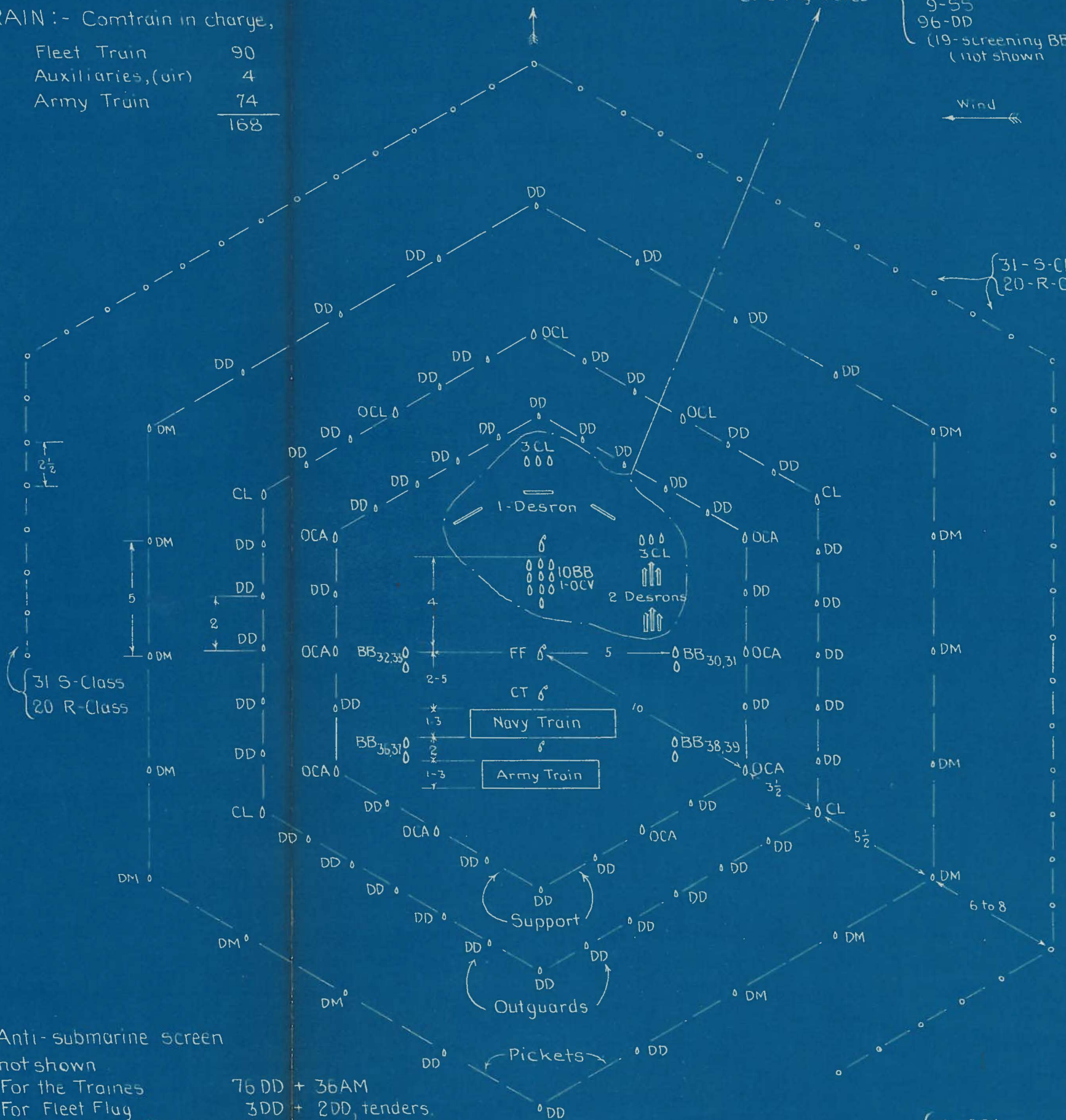
9- S-Class.
"Rovers"

Covering Force

- 10-BB
- 6-CL
- 1-OCV
- 9-SS
- 96-DD
- (19-screening BBs)
- (not shown)

Wind ←

31-S-Class
20-R-Class



Anti-submarine screen
not shown

For the Trains	76 DD + 36 AM
For Fleet Flag	3 DD + 2 DD, tenders.
For four pairs of BB	16 DD
	<hr/>
	95 DD, 36 AM, 2 DD.

- For Support
- Outguards and
- Pickets
- 8-OCA
- 4 CL
- 3-OCL
- 14 DM and
- 57 DD

Fleet Flag - OCA-11



and with no other orders, would spread across the front and provide their own link ships.

At night, Support and other forces inside it, with exception of Destroyers of Defensive Screen, maintain their day positions; the Line of Support becomes the real reference line for the light forces of the Escort and to the extent necessary, for all forces:- Outguard closes to sight contact of the Support - say one mile. Pickets assemble in pairs and close to the same distance from the Outguard. The diameter of the Formation - exclusive of the Submarines which keep day stations - thus becomes about 25 miles. Destroyers of defensive screen assemble by Divisions, move outward to positions inside the flanks and the rear sides of the support and in sight contact with it; if Covering Force is outside the Support, these Desdivs space uniformly around its inner side. The shift to night stations begins at late twilight; that to day stations at early dawn, except for the defensive screen which begins when it is well light.

The Navy and Army Trains are arranged in columns of six each, - 16 and 12 respectively. Those ships of Fleet Train which are already efficient in formation cruising are to be used as leaders - in both trains. Otherwise, the least valuable ships are to be in the positions most likely to be attacked; for instance, troop ships should be inside Army supply ships. Such ships as will deliver fuel en route should be disposed so that fueling can be accomplished from their regular stations.

TACTICAL SCOUTING.

BLUE can expect to do little or no strategical scouting per se. The enemy must and will; it must be assumed that he will keep BLUE generally located and, at such times as suit his purposes, will seek information of exact course and

speed and of the general disposition. In short BLUE will be found and will be attacked.

In BLUE's plan, such tactical scouting as will give a brief warning of the direction and nature of attack will suffice; to attempt anything further will be wasteful of force and effort.

BLUE's possible scouting agencies are:- The Submarines, the Air Forces, and the surface ships of the Covering Force. The Submarines, particularly the "Rovers", will while in their stations provide information which will be continuous - though largely negative. The weather should, in the main, be favorable for air scouting and if our available carriers provided the necessary numbers, air-craft would be all-sufficient. With enemy probably in the vicinity, a morning and an evening flight will in any case be necessary. Such scouting effort, supplemental to that of Submarines and Aircraft, as is essential to BLUE's purpose can only be done by the ships of Covering Force; and it must be secondary to covering the convoy. Tactical scouting is made a function of the Covering Force. (Such is the object of assigning to that force the "Rover" Submarines and the available Carriers.)

COURSE CHANGES.

While in free route and in absence of enemy interference, an apex of the hexagon should lie in the line of advance; the formation measures 5 miles less from side to side than from apex to apex. Therefore, in all navigational course changes the axis of the formation will correspondingly change and all units will swing about the Point of Reference, which is the Fleet Flag, to their new positions. Such change is a "Change Front" signal.

An emergency - and usually quite temporary- change is signified by a "Course Pennant" signal. It is to be

interpreted as requiring all ships to change to the new course, keeping the same compass bearings on other ships as before. Such maneuver is to be expected only when surprised by attack.

There remains the course changes for evasion of underwater attack - having particularly in mind submarines and floating mines;- For such purposes, nothing less than 30 degrees will meet the purpose - and then only if continued for as much as four hours. Needing a greater change than 30, there seems little object in stopping at 45 degrees. It is decided therefore that all such changes will be increments of 30, and will most often be 30 degrees. Also, at the time of making the changes it will be decided how long the new course will be held - in the absence of new developments. It is intended to cover the requirements by a special signal, signifying - "At ---- hours course ---- for ---- hours". In the absence of other instruction, the original course will be resumed at the expiration of the set time. All ships in screens, including the Supports, will make such course changes individually; for them, it amounts to a Course Penant signal. In obeying the special signal, Commanders of units inside the screen will handle their forces according to the circumstances obtaining- which are too variant for a rule. The Train is so cumbersome that its management is the first concern. For instance, a 90 degree change for one hour can be handled by going ships right, or left; but if for several hours of darkness the whole body must be swung. On the other hand a 30 degree change for six hours can be managed by "heads of columns left thirty". These evasive course changes are an important part of the plan and their execution will require much detail development and drill.

Unless submarines are fairly well known to be attacking,

the writer thinks the convoy should not zigzag. It is so large that zigzag does not afford great protection; consequently the cost and risk are disproportionate to the probable gain. For the Capital Ships, however, the formations are such as to make zigzags advisable.

DEPLOYMENT.

In the usual meaning of the term there is to be no deployment of the entire Fleet into other stations for battle. Generally speaking, the Fleet is deployed throughout.

Screens, including Outguards and Support, will in general keep their stations during an attack, except that ships in the vicinity of the point of attack will concentrate to meet it. Battleships of the Escort will concentrate to meet an attack of heavy major forces, in the absence of Covering Force, even to the extent of leaving one side unguarded.

For the Covering Force; if able to bring the enemy to a Fleet engagement, the usual doctrine and methods of deployment apply and are submitted to be the same in principle as given under the RED Battle Plan.

ADMIRAL'S STATION.

An Armored Cruiser, the "Administrative Flagship", seems a suitable ship for the Commander-in-Chief in operations of this nature. The temptation to so employ a Battleship is strong. But the Commander-in-Chief needs in this instance to be clear of the fighting and all Battleships should be free to be employed therein. Hence the choice. The Commander of the Troops should be embarked on the Fleet Flagship during the latter stages of the advance.

The Flagship seems properly stationed in the point of

reference and naturally becomes the guide of the entire formation.

In this plan, the Commander-in-Chief assumes command of the escort. Such might be delegated to a subordinate but it is submitted, as giving closer unity and more fitting our naval institutions, to instead delegate to subordinate commanders the various detailed duties connected therewith. It is an arrangement which does not entirely accord with our Fleet's current command organization.

The Commander of the Train is given the direction of the entire train - naval and army. It is contemplated that the naval train would be thus directly led and the army train by a subordinate to Comtrain.

PART II.

BATTLE OF JUTLAND.

Much has been published on this only strictly modern sea-fight - the magnitude of which is matched by indecisiveness - and this paper is already long. For those reasons, the following analysis will confine to two failures in the application of the Fundamental Tactical Principle - one British, the other a German failure.

The common form of statement of this Governing Principle of Tactics, "Superiority at the Point of Contact", is too incomplete to convey the correct idea. It is not sufficient to only bring superior force into contact; the force must be effectively applied - and the enemy thus destroyed or at least seriously damaged. In such application of destructive power, the relative mobility of the two forces is likely to be a controlling factor. If the stronger force is also the faster it should be able to apply its superiority under any average conditions and from any reasonable disposition. But when the stronger force is the slower, it needs either special conditions or a special disposition. As for dispositions, certainty is possible only if the fast, weak force is intercepted. And in the open sea such interception is to be effected with certainty only by dividing the slow, strong force, - and accepting such risk as is thereby entailed. There must be the hammer and anvil idea.

During the later phases of Jutland, the British Fleet was brought into contact in great superiority - and, incidentally, in a very favorable tactical position. Thus far it succeeded - and actually met the conception of the tactical idea which is expressed by the words, "superiority at the point of contact". However, the Grand Fleet turned away from a Destroyer attack and lost touch. It failed to apply

its superior strength - and it was not the slower of the two Fleets. The failure cannot be justly claimed to be through lack of the Spirit of Offense, if for no reason other than that the British Navy has that spirit if any body of fighting men has. But the British Commander-in-Chief did let defensive ideas loom too large to the extent of being disinclined to take such risks with Capital Ships as the situation demanded; his conceptions had for a long time been known to the Admiralty and at least tacitly approved.

On the German side, the Emperor placed an effective curb on the fighting spirit of the High Seas Fleet at the very outbreak of the war. Whatever effect was thus caused cannot be claimed to have resulted in a lack of the Offensive Spirit. The German Fleet did not go to sea seeking a Fleet Battle. But once in it, the Germans showed good fighting blood. Their Commander-in-Chief is generally considered to have matched efficiency with boldness and has not been criticized for reluctance to take risks with Capital Ships. But is not a failure to make full use of an opportunity due to that very reason? Passing now, in search of our second failure, to the First Phase of Jutland:-

The real objective of the German Fleet was the destruction of British detachments. One such, composed of four Battleships, six Battle Cruisers, fourteen Light Cruisers and twenty-seven Destroyers was encountered over 60 miles from support of its own Fleet. The contact was by a weaker German detachment which led the engagement away from the Grand Fleet and toward its own Fleet. Plate I shows the tracks of the major units from the time of opening fire up to 4:42 P.M. and at that hour the positions of all the units concerned. The four British Battleships had engaged at very long range, firing principally at "Moltke" and "Von der Tann"

and damaging them little if any. "Seidlitz" appears to have suffered considerably from the Battle Cruisers' fire and "Lutzow" somewhat; but neither had lost speed or was otherwise out of action. On the British side, "Indefatigable" was destroyed by "Von der Tann" and "Queen Mary" by "Seidlitz" and "Derflinger". "Lion" had lost one turret. Otherwise fighting strength of all ships was not much impaired by 4:42. Both sides had lost two or three Destroyers.

At 4:42, the German Battle Cruisers and Battleships made sight contact and the Cruisers were now safe for the time being. Some writers have seen in this juncture cause for directing compliments toward the two German Admirals concerned. However, at this time the British Battle Cruisers sighted the German Battleships. Being now the inferior force, and the faster one, the British detachment turned and without further loss finally joined its own Main Body. The German Commander-in-Chief also had succeeded in having a superiority at the point of contact and also had failed to apply it. In his case, the speed advantage lay with the weaker British force and the German failed because he did not dispose his forces to intercept his faster enemy. This failure was not one of conception; the reason for it is to be found in Admiral Scheer's Report:-

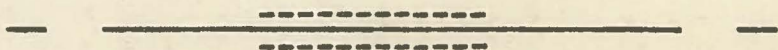
After stating that he was informed of the Battle Cruiser engagement, drawing toward his own position, at 3:45, Admiral Scheer reports:-

"The duty of the Main Fleet was now to hasten as quickly as possible to support the Battle Cruisers, which were inferior as to material, and to endeavor to hinder the premature retreat of the enemy. At 4:05, therefore, I took a north-westerly course at a speed of 15 knots and a quarter of an hour later altered it to a westerly course in order to place the enemy between two fires, as he, on his southerly course, would have to push through between our line and that of the Battle Cruisers. While ---- a message came that an English unit, five ships not four, had joined in the fight.

The situation thus was becoming critical for Scouting Division I -----. Naturally, therefore, everything possible had to be done to get into touch with them, and a change was made back to a northerly course". #

In the above we see two things in the Admiral's mind:-
First, succor for his own detachment. Second, intercepting the enemy detachment; and he appears to have placed them quite in that order of importance. The High Seas Fleet did make a movement to intercept - a rather undecided one, since some time was lost in "closing up the line" and the leader did not run at high speed. For that reason, a real interception probably would not have been effected anyhow. However, the possible delay in closely supporting the Battle Cruisers induced the German Commander-in-Chief to wholly give over the chance of an intercept. In that, he renounced the very purpose for which the Fleet had gone to sea. Now is not the root reason the same that caused the British failure, - reluctance to really risk capital ships?

As a matter of fact, the risk was not great. The five German Cruisers had bested the six British Cruisers up to 4:42, and it seems safe to assume that they could have held their own with the remaining four, for quite a time. However, Admiral Scheer indicates that he was not informed of the events in the Cruiser engagement; it is not known that he received information during the southerly run of the Battle Cruisers that would have served for making dispositions that would fit the situation. If such be the case there was, seemingly, quite ^{un}necessary failure in communications.



Now, again quoting Admiral Scheer, "a certain reticence should be observed in making definite assertions that a

Italics inserted by the writer.

different movement would have been more successful ---". But having gone thus far in destructive criticism, putting forward something in the way of alternative courses seems called for. Such will be attempted in the following - a fictitious Battle of Jutland:-

Assume, to begin with, that Admiral von Hipper had run as straight as the engagement permitted him to and that he had kept his Chief fully informed of events, the situation and his intentions. Assume further that Admiral Scheer had started promptly, at 3:45, to trap the British detachment with his Battle line, accepting the added risk to his own detachment and had further risked his other ships by the heresy of dividing forces. Plate II indicates the tactical situation that might have resulted by 5:10 p.m.

The Grand Fleet is something over 50 miles away. Visibility is good now and fair until about 6:00. Probably, sight contact would occur at 5:00, or soon after, between BS III and the Queen Elizabeths and between BS II and the British Cruisers.

Any real data for estimating the probable result from this situation could be obtained only by long labor of several men. It is safe to assume that the British 1st and 3d Light Cruiser Squadrons would escape; they have sufficient speed - and they demonstrated a fair degree of prudence throughout.

The four Queen Elizabeths, with attached light forces would probably escape if they immediately turned to east and north. But, knowing that such a move might abandon the remainder of the detachment to destruction, it is scarcely possible that the Commander, Fifth Battle Squadron, would make it unless emphatically so ordered by his Chief. In this situation shown, several minutes would elapse before such an

order could be received. Meantime, B.S. III would have moved to close and narrow the gate. This squadron of eight ships was as powerful as the entire British detachment; four of its ships had nearly the speed of the Queen Elizabeths. It seems probable that all eight would have gotten in to effective range and that any move by the British battleships would have been too late.

In estimating the probable next movement of the remainder of the British detachment, the fighting characteristics of its immediate leader, the Commander Battle Cruiser Force, must be kept in mind. By 5:10, no doubt the Battle Cruisers would have damaged each other still more. Assume that effect to be a stand-off, - and that about the time Admiral Beatty sees the six pre-dreadnaughts of B.S. II, he hears of the other eight contact behind him. He knows that the German Battle Cruisers will attempt to hold his Cruisers under long range fire no matter what he does. One course is to continue the plunge to the south and take on the pre-dreadnaughts as well; some, perhaps all of the latter will be sunk. But after accomplishing it, there will not be much left of the British Cruisers and the Germans can well thus expend pre-dreadnaughts. Since B.S. I is still out of sight, a more natural course would be to turn to the Southeast; such a move would result in the definite trapping of all the leading British forces. The remaining course of action open is to turn to north and east and attempt to press the German Cruisers over, while running around B S III. Probably this would be the more promising course. But, taking account of the fighting ability of the German Cruisers and the chance thus given the German Destroyers, the prospect of eventual escape does not appear good. It is more likely that the worst would happen and that following any probable

course, practically all of the British detachment would have been destroyed:- Four Battleships, six Battle Cruisers, six Light Cruisers and twenty-seven Destroyers. On the German side there would have been damage and perhaps a few Destroyers actually lost; but in view of the ability of German ships to stand punishment, it is likely that all of the other first-line ships would at least have gotten back to port and been repaired.

Further fantasy, as to the effect on the whole war of such a German victory, will not be ventured. It suffices to detail the changes it would have made in the situation, additional to what would have been a most potent result - greatly improved morale of the Central Powers:-

At sea, the Central Powers would still have been considerably inferior, - particularly in large ships. It is most unlikely that Japan would have used her Battle Cruisers; consequently, the Allies would have had only one "Queen Elizabeth", "Australia" and the three weak "Invincibles" to deal with the faster and stronger German Battle Cruisers - and would have been very short of good Destroyers. The Germans would then have all the best of the scouting and thus have enjoyed considerable freedom of action. A further success might have come more easily.

Thus far, the writers of actual history mostly criticize Admiral Jellicoe for missing his great chance - through reluctance to risk Capital Ships. Can it be fairly said that Admiral Scheer's failure on his only chance is not parallel? Admiral Beatty risked large ships and he too stands well in history. The world tends to have kindly regard for the memory of a head-long fighting man, be his results what they may. But what would be the cold historical status of the losing leader in such as our fictitious battle?

