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WAR INSTRUCTIONS

UNITED STATES NAVY

1944



UNITED STATES FLEET
HEADQUARTERS OF THE COMMANDER IN CHIEF



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F.T.P. 143(A)

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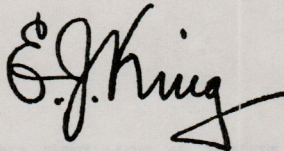
**UNITED STATES FLEET
HEADQUARTERS OF THE COMMANDER IN CHIEF**

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F. T. P. 143 (A)

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*Commander in Chief, United States Fleet,
and Chief of Naval Operations.*

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WAR INSTRUCTIONS

PREFACE

PURPOSE

War Instructions 1944, derived from experience, is issued to indoctrinate officers in a common concept of naval combat warfare, and fighting procedures. Acceptance and understanding of these basic principles reduces the necessity for detailed instructions in orders.

SCOPE

War Instructions 1944 defines the doctrine of command, operation of ships and fleets, and encounters with the enemy. All paragraphs assume that there is a state of war or armed resistance, actual or probable.

Amplification of this doctrine, with application to specific circumstances, is found in *Navy Regulations, General Tactical Instructions, Current Tactical Orders and Doctrine U. S. Fleet*, and other appropriate publications.

The publication *Joint Action of the Army and Navy* defines the assigned common mission of the Army and Navy, the general functions of the two services, and the demarcation between them. The Joint Chiefs of Staff may establish specific joint functions and command relationships by addition to or modification of the general directives of the above publication.

APPLICABILITY

War Instructions 1944 do not limit in any respect the authority of a fleet or force commander to issue supplementary instructions or to suspend within his command the provisions of any paragraph. In the absence of such modifications, lower echelon commanders are governed by the instructions contained herein.

GENERAL INSTRUCTIONS

PURPOSE

SCOPE

The purpose of this manual is to provide a comprehensive guide to the use of the F. T. P. 143 (A) form. It is intended for use by all personnel who are responsible for the collection, processing, and dissemination of information. The manual covers the following areas:

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APPENDIX

The purpose of this manual is to provide a comprehensive guide to the use of the F. T. P. 143 (A) form. It is intended for use by all personnel who are responsible for the collection, processing, and dissemination of information. The manual covers the following areas:

Chapter 1. THE HUMAN ELEMENT IN NAVAL STRENGTH

100. As wars are fought by men, the human element is a basic factor in naval warfare. It is treated in this publication, because tactical publications and type doctrines, in setting forth ways of accomplishing tasks or performing maneuvers, do not cover it in proportionate detail.

101. The understanding of the capabilities and limitations of man, and the comprehension of how best to apply this knowledge in warfare, are basic requirements for the commander's success.

102. In the transition from the era of sail to an era of war in three dimensions, great importance, and often inordinate value, has been attached to material developments. Material represents the means, but not the end. A nineteenth century sailor would be bewildered in a modern warship, but regardless of the appearance of ships, there is one element, the most important of all, that remains unchanged—the man himself. Human nature in all the changing years has altered but little. It is the human element in warfare which may, if understood by the commander, prove to be the only way of converting an impossibility into a successful reality. With trained men and proper materials, the commander's task is reduced to the preparation of good plans. A force of inferior material potency may, due to the moral resources of its men, prove superior in naval strength.

103. In evaluating the human factor, the commander does not neglect to evaluate himself, considers the reliability and the capabilities of his subordinate officers, and the morale and physical condition of his force as a whole. He then uses all these to the best advantage. Besides considering the potentialities of his own force, the commander estimates that of the enemy. He sizes up his opponent's efficiency, morale and racial traits, and lastly the character and ability of known opposing commanders.

104. In the understanding of men, the problem is complicated by the fact that the commander is dealing not with an individual, but with men in the mass—men differing among themselves to an unknown degree governed by heredity, previous environment, and teaching. The extent to which the commander succeeds in solving the problem of how best to use the known manifestations and reactions of human nature may be the measure of his success.

105. By training, discipline and consideration of the men's welfare, the commander obtains fighting strength—a strength so great that it will take its toll against an opposing force superior in numbers or equipment.

106. The commander strives to have his men at their greatest moral and physical strength at the moment when their utmost capabilities are demanded. The personal honor and glory victory may bring to a commander do not come to his men in the same degree. When opposition is great, men can be driven just so far in battle; for them to exceed normal expectations and accomplish the seemingly impossible, they must be led. Whatever the importance of men and subordinate officers, it is overshadowed by that of the commander.

107. The commander is trained to approach perfection in the following military virtues, which by example and by methods of his own he instills in his subordinates:

(a) *Responsible courage*, both moral and physical—the moral courage to do the right thing and the physical courage to face any personal danger.

(b) *Decision of character*, ability to select the essentials, weed out the nonessentials and fix the mind on the objective to be reached. This implies foresight and an imagination that can see all the advantages, all the chances, all the obstacles, in their true proportion and can decide firmly what is to be done.

(c) *Sound judgment*, which in its application may be called common sense, though it is not a common but a rare quality, and is based on possession of all available facts.

(d) *Initiative*, the ability to understand and take advantage of new situations.

108. There is a distinction between ability as a leader of men and ability as a strategist or tactician. The commander may be a great leader, a natural leader, and fail through lack of knowledge. Leadership is the art of inspiring, guiding, and directing bodies of men so that they ardently desire to do what the leader wishes. But the wishes of the leader will not bring victory unless as a commander he has the strategical knowledge and the tactical skill to make a good plan.

109. The human element is a combination of instincts plus intelligence. The military virtues necessary for success are made instinctive by training. The commander strives for unity of effort, which implies leadership, training, loyalty, and initiative; for continuity of effort, which calls for decision of character, perseverance, and fortitude; and for vision, which implies knowledge of war, skill, and judgment. The commander combines and coordinates the various military virtues into a strong, well balanced whole.

110. There is no substitute for actual battle experience for the commander in acquiring knowledge of his own ability and the capabilities and the limitations of his subordinates. Once a victorious battle has been fought, confidence in material and in leaders becomes definitely established. Mutual reliance between the men and their leaders and confidence in the material at their disposal are requisites of a winning force. Confidence increases proportionately with the number of successful missions completed, until the point is reached where overconfidence may lead to carelessness. The commander avoids this extreme by understanding it as an inherent danger, and watching for evidences of instability due to overconfidence.

111. In an engagement where the opposing forces are equal in material strength, the victor should be the force having the superior strength by virtue of the human element.

Chapter 2. COMMAND AND OPERATIONS

Section I. GENERAL COMMENT

200. The Commander in Chief, U. S. Fleet, and Chief of Naval Operations prescribes the basic naval policies and exercises broad strategic direction of naval operating forces. As the naval executive agent of the Joint Chiefs of Staff, he assigns strategic tasks in broad terms to the Commanders in Chief and Commanders of Fleets in cases where the area or theater commander exercising unity of command is a naval officer. When, in accordance with the principle of unity of command, naval commanders are operating under the command of Army officers, assignment of strategic tasks is received from such officers. Both the planning and execution of all operations are distinctly the functions and responsibilities of the commanders designated.

201. To obtain the maximum efficiency and the most effective coordination, units assigned to task organizations are kept intact and trained together.

Section II. COMMAND

202. Full authority and responsibility for conducting a campaign are vested in a single commander, who exercises his command through a chain of command, consisting of a limited number of subordinate commanders directly responsible to him, and having under them subordinate commanders who are directly responsible to them. The immediate subordinate commanders of a common superior constitute an echelon of command.

203. In any echelon there may be several coordinate commanders, but each is responsible to but one immediate superior for the performance of the same duty. Coordination of effort among these commanders is obtained by cooperation and by loyalty to the task of their common superior.

204. Each commander in an echelon understands the command relationships existing between himself and his immediate superior, and between himself and his immediate subordinates. He also fully recognizes the cooperative relationship that exists between himself and other coordinate commanders of his echelon.

205. Command is normally exercised through the established chain of command prescribed or indicated in the plan or organization issued by competent authority.

206. The goal of command is unity of effort toward a common objective. The commander retains in his own person centralized control of all operations, while decentralizing his authority to the subordinates directly responsible to him. Such delegations of authority are appropriate when the subordinate is, by official status or by training, the logical officer to exercise the delegated function. No delegation of authority can relieve the senior of his inherent responsibility.

207. Unity of effort results when there exists, within and between the echelons, such mutual understanding that each subordinate commander, in the absence of specific instructions, acts instinctively as his immediate superior would have him act.

208. A commander desiring to accomplish a task normally issues a directive to the commanders of the next lower echelon, assigning each a task. He gives them authority commensurate with their responsibilities, and holds them immediately responsible for the execution of their assigned tasks. The accomplishment of all these tasks thus assigned to his immediate subordinates in the chain of command accomplishes his task. Similarly, if the organization is of sufficient size to require further decentralization, each of these immediate subordinates divides his assigned task

among the commanders of the next lower echelon. He retains full responsibility to see that these delegated tasks are completed and that they collectively accomplish the task assigned to him.

209. In the exercise of command, when it is impracticable to transmit orders or instructions via the normal chain of command, or when it is necessary to avoid delay in transmission of instructions or orders, or in emergencies, instructions or orders are communicated directly by higher authority to a unit. The intermediate commander or commanders are informed of such instructions or orders, if practicable or necessary. When an intermediate commander learns that such orders or instructions have been issued, he takes such action as is required on his part to insure that they are correctly executed by the units under his command. Adherence to the chain of command is enjoined unless departure therefrom is unavoidable.

210. The officer in chief command of a number of ships acting together tactically, exercises tactical command unless and until he delegates this function to some other officer. He, or the officer designated by him, is known as the "Officer in Tactical Command." A change in officers in chief command during a tactical situation does not involve a change in the officer in tactical command, unless so ordered by the officer in chief command.

211. When two or more units of separate organizations or of different chains of command are in the same locality, the senior commander exercises general command, unless an officer has been specifically designated by duly delegated authority.

212. Unless an officer has been specifically designated by duly delegated authority, the senior officer present initiates such measures and takes such action as may be necessary to provide adequately for a coordinated offense and a common defense, for the security of information, personnel, and material, for the coordination of effort, and for effective cooperation. When an officer has been specifically designated by duly delegated authority to be in command, he functions as, and has the responsibility of, the senior officer present in that command.

Section III. INITIATIVE

213. Loyalty to the intentions of the officer in command, as expressed in his general plan, and to the spirit of the plan, is essential to the success of any operation. Subordinate commanders exercise initiative within their respective spheres of action, but always in loyal support of the intentions and general plan of their senior commanders.

214. A subordinate commander may find himself confronted with a situation which has not been foreseen or has not been covered in his orders from higher authority and which necessitates action on his part before he can communicate with his superior and receive instructions. The subordinate then decides whether his assigned task will properly meet the new situation and thereby further the general plan of his superior. If not, he selects a new task which will do so.

215. If a subordinate commander receives an order evidently given without knowledge of the situation confronting him, and which, if rigidly obeyed, would not further the plan of his superior, he uses discretion in obeying this order. If time permits, he acquaints his superior with the situation and obtains new orders. If time does not permit, he selects a task which he believes the senior would assign were he cognizant of all the facts. There is no substitute for good common sense.

216. If a subordinate finds it necessary to depart from an order, he informs as soon as possible the officer who issued the order, and the echelons affected thereby of the change in his course of action, and of the situation which prompted it.

Section IV. NAVAL DIRECTIVES

217. Before undertaking a task the commander makes an estimate of the situation and formulates a plan of action. The estimate follows in general the accepted form. In scope and thoroughness it is commensurate with the size and importance of the task and the time available.

Even when time is so short as to permit only a mental estimate, the same logical process is followed. The resulting plan of action is then issued as a naval directive, using the standard appropriate type and form. Types in common use include Basic War Plan, Campaign Plan, Letter of Instructions, Operation Plan, Operation Order, Battle Plan, and Battle Order. The directive, or excerpts therefrom, may be promulgated by dispatch, if necessary.

218. The mission—that is, the task and its purpose—is normally defined in directives from higher authority. When not definitely stated in such directives, it can usually be derived from them. Care is exercised, however, to accept the task given in directives, and to derive a task only in the absence of one definitely assigned.

219. The execution of the plan accomplishes the task of the mission.

220. A general plan for the whole force is stated. Each task force is assigned a definite task, and the successful execution of the tasks of all task forces accomplishes the task of the general plan. The method of execution of the task of each task force is left to the discretion of its commander, subject to such instructions as are required to insure coordination of effort of the several task forces.

221. The directive contains all essential information so that subordinate commanders may plan their own operations and take intelligent action during the progress of the operation. If accurate information is lacking, or if the plan is drawn up to meet a probable situation, the assumptions on which the plan is based are stated. Generally, only those assumptions which vitally affect the plan are stated; that is, those which must be fulfilled if the plan is to be executed. Care is exercised on this point, as subordinate commanders may hesitate to execute their part of a plan when the assumptions on which it is based differ materially from the facts at the time of execution.

222. Naval forces are so organized as to provide for unity of command within each theater or area of operations, to insure unity of purpose and coordination of effort among all forces engaged in a common undertaking.

223. The available force is organized into the task forces required by the directive, keeping the number of task forces to the minimum necessary to accomplish the mission.

224. Each Task Force Commander organizes the force under his command into such task groups as are necessary to accomplish the tasks assigned to his force.

225. Task forces and task groups may have to be re-formed as an operation or campaign progresses. When a new directive reassigning task forces is placed in effect, the chain of command changes in accordance with the Task Organization.

Section V. INFORMATION

226. The commander insures that commanders of subordinate echelons, including commanding officers of ships, have copies of such directives, instructions, special signals, and such other information as will enable each to understand fully their duty in action and at all other times.

227. Pertinent information received subsequent to the promulgation of a directive is disseminated to all commanders concerned, as promptly as circumstances permit.

228. As far as conditions permit, coordinate commanders keep one another informed of their positions, movements, and intentions, and of contacts with the enemy. It is not necessary to burden communications with frequent reports when operations are proceeding as planned or with reports of the enemy that contain no new information. It is essential to report new information of the enemy and delays or modifications in the execution of part of a directive.

229. Each subordinate commander is responsible to see that the lower echelons are kept informed of the situation.

Section VI. COOPERATION WITH ARMY, WITH ALLIES AND WITH MERCHANT MARINE

230. The publication "Joint Action of the Army and Navy," and other approved instructions on unity of command in joint operations govern the action and relations of the commander with an Army commander.

231. If engaging in common tactical action with the forces of allies of the United States, unless there are specific instructions to the contrary, command is exercised by that officer of either power who is the senior in rank or, if of equal rank, of time in grade. When the rank of the commander of the ally is not known, the United States commander in such situations coordinates the action of all United States naval forces which are present or may join later. Or, if action is already in progress upon joining up, he supports the force of the other power in every way.

232. If the situation requires, the commander affords protection and convoy to merchant vessels of the United States and to those of allies to the maximum extent consistent with accomplishment of his own mission.

Section VII. DOCTRINES OF ACTION

233. The following general doctrine of action governs the operations of our naval forces.

(a) See that the lower echelons understand and concentrate on the objective. Decisive success is attained by selecting the proper objective for immediate action, and concentrating on it all moral and physical force available.

(b) Provide every unit which can be made available at the time and place where the decision is sought, in order to gain overwhelming superiority. To provide the maximum force to attain his immediate objective, a commander may have to reduce his subordinate commands to the minimum required for local security and may have to take large risks in areas of lesser importance.

(c) Never conduct a passive resistance, regardless of weakness, even though thrown temporarily on the defensive, but by activity and counterattack gain the initiative, conceal weakness, and retain the offensive spirit.

(d) Seize and retain the initiative when acting on the offensive, strategically or tactically, thus disorganizing the plans of the enemy and forcing him to conform to our plan. Make every effort to gain the initiative when acting on the defensive.

(e) Exploit immediately favorable situations resulting from well laid plans, or from chance. Exploit initial successes at once to accelerate their effect. *Extend such victories to complete annihilation of the enemy.* Speed of execution contributes to the retention of the initiative and the security of weak units. As the main concentration of any command is made at the expense of subordinate forces, the commander strikes at the earliest moment with maximum speed. Minutes may decide the victor.

(f) Make every effort to surprise the enemy. Surprise is a most potent weapon and is a factor of superiority in itself. It is attainable not only in timing, but in methods of attack, weapons, materials, and even concepts of war. A force surprised is at least partially disorganized and demoralized and has difficulty in regaining the initiative and coordinating and concentrating its physical strength. *It follows naturally that our own commanders must not be surprised.*

234. The following specific tactical doctrine governs:

- (a) Plan and train carefully. Execute rapidly. Simple plans are the best plans.
- (b) Act quickly, even at the expense of a "perfect" decision. This is preferable to hesitation and possible loss of boldness and initiative.
- (c) Never remain inactive in the vicinity of the enemy.
- (d) Make the most of the few chances that arise to damage the enemy or destroy his ships without waiting for a better target, unless required by orders to do so.
- (e) Endeavor to bring a superior force to bear upon that portion of the enemy force which for the time being cannot be supported.
- (f) Go into action with your entire force and keep tactically concentrated until the enemy has become disorganized.
- (g) Deliver the attack from such direction as to gain the advantages of favorable wind, sea, and light conditions, if possible without delaying the engagement.
- (h) Sink enemy ships. It is usually better to sink one than to damage two.
- (i) Never surrender a vessel or aircraft to the enemy. Sink or destroy it if there is no other way to prevent its capture.
- (j) Use all weapons in effective range, with the maximum intensity, and continue the action until the enemy is annihilated.

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Chapter 3. BASES

Section I. PROTECTION OF NAVAL UNITS AT A BASE

300. Many of the suitable locations for naval bases within the continental limits of the United States and a few of the suitable locations in our outlying possessions have base facilities and permanent defenses that have been developed during peace. The protection of naval units while actually occupying a base requires the joint effort of these naval units, the naval local defense force, and the Army force stationed there. Insofar as practicable, the naval local defense force and the Army force are of sufficient strength to protect naval units while at a base, thus affording the naval units opportunity for refreshment, rest, repair, and preparation for further operations. The details of the joint plan for the defense of the base and for the protection of naval units while actually at a base depends upon the particular location and the situation existing. The joint plan follows the principles enunciated in Joint Action of the Army and the Navy, or as directed by proper authority.

301. A campaign may require the establishment of advanced bases. This is accomplished with or without opposition and requires all new facilities or mainly the repair of existing facilities. In any event, the facilities required and the base defense forces have to be transported overseas and established. If practicable, the defense forces follow the assault forces closely. Until such time as the Army can take over the defense of these bases, it devolves upon the Navy. The plans for the establishment of the advanced base designate the Base Commander, indicate when he assumes responsibility for the shore defenses of the base, state what forces are available to him for this purpose, and provide for the relief of Navy or Marine Corps Defense Forces (including air) by the Army if the latter does not originally provide such forces but does so eventually.

302. When possible a base defense force is organized to man the shore defenses established and to operate the routine patrols and services required. The vessels and aircraft of naval units are organized to assist, if required, in the defense of the base, and plans are prepared to repel all probable forms of attack. If not practicable to organize a base defense force, the senior officer of the vessels occupying the base prescribes the measures to be taken for security while at the base.

303. In general, the measures taken for the protection of naval units at a base include the following:

(a) *Nets and barriers.*—Protection of a fleet anchorage is provided by mine fields, appropriate types of nets and booms, underwater detection apparatus, radar (surface and air search), and taking full advantage of natural barriers such as shoals which will prevent enemy vessels from firing torpedoes from outside the barriers into the fleet anchorage area. Areas of the anchorage which cannot be protected against torpedo fire by natural barriers are protected by torpedo nets. Heavy ships receive individual protection, particularly against the various types of torpedoes. At bases where barriers are not under constant close observation from observation stations, the barriers and area inside the barriers are patrolled, particularly at night.

(b) *Off-shore patrol.*—The area outside the barriers is patrolled by surface craft and aircraft. If practicable, the air patrol extends for sufficient distance to sea to give reasonable assurance that enemy forces cannot attack the base before our vessels can get clear of the harbor.

(c) *Channels.*—If practicable, more than one channel from the anchorage to deep water is provided. Anchorages at the base are so arranged that vessels have free movement for entrance and sortie. Approach and entrance channels are swept for mines prior to entrance or departure of units.

(d) *Anchorage.*—In general the heaviest ships are anchored furthest from nets or barriers. Repair, fuel, and supply vessels are anchored where they can best be protected from air attack and from gun bombardment from the sea.

(e) *Aircraft and aircraft carriers.*—If practicable a carrier does not remain at a base with aircraft on deck, unless the base is such that the carrier can get underway without delay to launch aircraft, or unless conditions are such that aircraft can be launched from the carrier while at anchor. It is desirable that facilities be provided for carrier-based planes to operate from shore during the time that the carrier is at the base. The potentialities for effective use of landing fields by carrier air groups are given careful consideration in the planning of carrier operations. As carrier air groups are organized and prepared to operate either from carriers or advanced bases, it is necessary that the latter have adequate trained personnel with suitable facilities.

(f) *Antiaircraft defense.*—Antiaircraft defense is organized with the greatest care. In addition to the ships' facilities and batteries, it includes, when practicable, shore-based radars, radio direction finders, balloon barrages, and antiaircraft batteries in considerable density. Shore-based defensive fighter planes controlled by a fighter director are also provided, and are probably the most important element of the defense. Rapid means of communication is essential between the Command Post ashore and the Senior Officer Present Afloat. A common warning and information net for ships present and the post ashore is also essential.

(g) *Shore defense forces.*—Ordinarily the shore defense forces consist of infantry, artillery (light, heavy, and antiaircraft), engineers, and chemical troops. The strength and proportion of the various arms depend upon many factors, but are primarily affected by the naval plan, the importance and probable permanency of the base, its location with respect to hostile territory, its vulnerability to attack and the nature and extent of the area adjacent to and surrounding the base.

Chapter 4. INDIVIDUAL SHIP READINESS

Section I. CONDITIONS OF READINESS

400. To maintain an appropriate degree of readiness which will be satisfactory to all types of ships, the following considerations are basic:

(a) Ships are prepared at all times, at sea and in port, to take effective action against any possible attack, even by surprise.

(b) Provision is made for adequate rest for all personnel, to the end that they may discharge their various duties efficiently when on watch, accomplish necessary maintenance, and be fit for battle at all times.

(c) The organization provides for the minimum shifting of personnel, and there is no diminution of fighting power in transition from a lower to a higher condition of readiness.

(d) The organization is sufficiently flexible to allow minor adjustments from time to time to meet special situations, without serious disruption to the normal ship's routine.

(e) There is an equitable division of labor among all members of the ship's company in meeting requirements of the prescribed condition of readiness. To this end, it is expected during condition watches that certain personnel will be assigned to stations other than their regularly assigned battle stations.

401. Rigorous and detailed standardization of battle bills and condition watch bills for each type of ship is not practicable. Standard organization bills and related instructions promulgated by higher authority serve primarily to build a proper and efficient organization, and are so regarded. Consonant with this and the considerations in paragraph 400, definite and detailed conditions are established which cover the readiness of armament, material, engineering, ammunition, aircraft, communications, and other matters as appropriate. These conditions include a highest readiness condition with all hands at battle stations, and other conditions of lesser preparedness suitable to assume in high or low visibility and in consideration of the possibilities of surface, air or submarine attack.

402. The currently effective conditions of readiness are found in appropriate publications. *Responsible commanders in prescribing conditions of readiness strive to bring their commands into action at the peak of fighting effectiveness by striking a common sense balance between security and rest.*

Section II. DARKENING SHIP

403. The officer in tactical command issues instructions regarding darkening ship and the navigational or other lights, if any, to be displayed.

404. Unless otherwise directed every ship is completely darkened from sunset to sunrise. When a ship is darkened, suitable and frequent inspections are necessary to insure that she is effectively darkened both as viewed from other ships and from aircraft.

405. A ship that is not effectively darkened is promptly informed by adjacent vessels.

406. Smoking and the use of flashlights may disclose the presence of a ship which is otherwise effectively darkened. Suitable measures are taken to prevent these practices on exposed decks or other places from which such lights might be seen by an enemy.

407. When a ship is darkened the ship's bell is not struck to indicate time; bugle calls, band music, and loud speakers are not sounded on the top side, and other noises which might disclose the ship's presence are eliminated. The whistle is used as though the ship were not darkened unless the officer in tactical command directs otherwise.

Section III. LIGHTS

408. Navigational lights are ordinarily not used when ships are darkened. Unless otherwise prescribed, running lights (masthead, side lights, and stern light) or side lights alone are turned on only in case of emergency and then only during the period of the emergency and only by those vessels that will probably have to maneuver. Range lights are not used at any time when ships are darkened.

409. Instrument lighting is so adjusted as not to show outside of the ship. Red or other approved colored screens are used so as not to impair the night vision of personnel on watch.

Section IV. SPEED REQUIREMENTS

410. When in waters where the enemy may be expected, it is desirable to have boiler power for maximum speed, but special considerations, such as fuel conservation and the disposition of screening forces to prevent surprise encounter, may make it necessary or possible to modify this requirement. The officer in tactical command, in consideration thereof, orders an appropriate engineering condition. In dispositions containing aircraft carriers the officer in tactical command gives consideration to requirements for "wind over the deck" when prescribing boiler power.

Section V. MATERIAL CASUALTY

411. A material casualty which impairs the ability of a vessel to maneuver or to keep up with the other vessels of her unit, or seriously reduces her fighting efficiency, is reported at once by the ship concerned to the commander of her unit, stating whether the derangement is temporary or of a more serious character.

412. If the derangement is not temporary, the commander of the unit gives his immediate superior adequate information to enable that officer to issue appropriate instructions, and further report to higher command, if necessary.

Section VI. EXHAUSTION OF FUEL AND AMMUNITION

413. A ship reports at once to her unit commander, if there is a probability of her supply of fuel becoming exhausted before arrival at destination, or before completion of the operations in which she is engaged. Depending upon the situation, her unit commander arranges for refueling or, if practicable, asks for instructions from competent authority. If approaching fuel exhaustion renders it impossible for a ship to remain longer at sea, and if instructions from competent authority are not or cannot be received, such ship proceeds to the nearest available fuel supply, reporting as soon as possible the action taken.

414. A ship reports at once to her unit commander if there is probability of exhaustion of the ammunition supply of any battery. As soon as practicable after action, ships report to their unit commander the percentages remaining of ammunition, torpedoes, bombs, depth charges, planes, fuel, speed, personnel, and any other factors affecting performance of the ship.

Chapter 5. GENERAL INSTRUCTIONS FOR COMMUNICATIONS, CONTACT REPORTS, RECOGNITION AND IDENTIFICATION, RADAR, AVIATION PERSONNEL RESCUE

Section I. COMMUNICATIONS

500. Under the Commander in Chief, U. S. Fleet, the commanders in chief and commanders of fleets are responsible for controlling and coordinating naval communications for stations and operating forces under their cognizance. They take necessary measures to insure the strict observance of the prescribed instructions regarding communications, including security and intelligence, and issue such additional instructions as may be required.

501. Radio communication is kept to the minimum consistent with the needs of the situation. Radio silence is imposed when required. If necessary to use radio, the judicious selection of a frequency to avoid interception and the lowest power consistent with getting the message through are used. Contact reports are made with ample power to insure reception. Use of voice circuits necessitates strict circuit discipline in order to preclude self-jamming of these communication channels with unessential transmissions during stress of action.

502. When radio silence is imposed, the forces or units of the command are so disposed, to the extent practicable, that communications can be maintained throughout the command without the use of radio. Visual methods of signalling or other auxiliary methods are always used in lieu of radio when possible and practicable. Breaking of a set condition of radio silence by the officer in tactical command or by an individual unit for an emergency transmission is not interpreted to mean that radio silence is automatically removed for all units of the force. Prescribing a change in the effective condition of radio silence is a function of the officer in tactical command.

503. Commanders and commanding officers of detached ships are alert to recognize the condition when radio silence may be broken and a continuous flow of information may be given to higher echelon commanders and other units. Such occasions usually arise when action is imminent or if our force is positively known to the enemy. Likewise, commanders concerned are alert to reestablish radio silence when all necessary information has been transmitted, or when no longer in contact with the enemy forces and there is a chance for again concealing our position. Once radio silence is broken, the officer controlling the circuit insures that strict radio discipline is maintained, and unnecessary transmissions are eliminated. Particular care is necessary with regard to voice circuits, not only to eliminate unnecessary transmissions, but also to insure that classified information is not transmitted in plain language. Warning of the enemy's approach must be positive to all ships in the area. When a single voice circuit is relied upon to furnish this warning, a secondary circuit is provided, when equipment permits.

504. Communication personnel are kept informed of the existing organization in order that they may act intelligently.

Section II. CONTACT REPORTS

505. Contact reports are reports of the enemy made by ships or aircraft which are in visual, sonar, or radar contact with him. The first report, giving the information immediately available when the contact is first made, is known as an initial contact report. Subsequent reports containing additional information are referred to as amplifying reports. An amplifying report, for identity and clarity, refers to the initial report which is being amplified.

506. In general, the following are of primary importance in a contact report:

- (a) The presence of an enemy force.
- (b) The location of the force.
- (c) The composition of the force.
- (d) The direction of movement of the force. If the enemy is zigzagging this fact is reported, as well as the base course.

In addition to the above, other items that are important, and either included in the initial report or sent as amplifying report as soon as available, are:

- (e) The speed of the force.
- (f) The disposition of the force. Enemy disposition, particularly of a large force, is important when action is imminent. The presence of battle cruisers, aircraft carriers, and light forces, and their disposition relative to the enemy battle line is important, as are the order of battleship divisions and the battleship formation. Sometimes positive knowledge of the mere presence of an enemy force in a certain area is of vital importance to the officer in tactical command. At other times, when the presence is known, the exact location, composition, and actions of the force are of the greatest importance. The reporting ship or aircraft attempts to provide all the above information, but does not fail to make a report merely because all the information is not available. An initial report is not delayed to obtain this information.
- (g) State of the weather and significant changes therein, especially as affecting flying conditions.

The following items are of such importance that they are tantamount to initial contacts and are reported immediately upon occurrence:

- (h) Reversal of course or radical course changes by enemy ships.
- (i) Destruction of large enemy units.
- (j) Launching or recovery of planes by enemy carriers.
- (k) Sighting of enemy aircraft formations.
- (l) Separation or junction of enemy forces.
- (m) Presence of enemy submarines or mine fields in the path of our force.

507. Contact reports are divided into two categories as regards urgency of delivery to the officer in tactical command:

- (a) Reports which are probably of sufficient importance to cause a change in the plans of the officer in tactical command, or to cause him to take counteraction. Such reports have highest priority.
- (b) Reports which are considered to be of less urgency. These are sent with a lower degree of priority, in order to avoid delaying urgent reports of other commanders.

The division of reports into these categories cannot be definitely prescribed and is left to the discretion of the originator.

508. Positions used in contact reports are always the position of the enemy force. The time of origin of the report is always the time when the enemy's position, composition, disposition, course, or speed is as reported.

509. Enemy positions may be reported in latitude and longitude, by bearing and distance from the main body, fleet guide, a prominent land mark, a designated geographical reference point, or by use of a grid. When the enemy is distant, positions are given in latitude and longitude, by bearing and distance from a designated geographical point, or by a grid. Otherwise, the position

of our forces might be indicated to the enemy. However, when the enemy is in the close vicinity of the officer in tactical command and sight contact with our own forces is probable, or when it is apparent that the position of our own major force is already known to the enemy, positions are given in terms of bearing and distance from the officer in tactical command, thus facilitating plotting by that officer and other commanders concerned.

510. In reporting the composition of forces, names or terms descriptive of mission or assumed enemy intentions, such as "main body," "striking force," "attack group," "scouting fleet," etc., are carefully avoided. Assumptions as to the mission or intentions of enemy force are made only by the officer in tactical command. Normally the numbers and type of vessels and aircraft sighted are reported. When a force of indeterminate composition is sighted, expressions such as "large force," "large number of destroyers," etc., may be used to advantage, and more detailed information given in amplifying reports. If individual ships can be identified by name, they are mentioned.

511. The following general instructions are set forth for guidance in making contact reports:

(a) While duplication of reports is avoided, it is preferable that the officer in tactical command receive two identical reports of the same force than to remain in complete ignorance of its presence. A vessel can generally intercept reports made by other vessels in her vicinity or attached to the same task group, and, by refraining from duplicating the reports, prevent the congestion of communication channels.

(b) When a report is made, only facts are stated. Opinions or conjectures as to enemy intentions are not desired, unless the commanding officer of the reporting vessel feels that he is in a better position to make them than the officer in tactical command. If opinions or conjectures are expressed, the language of the report indicates how much is fact and how much is opinion. Vessels and aircraft are reported as enemy only when they have been definitely identified as such. If there is only a presumption that they are enemy they are reported as unidentified.

(c) When doubtful as to the accuracy of the information reported, such doubt is clearly stated, or the information not considered accurate is omitted.

(d) In reporting the presence of enemy forces, if the information is obtained by other means than actual sighting, such means is indicated, unless it is obvious to the recipients of the report.

512. All initial contact and amplifying reports from ships and aircraft in contact with the enemy are addressed to the officer in tactical command, who has the widest sources of information, and therefore, usually is in the best position to evaluate all reports received. Responsible commanders promptly relay all contact reports to the officer in tactical command, unless they hear him receipt for them, even though it is quite probable that the officer in tactical command may have already intercepted the report on a frequency he is believed to be guarding.

513. Evaluation of despatch information and summaries of important information received from returning aircraft also are transmitted to the officer in tactical command by the officers controlling flights, but the work of such evaluation and such summaries must not be allowed to delay the immediate relaying of original reports.

514. It is important that no time be lost in the transmission of contact reports after contact has been made. To this end each commanding officer insures that the sources of information and the communication organization are so integrated as to have continuously available basic information, which includes own position, weather, to whom contact reports are transmitted, and the circuit to be employed.

515. Each commander through whom enemy information reports are transmitted evaluates the information for his own use, without delaying the forwarding of the report to the officer in tactical command.

Section III. RECOGNITION AND IDENTIFICATION

516. A most important factor in war is positive recognition and identification of friend or enemy. Through lack of thorough training, absence of coordination, and due to misunderstanding, friends lose their lives or the enemy is permitted to escape. It is essential that personnel receive proper indoctrination on this subject.

517. The following definitions of the terms "Recognition" and "Identification" apply: *Recognition* is the process of determining friendly or enemy character of others. *Identification* is the process of indicating your friendly character.

518. The basic means of recognizing ships and aircraft is by familiarity with silhouettes and markings. *Secondary* means of recognition and identification of friendly units contacted is by prescribed use of various electronic and visual systems. *Emergency* means of identification to give immediate identification of friendly characteristics also employ electronic and visual systems.

519. Definite knowledge of the location and expected course of action of all friendly units, including aircraft, in the area of operations is an essential contributory factor to the above enumerated means. When a friend approaches whose movements are unknown to the personnel charged with recognition and identification, command has failed in an important function. Therefore, it is requisite that responsible commanders disseminate within and without their commands adequate information of expected movements and the locations of friendly units who may possibly contact each other. However, meeting a friendly ship at an expected time and place is no assurance that an enemy ship is not also in the vicinity. This is particularly true of submarines. Relying too implicitly on advance information is unsound and not an acceptable substitute for effective recognition.

520. A contributory aid to recognition is maintenance of a continuous plot of ships in company and own planes utilizing both radar and visual observations. Particular attention is paid to displacement of own ships and planes from assigned stations.

521. In order to become proficient in basic means of recognition, appropriate publications and instructions are made available. Training in the recognition of silhouettes and marking of friendly and enemy ships is effectively conducted to the end that all officers, quartermasters, signalmen, and others who are detailed as lookouts become thoroughly familiarized therewith.

522. "Identification of Friend or Foe" is an electronic system installed in ships, aircraft and shore facilities to recognize friendly contacts made by radar. It is all-important that the commander know the fundamental operating principles and limitations of the particular IFF system in current use. All IFF systems consist of the following units:

- (a) Interrogator responder—a unit which when actuated sends out a challenging signal of the proper characteristic and receives the reply from the transponder challenged.
- (b) Transponder—a unit which receives a challenge and automatically transmits a reply of a definite characteristic.

It is incumbent on responsible commanders to see that their commands are informed of IFF systems and codes to be used if there is any deviation from the current doctrine.

523. Visual methods of identification consist essentially of:

- (a) Sending by visual signalling apparatus a designated letter or numeral or a sequence of letters and numerals.
- (b) Displaying of prescribed flag hoists, particularly when entering or leaving ports.
- (c) Displaying a designated array of lights, which are arranged in a vertical line or other prescribed manner.
- (d) Using pyrotechnics.
- (e) Using designated colored strips or markings arranged in prescribed manner.

524. In general vertical or other arranged identification lights or certain pyrotechnics are for emergency purposes and are used as follows:

- (a) To establish identity of ships or aircraft when fired upon or when attacked or menaced by friendly ships or aircraft.
- (b) In night battle melee when it becomes necessary to indicate own identity or to establish identity of ships in vicinity.
- (c) During periods of low visibility or darkness when unexpected contact is made with a ship or aircraft whose identity is not at once apparent.
- (d) By submarines to indicate their identity before surfacing in the presence of friendly ships or aircraft.
- (e) Between ships or aircraft to establish their identity when other means are impracticable or not available.

525. When on the surface submarines employ appropriate means to establish their identity and, when submerged, in addition to the use of pyrotechnics, they also identify themselves by sonar means, making prescribed transmissions over their supersonic apparatus. When prescribed, surface vessels employ supersonic apparatus for purposes of recognition and identification to submarines.

526. Emergency identification signals are displayed only long enough to indicate friendly character and if practicable are verified by the prescribed standard recognition identification signals.

527. Since visual identification signals will indicate enemy character to an enemy as well as friendly character to a friend they are not initiated until prepared to take immediate offensive action.

Section IV. COMBAT INFORMATION CENTER

528. Maximum combat efficiency by individual ships and task organizations can best be attained through full utilization of all available sources of combat intelligence. To develop this concept, the establishment in a ship of a center, in which information from all available sources can be received, assimilated, and evaluated with a minimum of delay, is essential. Through the evaluation of all available information by trained personnel, such data can be quickly disseminated to the flag and commanding officers, to other control stations concerned over interior communication circuits, and to other ships and aircraft via external communication facilities. The means for accomplishing the foregoing and assisting the commander in planning and executing a correct course of action, is provided by the combat information center.

Section V. RADAR

529. Radar in essence is beamed VHF (very high frequency) or UHF (ultra high frequency) pulsed radio transmissions. These transmissions upon striking an object reflect some of their energy back to the source. By an accurate timing device the range of the object is determined. Bearing is ascertained by centering the beam of the radar on the object or by measuring the center of the echo. In general the bearing accuracy is determined by beam width and type of presentation; range accuracy by the accuracy of the timing circuit.

530. Radar transmission being an electro-magnetic wave similar to radio transmission is subject to interception from outside source at varying distances depending upon the frequency (wave length), power, and atmospheric conditions. Usually radar transmission is line of sight but at lower frequencies some bending occurs. If the proper receiver is available and the frequency of transmission is known the use of radar may be detected. The range of detection is greater for the lower frequencies of emission. Normally the presence and direction but not the position of the radar emission is disclosed.

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531. Radar equipment is installed in ships, aircraft, and shore stations to perform the following:

- (a) Warn of presence of aircraft or surface units.
- (b) Assist in solving fire control problem.
- (c) Detect enemy radar and effect countermeasures.
- (d) Identification of Friend or Foe (IFF).

532. It is incumbent upon the commander to know the capabilities and limitations of the various radars available in the command in order that they be employed to the maximum effectiveness.

533. The control and use of radar in a tactical organization is a function of the officer in tactical command.

Section VI. AIR SEA RESCUE PROVISIONS FOR AVIATION PERSONNEL

534. In order to conserve the numerical strength of our trained aviators and aircrewmen and to maintain the morale of aviation personnel, the commander sees that detailed rescue provisions are considered in the planning for particular air operations, and that the necessary specific information is promulgated to lower echelons and others concerned.

535. If large scale air attacks by aircraft from units afloat are contemplated on distant objectives, rescue facilities are provided near the scene of action if possible and feasible. Rescue vessels are stationed at definite reference points just prior to the commencement of an air strike on the objective and are subsequently maneuvered as necessary to effect rescues of downed airmen.

536. The nature of opposition to be expected influences types of rescue facilities employed. The following are used in accordance with their suitability:

(a) *Submarines.*—Used particularly when aircraft attack objectives some distance from the air (carrier) task group. In warfare where our own surface units and enemy submarines may be encountered at the same time, the use of submarines for such rescue tasks is dangerous.

(b) *Aircraft.*—Seaplanes are used as practicable to rescue survivors, particularly at distances away from land or surface forces.

(c) *Surface vessels other than submarines.*—Light forces are used to accomplish rescue, but are not usually stationed at reference points. They proceed to the location of the personnel in the water when feasible and so directed.

(d) *Specially equipped and designed rescue boats.*—These are usually land-based or may be carried by large surface vessels and operated as necessary.

537. Each aircraft is provided lifesaving equipment with the necessary detailed items to assist in rescue operations.

538. Rescued aviation personnel are reported to and, when not wounded, are returned to their own ship as expeditiously as possible.

539. For air strikes made without advance planning, for example, strikes made on distant enemy surface units which have just been contacted, prior arrangements for rescue in the area where the strike is to take place are not always possible. Rescue operations are, however, initiated as early as practicable thereafter.

540. The commander usually designates in advance an agency, normally a carrier, to correlate reports of downed aircraft and to control rescue operations using available rescue facilities.

541. Air coverage is provided, if practicable, to rescue vessels or rescue aircraft, and serves to:

- (a) Protect rescuing unit from enemy attack.
- (b) Assist in recognition of rescuing unit to other friendly aircraft
- (c) Assist in locating survivors, and guiding the rescuing unit.

Chapter 6. DISPOSITIONS AND INSTRUCTIONS

Section I. REQUIREMENTS OF CRUISING DISPOSITIONS

600. Cruising dispositions are essentially defensive. The fundamental requirements are such as to provide:

- (a) Protection against surprise in any form.
- (b) Security for the whole force and the component parts thereof through mutual support.
- (c) Ready transition to approach, contact or battle disposition.
- (d) Provisions for rapid and certain transmissions of orders and information.

Section II. SELECTION OF CRUISING DISPOSITIONS

601. The form of disposition selected is dependent upon the following considerations:

- (a) The mission of the cruising force.
- (b) The numbers and types of own combatant ships and aircraft.
- (c) The numbers and value of own non-combatant types which require protection.
- (d) The numbers and types of enemy forces which may be encountered and their probable mission.
- (e) The existing tactical situation.
- (f) The effectiveness of radar.
- (g) Weather conditions with respect to visibility and as effecting the operation of aircraft and light forces.
- (h) Geographic.
- (i) Method of communications which is desired to be employed.

602. The existing tactical situation may include one of the following situations:

- (a) Engagement with enemy surface forces is possible and is sought.
- (b) Engagement with enemy surface forces is possible but not desired.
- (c) Engagement with enemy surface forces is not possible.

In the above three situations the possibility of attacks by enemy aircraft or submarines at any time are considered and the predominant threat further affects the decision as to the form selected. Furthermore, situations (a) and (b) above are primary considerations in selecting the appropriate disposition when surprise surface contact may occur in low visibility or at night. In connection with (a), when seeking engagement, the disposition is of the "ready" or "attack" type or is one from which deployment can be rapidly effected, with the procedure therefor prescribed. In reference to (b), when not seeking engagement, and particularly when the disposition contains valuable ships which require protection, a disposition is chosen which can be turned readily and from which if necessary, valuable units can retire expeditiously while defending units concentrate and interpose for delaying action. In either of the situations (a) or (b), if earlier warning is desired than can be expected from the radars of the heavy ships, consideration is given to advancing one or more radar pickets in the direction of advance, or expected contact. The benefit of early warning is weighed against the added probability of discovery.

603. The commander prepares suitable cruising dispositions or formations for use when the occasion demands. However, typical dispositions and instructions are contained in fleet tactical publications. The use of these promotes common indoctrination.

Section III. FORMS OF CRUISING DISPOSITIONS

604. The forms of dispositions selected normally fall into the following categories:

- (a) Dispositions for entering or leaving port or for passing through restricted waters.
- (b) Dispositions for repelling attacks by submarines.
- (c) Dispositions for repelling attacks by aircraft.
- (d) Dispositions for repelling attacks by light forces.
- (e) Dispositions for obtaining information of the enemy forces or for denying information to the enemy.
- (f) Dispositions in readiness for approach, deployment or for maintaining contact.

Under some circumstances a disposition suitable for one purpose may be suitable for others, or, particularly if carriers are present, a disposition may be formed which embodies elements common to more than one form of disposition. This is exemplified by the employment of a screen stationed primarily for antisubmarine purposes but which permits quick forming to a close in air defense screen if desired.

(A) DISPOSITIONS FOR ENTERING OR LEAVING PORT OR FOR PASSING THROUGH RESTRICTED WATERS

605. Dispositions suitable for entering or leaving port or for passing through restricted waters are necessarily some form of a column of forces. If circumstances permit, light forces are in two columns, to expedite entering and leaving. The order of the forces in the column, the spacing between forces and the distance between individual ships, depends upon the circumstances of the situation. Antisubmarine screens sweep the area prior to transit by heavy units.

606. Unless a safe channel is known to exist, mine sweepers are so disposed as to conduct a tactical sweep in advance of heavy units passing through mineable waters.

607. Air coverage provided by ship, or shore-based aircraft when available, is a requisite.

(B) DISPOSITIONS FOR REPELLING ATTACKS BY SUBMARINES

608. Dispositions for repelling submarine attacks provide for:

- (a) Detecting and destroying any submarines either submerged or on the surface which approach a position from which torpedoes could be fired effectively on the heavy ships.
- (b) Freedom of maneuver of separate formations or individual ships to clear a dangerous submarine area or avoid approaching torpedoes.

609. When available, aircraft with suitable armament and special equipment are formed as a patrol to detect and attack submarines or to force them to submerge and thereby become immobilized until danger from them is past. Surfaced submarines are detected visually when visibility is good, and by radar at night or in reduced visibility. Submerged submarines are not likely to be detected by aircraft.

610. Surface craft equipped for antisubmarine duty, have underwater detection devices effective against submerged submarines and are organized as antisubmarine sonar screens. In addition surface craft are employed as pickets for detection of submarines by radar or visual means.

611. Antisubmarine screens are disposed to intercept any possible submarine approach. In the area outside of the submerged approach sector (the sector in which a submerged submarine must be in order to reach a firing position) visual and radar guard is sufficient, since the submarine must be on the surface to gain an attack position. The submerged approach sector, however, must be searched by sonar. The distance of the sonar screen from the force screened is such as to permit at least one depth charge attack before the submarine has closed to effective firing range. The distance between ships in the screen depends upon sonar conditions and the number of screening

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ships available. A spacing of one and a half the assured sonar range (determined by bathythermograph) gives a high probability of detection. When the number of antisubmarine ships does not permit covering the submerged approach sector at the desired distance with ships spaced at one and a half the assured range, the ships are stationed so as to prevent the submarine from reaching those positions where his chances of scoring a hit are the highest. When there are more than a sufficient number of antisubmarine ships to form the Inner Screen, the excess are stationed as radar pickets, or as an Outer Antisubmarine Screen.

612. The diversion of ships of an antisubmarine screen from their stations to repel attacks of enemy surface craft is made only as a last resort, and when no other ships are available for this purpose.

(C) DISPOSITIONS FOR REPELLING ATTACKS BY AIRCRAFT

613. The dispositions adopted for repelling attacks by aircraft permit:

- (a) Early warning of the approach of hostile aircraft.
- (b) Concentration of antiaircraft fire in all range bands with maximum concentration around heavy or valuable units.
- (c) Freedom of maneuver of the separate formations to bring the antiaircraft batteries to bear.
- (d) Freedom of maneuver of the individual ships to take avoiding action.
- (e) Launching of additional fighter aircraft from carriers.

614. The force to be protected is wholly surrounded by an air defense screen established at an interval and distance which depends on the number of screening vessels, the size and type of the force protected and the necessity of insuring mutual support. This disposition is most effective against torpedo-planes, skip-bombing, and horizontal bombing attacks. It is less effective against dive-bombing attacks. Generally, in addition to the above circular screen, pickets are disposed to give early warning of approaching enemy aircraft. The pickets may also be used in conjunction with directing interception of enemy aircraft by own aircraft.

615. Ships are so stationed as to give all around coverage and to permit radar controlled fire in any sector in which an attack may develop.

616. A combat air patrol composed of fighters is either directly over the force protected or within visible distance in a certain direction or sector. Normally the position overhead is best, as it is easily maintained, allows an accurate departure when moving out to intercept hostile aircraft, and presents fewer difficulties in recognition of our aircraft by our forces.

617. It is most important that the fighters have an advantage of height when the enemy is sighted. The prevailing cloud conditions and a knowledge of the enemy's probable tactics and number of planes available determine the best altitudes for the patrol.

(D) DISPOSITIONS FOR REPELLING ATTACKS BY LIGHT FORCES

618. Dispositions for repelling attacks by light forces permit:

- (a) Early detection of hostile ships attempting to penetrate the disposition.
- (b) Concentrations in strength adequate to destroy the attackers before they can reach their objective.
- (c) Freedom of maneuver of the screened force to move away from the direction of the attack or to present unfavorable torpedo targets if the attack reaches torpedo range.
- (d) Radical course changes and maneuver by individual ships.

619. An anti-light force screen is primarily a night or low visibility screen, normally consisting of destroyers and light cruisers, but it may have heavier vessels assigned if type of enemy vessels expected so indicates. If attack from light forces supported by heavy fast ships is probable or expected, heavy ships may be disposed around the train to repel such attacks.

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620. The area from which attack is likely is the most vital; this is usually ahead and on the bows of the screened force. When numbers of screening ships permit, the screen is extended around the flanks. If the force is slow, the screen surrounds it to repel attacks from astern.

621. In disposing vessels in the screen, consideration is given not only to the types and numbers of vessels available but to the types and limitations of radar and communication equipment installed. Consequently, it may be possible to use concentrated groups of ships, rather than single vessels, the distance between groups and interval to the force screened being determined by the capabilities of this equipment. This type of screen not only provides means for detecting enemy attempts to penetrate, but also makes available a strong force to bear immediately, simplifies station keeping, and assists in positively identifying our own or enemy units.

622. Another possible type of screen is composed of an outer line of pickets and an inner line of supports. The pickets are disposed so as to give warning of attack. The distance between pickets depends on the visibility, and the pertinent sonar, radar, and communication conditions, but should be such as to assure the detection of an enemy passing through the line. The supports are so stationed as to take offensive action against the enemy and repel the attack. Although the inner and outer lines are well separated, the use of this type of screen may result in identification trouble between units in the respective lines.

623. If the above procedures are not feasible, a single line of pickets may be stationed, using an interval from the force screened and scouting distance consonant with visibility or effective value of radar and communication equipment available.

(E) DISPOSITIONS FOR OBTAINING INFORMATION OF THE ENEMY OR FOR DENYING INFORMATION TO THE ENEMY

624. *The most effective means of obtaining information of the enemy is general coverage of the operating area by aircraft. This is best accomplished by long-range, shore-based aircraft, or, in the absence of such coverage, daily aircraft search by ship-borne aircraft. Conversely, denying information to the enemy is most effectively achieved by destroying enemy scouting and trailing aircraft.*

625. In the presence of effective air coverage over the entire area of operations, the cruising disposition is of any appropriate type.

626. When the officer in tactical command considers he does not have the services of sufficient aircraft to adequately cover the whole area of operations he may establish a distant screen in order to obtain information of the enemy or for denying information to the enemy.

Distant Screen

627. The distant screen constitutes a part of the disposition or formation, unless otherwise prescribed. The number, types of vessels assigned, arrangement thereof, and interval from the force screened depend upon the circumstances and the task of the distant screen. Aircraft, as available, are employed to augment it or to extend the limits of its effectiveness.

(F) DISPOSITIONS IN READINESS FOR APPROACH, DEPLOYMENT, OR TO MAINTAIN CONTACT

628. Dispositions in readiness for approach, deployment, or maintaining contact provide a sufficient concentration of all task subdivisions so that an approach, battle, or contact disposition may be taken without delay and with all task subdivisions present. Normally no distant screen is necessary for such disposition, but any of the light force task groups may be directed to form a screen if desired. Screens and antisubmarine and combat air patrols are normally maintained for the battleships and aircraft carriers and for the train, if one is present. At night or under conditions of low visibility, screens against light forces may be provided for the heavy ships or for the train if the entire force is unable to take a low visibility disposition.

629. Typical approach contact and battle dispositions are illustrated in fleet tactical publications.

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Section IV. COVERING FORCE

630. A covering force is used for various purposes and is composed of any combatant type or types, depending upon the circumstances. No general instructions for the formation or tactics of such a force are prescribed. The commander of the covering force organizes his command and issues instructions to meet the existing situation and to accomplish the task assigned.

631. The general tasks of a covering force are:

- (a) Destruction of a specific enemy force, or
- (b) Operation against enemy forces in a given area.

632. A covering force is sometimes employed for any of the following or similar purposes:

- (a) Protection of the operations of another force by offensive operations in a given area.
- (b) Destruction of enemy scouting forces.
- (c) Destruction of an enemy force threatening a friendly force.
- (d) Destruction of enemy forces trailing a friendly force.
- (e) Destruction of enemy forces in an area through which a friendly force will pass.
- (f) Covering of landing operations.

Section V. MISCELLANEOUS INSTRUCTIONS

VESSELS ENCOUNTERED IN ADVANCE OF A CRUISING FORCE

633. Action is taken to insure that non-naval vessels encountered in advance of a force do not disclose information as to the movement or interfere with the operation. If the circumstances permit such a vessel to be cleared from the area before it obtains vital information, the naval vessels or aircraft in contact order it to steer a prescribed course for a definite time, and insure its compliance. However, normally, where a slow vessel is encountered by the screen of a large force, valuable information is gained by the vessel before she can be cleared. In such case, steps are taken immediately to insure that this information is not transmitted to unfriendly sources. Measures to prevent this may include removal or destruction of her radio apparatus or even the sinking of the vessel.

FOG OR THICK WEATHER

634. Upon encountering fog or thick weather, the various units of any force or the station units of a large disposition maintain their positions or stations relative to one another unless otherwise directed. Organization or station units may take a formation suitable for fog or thick weather, provided such circumstances of the situation as the security of the force permit.

VESSELS EFFECTING A RENDEZVOUS OR JOINING A FORMATION OR DISPOSITION

635. In appointing a rendezvous for detached vessels or for forces effecting a juncture consideration is given to the following:

- (a) Assign one force a course and speed of advance after passing through the rendezvous, and apprise the other force thereof.
- (b) Effect the rendezvous, when practicable, sufficiently in advance of darkness to permit visual transmission of orders for forming and orders for the night.
- (c) Set the rendezvous for vessels which have become separated during darkness for such time after dawn as will permit them to approach during daylight. This consideration no longer applies, however, if radar recognition devices are effective.

636. Caution is enjoined as to the manner in which vessels join a formation or disposition at night or during low visibility. Maximum use is made of communications to the limit imposed by the restrictions in effect, in order that ships keep advised of movements. If the officer

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in tactical command orders vessels to join at night, he informs all units which might sight the vessels, of the expected time the vessels will reach the limits of the disposition and the direction from which they will approach.

637. If joining at night or during low visibility, and in the absence of any special instructions, ships normally do not approach the disposition from ahead or the flanks—but from the quarter or the rear, and close slowly. They avoid making their approach a surprise and avoid maneuvers which might be mistaken for enemy ships delivering an attack. Special care is taken that personnel on watch thoroughly understand the measures for identification and comply with them.

AIRCRAFT JOINING A DISPOSITION OR FORMATION

638. Aircraft returning from a distant mission follow the prescribed procedure in approaching a formation of aircraft or surface vessels and employ such identification equipment as may be prescribed. Aircraft not properly identified are treated as hostile until proven otherwise.

VESSELS IN A DISPOSITION OR FORMATION DROPPING BACK FROM A POSITION AHEAD AND VESSELS CHANGING STATIONS OR LEAVING

639. At night or during low visibility, if a ship in a disposition, because of a breakdown or for any other reason, drops back, or in case a ship is ordered to occupy a new station or leave the formation, the officer in tactical command when possible notifies all units which might be affected by such ship or her probable movements.

FLOATING OBJECTS

640. Nothing that floats is thrown overboard if it can be otherwise disposed of. All waste material that can be burned is burned. Metal containers are well punctured before being thrown overboard. The officer in tactical command prescribes the times for pumping bilges and for throwing overboard garbage and other waste material that cannot be burned. One hour after sunset is usually the best time for disposing of this material. All floating objects whose character is in any way uncertain are carefully avoided.

Section VI. CONVOYS

641. A convoy is a number of naval auxiliary vessels or merchant vessels, assembled and organized for an operation or for passage together. It is usually protected by one or more combatant vessels, known as the convoy escort.

642. When a convoy moves with a major force, it becomes a part of the train and is an integral part of that task subdivision while with that force.

643. The number and types of vessels assigned as convoy escort depend on the conditions existing at the time, the composition, destination and routing of the convoy.

644. The convoy commodore is the officer, naval or merchant, designated to command the convoy. He is responsible for the internal arrangements of the convoy, including the assignment of stations to vessels, for the issuing of instructions and regulations and for the safe navigation of convoyed ships.

645. Under normal conditions the convoy commodore will handle the convoy tactically in accordance with standard instructions for convoys, and such additional instructions as he may receive from competent authority.

646. The escort commander is the senior naval officer of the escort. The escort commander is responsible for the proper disposition of the escort for the defense of the convoy, subject to instructions received from higher authority, and the enforcement of instructions related to the defense of the convoy. Evasive alterations of course by the convoy, when exigencies of the situation warrant, are ordered by the escort commander after consultation with convoy commodore, if practicable.

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647. Command of combined escort and convoy devolves in accordance with the following principles:

(a) In a task force, group, or unit organized as an escorted convoy, and composed entirely of naval ships, the senior officer of the task organization, unless otherwise ordered by competent authority, commands both convoy and escort.

(b) In a task force, group, or unit, other than a regularly scheduled mercantile convoy, organized as an escorted convoy, and composed of mixed naval and mercantile ships in the convoy, the senior officer of the task organization, unless otherwise ordered by competent authority, commands both convoy and escort.

(c) In a regularly scheduled mercantile convoy, the escort commander commands both convoy and escort even though there may be present in a ship in the convoy an officer senior to him, except that task force commanders responsible for convoys may designate the convoy commodore to command both convoy and escort when, in their judgment, the escort commander is not qualified to assume the responsibility. If the escort commander is not the senior officer present and is in command, the duties and responsibilities of the senior officer present fall on the escort commander and the officer or officers senior to him are relieved therefrom.

(d) The fleet commander exercising coordinating supervision over a task force, group or unit organized as an escorted convoy may designate any officer in the task organization to command both convoy and escort without regard to seniority, but the provisions of (a), (b), and (c), above, govern unless specifically altered by the fleet or force commander concerned. In the event the officer in command is not the senior officer present the duties and responsibilities of the senior officer present fall on the officer in command and the officer or officers senior to him are relieved therefrom.

Section VII. SCOUTING

648. In conducting scouting operations, full consideration is given the maximum use of aircraft and radar. Although any and all scouting may be accomplished by aircraft, the weather in general, distance from base for shorebased aircraft and conditions of the sea, limit dependence on aircraft for this type of operation.

Scouting embraces:

- (a) Search.
- (b) Contact scouting, which includes—
 - (1) Tracking.
 - (2) Tactical scouting.
- (c) Observation.
- (d) Reconnoitering.

649. In usual circumstances, the sequence of scouting operations will be:

- (a) Search.
- (b) Tracking.
- (c) Tactical scouting.

650. Tracking may be initiated without the preliminary operation of search. Tactical scouting may be initiated without the preliminary operation of search or the intermediate operation of tracking. Observation and reconnoitering will usually be initial operations, but they may follow as the result of search or contact scouting or may form a part of a large scouting plan.

SEARCH OPERATIONS

651. The officer who initiates a search operation designates the units which are to compose the scouts for such operations and the commander thereof. If aircraft are designated to conduct the search, it is essential that definite coordination exists between all forces concerned with the search.

652. The commander who is to conduct the search is assigned a definite task and is furnished with all information available upon which to base his plan of search. The information furnished him includes the latest information regarding the enemy and all pertinent information regarding the plans or probable movements of our forces.

653. The officer initiating the search indicates the area to be searched or the area to be searched first, or, in assigning the task to the scouts, indicates the general plan for the search.

654. During the conduct of the search the commander of the scouts is given all subsequent information regarding the enemy or our own forces that might affect the conduct of the search.

655. The commander of the scouts keeps the officer who ordered the search informed of its progress to the extent permitted by any communication restrictions imposed. He reports all contacts with the enemy and any losses or casualties to the scouts that will prevent carrying out the assigned task. It is emphasized that scouting missions may take precedence over attack. This is especially true in the case of aircraft.

CONTACT SCOUTING

656. The instructions which follow apply to both tracking and tactical scouting. Where applicable the term "scout" is assumed to imply aircraft performing that function.

657. The primary duty of a scout making contact with the enemy is to report the contact with all pertinent information regarding the enemy.

658. Under normal circumstances, scouts do not concentrate toward the first point of contact with the enemy unless the first contact is made with the objective of the search or unless they are so directed by competent authority.

659. Surface scouts encountering enemy scouts or enemy vessels thought to be screening the objective of the search normally avoid action with such enemy vessels unless engagement is necessary to enable the scouts to continue scouting for the objective of their search. They endeavor to pass through the enemy scouts or to penetrate the enemy screen in order to locate the objective and continue to operate as nearly as possible according to the plan previously followed.

660. The enemy will endeavor to deny information to our scouts, and if the opposition of the enemy is too great for a single scout to penetrate the screen, a concentration of scouts of sufficient strength is made in order to obtain the desired information. If this becomes necessary, the officer ordering the concentration designates the units which are to concentrate, the point of concentration, and the time for the concentration.

661. Aircraft are used, when practicable, to develop contacts. Aircraft may be the only means of locating the objective of the search.

TRACKING

662. When contact with the objective of the search is made before any of our forces strong enough to attack it are within striking distance, or, conversely, if the enemy force located is not within striking distance of our principal force, the scouts (including aircraft) endeavor to procure and transmit information upon which the officer in command of our operations can base his strategical dispositions. If the contacts indicate the presence of an enemy force of such strength or in such a position as to require a marked change in our strategical disposition, such sacrifices as are necessary are made by the scouts to obtain accurate information immediately.

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663. After the objective of the search is definitely located, the senior officer of the scouts normally takes such action as is necessary to hold the contact. Continuous tracking of the enemy is maintained until our main force or striking force is brought into contact. If serious enemy opposition is encountered, close tracking may not be possible, but the measures taken by our scouts to avoid serious losses are such as will not lose contact entirely or such as will permit contact to be reestablished when desired. The employment of radar obviates the necessity of maintaining close tracking.

664. In general during tracking, after the first contact, the intervals of time between subsequent contacts depend upon the distance that separates the enemy force and our principal force or striking force. If this distance is great, contact with the enemy force during each day may be sufficient. As the enemy nears our force, time intervals between contacts are decreased until continuous tactical scouting is undertaken.

TACTICAL SCOUTING

665. The need for accurate, detailed information regarding the enemy requires the initiation of tactical scouting as our force comes within striking distance of the enemy. Until the principal forces are engaged, the officer in tactical command must have adequate information of the enemy upon which to determine his plan of action and initial tactical dispositions. During the action he must have continuous information of the enemy in order to follow the situation and the general operations of our force.

666. The senior officer of the scouts (or aircraft) in contact with the enemy initiates tactical scouting in sufficient time to furnish the officer in tactical command with the necessary tactical information upon which to base his tactical decisions before the principal forces become engaged.

667. Scouts continue tactical scouting until such time as they are relieved by other surface forces or aircraft or by the officer in tactical command. Scouts engaged in tactical scouting endeavor to hold a position enabling them to reach their battle stations promptly when relieved of their task.

668. A vessel engaged in tactical scouting or a scout proceeding to a battle station avoids being caught in a position between the battle lines or between the principal forces after the engagement opens.

669. After the engagement opens, tactical scouting normally is done by aircraft, supplemented by such observations as can be made by the light forces on the flanks and by the submarines.

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Chapter 7. ACTION AGAINST SUBMARINES, AIRCRAFT, MINES, CHEMICALS

Section I. ANTISUBMARINE MEASURES

GENERAL ACTION

700. The normal measures surface craft take against submarines are:

- (a) Evasive action to prevent submarines from gaining favorable attack positions and to reduce their accuracy of torpedo fire.
- (b) Measures designed to detect submarines.
- (c) Offensive action against submarines after contact is made.

EVASIVE ACTION

701. When practicable, known submarine waters are avoided. Also effort is made to avoid passing through, or in close proximity to the same waters traversed in the preceding twenty-four hours.

702. When cruising, the officer in tactical command normally orders his command to zigzag in accordance with a prescribed plan, whenever there is a probability of encountering enemy submarines. Various types of zigzag plans are promulgated but the commander is not restricted thereby from preparing his own plan if he so desires. In the preparation and selection of zigzag plans consideration is given to the size and type of the formation and disposition, the availability of vessels for the antisubmarine screen, the speed that can be maintained, the time and fuel available, whether or not submarines are definitely known to be in the area and the maneuvering characteristics of the ships, particularly non-combatant ships.

703. Generally speaking, all vessels, even though adequately screened, zigzag in submarine waters.

704. During thick weather and at night, except on very clear nights or during bright moonlight, vessels normally cease zigzagging.

705. When zigzagging, ships in the various formations are disposed on lines of bearing other than the base course.

706. Special circumstances, including the presence of enemy vessels, may require a departure from the above instructions regarding zigzagging. Large, slow-speed formations benefit little from zigzagging, as some ship of the formation is always near the mean track and the reduced distance made good affords the submarine additional opportunity to attack. Where the speed of the ships comprising the disposition is less than twelve knots, evasive steering may be resorted to. In this case radical changes of course are made at irregular intervals of not less than 1 hour.

707. Single ships of any speed zigzag in dangerous submarine waters. Low-speed ships use very little rudder and a zigzag plan with short legs. The primary purpose is to reduce the accuracy of torpedo fire, rather than to evade the submarine, since evasion is not feasible.

708. In special circumstances, where excessive danger of submarine attack exists, frequent speed changes may be made while zigzagging, and provision may be made for the use of different speeds while on different legs of the zigzag plan. By running their shafts at different speeds, individual ships may confuse submarines endeavoring to estimate speed by a propeller count. The difference in shaft speeds should vary by as much as three knots.

709. Submarines trailing or lying in wait in anticipation of making a night surface attack may be evaded by a radical course change made soon after dark. Trailing vessels and shadowing aircraft are destroyed or driven off whenever they are detected.

DETECTION OF SUBMARINES

710. Search for submarines is carried out with all possible means. These include:

- (a) Efficient lookouts.
- (b) Sonar.
- (c) Radar.
- (d) Radio direction finder.
- (e) Aircraft.

711. When in submarine waters, both day and night, all ships equipped with sonar gear maintain continuous watch in accordance with current fleet instructions. Radar watches are maintained as prescribed by the officer in tactical command.

ACTION AFTER SIGHTING SUBMARINE

712. Danger from enemy submarines is best met by offensive action on the part of aircraft and antisubmarine vessels, combined with evasion where location of submarines is known.

713. Aircraft of the antisubmarine patrol and ships of the screen sighting a submarine, attack immediately, conforming to current fleet tactical instructions in prosecuting the attack, hunt and kill.

714. Vessels whose mission or characteristics are to take offensive action against submarines may maneuver to avoid torpedoes, but they vigorously drive home the attack on threatening submarines.

715. Vessels acting singly, or vessels in company but so disposed that radical maneuvers by a vessel will not interfere with other vessels, maneuver as prescribed in fleet tactical publications when a submarine is sighted. Individual ships must be prepared to maneuver radically to avoid torpedoes.

716. When vessels are in company, radical independent maneuvers and changes in speed may cause confusion resulting in the hazard of collision becoming greater than the hazard of submarine attack. In this case, therefore, maneuvers to avoid submarine attack are as directed by the officer in tactical command or evolution unit commander. However, the restrictions on individual action by ships in formation are not construed to prevent maneuvers to avoid torpedoes, when these obviously would not involve serious risk of collision with other vessels in the formation.

717. A force screened maneuvers clear of the area of the hunt, using increased speed as necessary and practicable, but any ships of this force drop depth charges if in a favorable position to do so.

Section II. ANTI-AIRCRAFT MEASURES

PRECAUTIONS

718. Search radars are the best means of detecting approaching aircraft, but they are not fool proof. They may be jammed. Operation may be poor. However, even when such equipment is operating free from interference, a vigilant lookout is maintained.

719. Each ship organizes a well coordinated aircraft lookout system which covers all sectors. Full use is made of optical instruments to aid vision, and special measures are provided for searching near the sun. Aircraft lookout watches are not over one-half hour's duration, if practicable.

720. As air attacks may occur at any time, all ships must be prepared to repel such attacks, regardless of formation or disposition.

721. The time available to repel an air attack is generally so short, and quick action is so essential, that it is vital to keep an adequate proportion of the armament manned and the personnel fully alert when in an area where air attack is possible or when it is imminent.

722. During daylight hours a proportion of close-range antiaircraft weapons are always kept on the bearing of greatest danger (i. e., toward the sun or toward low clouds), as attack is most likely to take place from such direction.

723. During twilight and on moonlit nights the more dangerous side is that opposite to the light or moon, and the major portion of the close-range antiaircraft armament is, if practicable, kept bearing in that direction.

724. Commanding officers are indoctrinated with the necessity for prompt action during air attacks, when signals normally are emergency signals and therefore executed as soon as understood. They are guided by current fleet doctrine in regard to what discretion is permitted them in opening fire or maneuvering independently, but are expected to act energetically within these limitations.

725. In general, an individual ship, a division commander, or a unit commander, increases speed and maneuvers radically to avoid torpedo attack or bombing attack, having due regard for the existing situation and the danger of collision. Likewise, individual ships maneuver to bring the greatest volume of antiaircraft gunfire to bear on enemy planes for short periods; having due regard for maintaining approximate positions in the formation, and remaining so disposed as to be able to support and be supported by the formation.

726. Each ship, within the capabilities of its type, establishes and maintains communications with air cover (Army or Navy) and exercises fighter direction for fighter interception control in accordance with current fleet doctrine.

727. Ships equipped with degaussing coils keep coils energized with appropriate settings at all times when there is danger of being mined or torpedoed.

WARNING OF ATTACK

728. Warning of approaching aircraft may be obtained from information received by radio or signals, radar, air patrols, pickets, and sky or surface lookouts of surface ships.

729. During an air attack it is of primary importance that provision be made for continuous, all-around radar search; otherwise, an attack by new hostile aircraft may develop undetected.

730. The presence of shadowing aircraft may indicate that an attack is imminent.

731. Screening vessels sighting approaching unidentified aircraft give warning of their presence by prescribed means, and if enemy or their attitude of maneuver indicates hostile character, take them under fire when they are within range.

EVASIVE MEASURES

732. The chance of evading air attack is increased by:

(a) Using routes which pass outside ordinary air search radius from enemy air bases, and avoiding passing through, or in close proximity to the same waters traversed in the preceding twenty-four hours.

(b) Keeping out of sight of land from which enemy observations may be made.

(c) Making landfalls during darkness or periods of low visibility.

(d) Changing course immediately after dark, if detected, so as to cause a large displacement from the mean line of advance.

(e) Destroying trailing or shadowing enemy forces.

(f) Using, as opportunity offers, weather fronts, isolated rain squalls, or patches of low visibility.

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(g) Choosing courses into the light horizon at dawn, sunset, moonrise, and moonset, whenever practicable. Such procedure both reduces the chance of discovery and increases the length of time an enemy attacking "up-light" will be exposed to counter-attack.

(h) Reducing speed, if circumstances warrant, as a means of eliminating wake.

(i) Laying smoke screen, if spotted, and if the situation permits.

USE OF GUNFIRE

733. Any gunfire is effective in reducing the accuracy of bombing, even when the chance of hitting the planes is small. Even weak, poorly armed ships may reduce their chances of being hit by maintaining a well disciplined fire whenever the planes are within effective range. Experience has shown that attacks may be pressed home less closely in the face of heavy antiaircraft fire. Such fire usually causes the planes to drop their bombs or torpedoes at greater altitudes or ranges with less chance of success.

734. The general tendency, particularly with small caliber guns, is to open fire too soon, thus wasting ammunition and reducing the volume of fire which can be maintained later while the planes are within effective range.

735. The antiaircraft control organization must be sufficiently flexible to permit any weapon to open fire in the case of surprise attack at the discretion of the senior officer or petty officer at the weapon. To this end, all antiaircraft personnel must be proficient in recognizing own and enemy aircraft.

736. Control of gunfire against attacking planes is in accordance with the ship's type and the current fleet doctrine.

USE OF MANEUVER

737. The manner of maneuver which experience indicates to be most effective against various types of air attack is delineated in current tactical publications. Maneuvering tactics may be expected to change with the advent of new types and methods of attack. However, during an air attack a vessel must be ready for high speed and radical change of course.

USE OF FIGHTER PROTECTION

738. The fighter director at all times controls the available fighter cover. When warning of approaching aircraft is received, the fighter director directs the fighter protection to prevent impending air attack. The fighters intercept the enemy at a position allowing them to carry out successive attacks before the enemy reaches the maximum range of our long-range antiaircraft weapons. Our fighters discontinue the attack when our antiaircraft fire becomes too dangerous.

739. The primary defense during daylight against an air attack is fighter interception. The accomplishment of this depends upon good radar detection in addition to good communications.

740. Fighter protection destroys trailing or shadowing enemy aircraft.

DEFENSE AGAINST NIGHT AIR ATTACK

741. At night primary reliance is on antiaircraft fire power and maneuvers rather than on fighter protection. Night fighters are used when available. As the number that can be effectively controlled at one time is small, they are best employed against trailing enemy planes. They are also used effectively in disrupting large scale attacks. Generally ships use gunfire and maneuver as during a day attack, except that a smoke screen aids in concealing wakes.

742. During night action it is to be expected that guns not using flashless powder will blind personnel of other batteries.

743. At night when unidentified aircraft are detected, the officer in tactical command, before opening gunfire, weighs the possibility of destroying enemy aircraft against the likelihood of disclosing the formation position.

Section III. MINES**GENERAL INFORMATION**

744. Intelligent action to avoid damage by mines is based upon knowledge of the characteristics of the mines the enemy is most likely to employ. These characteristics are capable of considerable variation. New types of mines are constantly being developed to take advantage of particular situations, and operational practices of the opponent. In conjunction therewith, knowledge of the characteristics of our own mines as set forth in appropriate publications is essential.

745. Safety from mines depends upon knowledge of the area the enemy has mined, thorough sweeping, and the employment of protective measures by individual ships.

746. Ground mines may be anticipated in depths of less than 30 fathoms. Moored mines may be anticipated in waters of any depth up to 500 fathoms although they have usually been laid in depths of less than 200 fathoms. Large defensive minefields usually consist of moored mines, either contact or controlled.

PRECAUTIONS

747. *Ships always use swept channels or swept areas when possible.*

748. When operating in waters where enemy mines may be encountered, paravanes are used by ships so fitted when ordered by the officer in tactical command. Ships having protective devices against influence mines make them operative without orders.

749. When proceeding through mineable waters, suitably equipped minesweepers or other ships capable of maintaining the required speed are, if available, used for sweeping ahead of the large ships of a force.

750. Enemy minefields that cannot be avoided have a safe channel swept through them when military considerations permit.

751. Channels which are designated for the passage of shipping are swept as frequently as deemed necessary, and in consideration of the facilities available.

752. When it becomes necessary to cross an area in which moored mines are planted, particularly if it has not been possible to sweep the area, a column formation, with the leading ships streaming paravanes, is taken. If an explosion occurs under a ship in a column formation, following ships pass as close as possible to the point where the explosion took place, rather than giving this location a wide berth. If the tidal range is large or the currents are strong, it may be possible to select a time for passage when the mines will necessarily be so far below the surface that the ship will be safe. However, some enemy mines are laid with slack mooring lines so that the mine, or a float attached to the mine, is continuously watching.

753. All floating objects whose character is in any degree uncertain are carefully avoided. Mines may be secured to the bottom of dummy periscopes, concealed in waterlogged boats, or attached to wreckage of various kinds.

754. The possibility of the enemy using ships which are apparently neutral for the purpose of laying mines is given due consideration.

755. The use of sabotage mines occurs from time to time, particularly in neutral ports. Appropriate precautions are necessary.

ACTION UPON SIGHTING

756. Any ship in the vicinity of a force sighting a mine or mines in the path of the force or other ships, immediately makes the appropriate emergency mine warning signal. Aircraft sighting mines under similar circumstances immediately report the fact and, in addition, indicate the position of the mines by prescribed or appropriate measures or maneuvers.

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757. Any ship or aircraft encountering mines well ahead of a force, or in any other area through which our forces might pass, reports the type of mines sighted, their position, and also the action taken.

758. If practicable, the position of a mine is indicated by a ship or aircraft, preferably a screening ship or other small vessel, remaining in the vicinity of the mine, until all of our units menaced by the mine are clear. When practicable, the mine is destroyed.

759. If mines are encountered in the path of a force, or other ships, the officer in tactical command, or the senior officer of the ships menaced by the mines, takes immediate and appropriate action to avoid the mines.

Section IV. CHEMICAL DEFENSE

760. Chemical defense afloat is based on the following concepts of chemical warfare:

(a) Chemical attack against naval vessels is possible but not highly probable except at anchor in restricted waters or during and after a landing in amphibious operations. At these times our forces are particularly vulnerable.

(b) Chemical attacks on naval vessels are to be expected in the form of:

(1) *Aircraft spray* consisting of blister gases and tear gases delivered by aircraft to cripple a ship's personnel. This form of attack is accurately made only at low altitudes and is most probable when a force is cruising in low visibility, particularly at dawn or dusk, during landing operations, or while at anchor.

(2) *Chemical shells* containing tear gas, which is the only known chemical warfare agent adaptable for effective use in armor-piercing projectiles, as all other agents are rendered harmless by the explosion of the filler. Other agents are possible to be used, particularly against landing operations, in all types of artillery, mortar, and rocket shells. These contain a large charge of chemical but have no high explosive effect. On account of its inability to effect material damage, this type of shell is not expected to be used in naval engagement.

(3) *Chemical bombs* which contain any of the chemical warfare agents and are especially useful in creating a heavy concentration at a particular point. This is in contrast to spray which produces a more or less uniform contamination over an entire area.

761. Protection of personnel against chemical attack is for the purpose of promoting the offensive power of a ship. A probability that chemicals may be encountered does not justify resort to individual protection, particularly gas masks, at the expense of efficiency in the performance of battle duties. When chemicals are actually present during battle, individual protection which in any manner constitutes an interference with ones duty, is used only when such protection results in an increase in efficiency. General protection is obtained in some degree by the setting of the highest material condition.

762. Commanders afloat use the general and individual protection provided in accordance with the above policies, and the detailed instructions appearing in pertinent publications.

Chapter 8. NIGHT ACTIONS

Section I. GENERAL

800. The advent of radar changed previous concepts of night action. By exploiting the use of radar in its various applications, and of radar intercept receivers, night engagements are sought and accepted by small task forces even against numerically superior enemy forces. The composition of such a small task force may include several heavy units, but an action by a small task force is not considered a major action in the sense that is depicted in Chapter 12. Accordingly, the commander's knowledge of the capabilities, limitations, and operating techniques of the radars available in his command is a prerequisite.

801. Combining the use of surprise and concentration at night, which is possible to effect by use of radar, frustrates the enemy when contacted; then superior fire power destroys him.

802. In obtaining surprise by employing radar low visibility is essential. In this regard radar advantage diminishes as visibility increases. Detection by enemy aircraft which usually attempt illumination by flares will, if the illumination is successful, obviate surprise.

803. Concentration of forces as necessary for an engagement is possible at night by employment of radar without prejudicing searching requirements. If available, aircraft assist in searching at night.

804. In lieu of other instructions issued by competent authority regarding the procedure for challenge or the measures for identification of our own vessels the following is normal procedure:

(a) In waters where the presence of enemy vessels is not probable, fire is not opened until hostile character is established beyond a reasonable doubt.

(b) In waters where enemy vessels are to be expected, a suspicious vessel that makes an incorrect challenge or an incorrect reply to challenge, or otherwise fails to establish her friendly character, is assumed to be an enemy vessel and treated accordingly.

(c) When vessels are in formation, the measures to establish the identity of a suspicious vessel or contact usually are prescribed by the officer in tactical command. Normally the challenge of suspicious vessels is made by destroyers or other small vessels if present, but no suspicious vessel goes unchallenged by larger vessels if not sighted promptly by such smaller vessels. No vessel in the formation delays taking appropriate measures to establish the identity of strange vessels if immediate action is necessary.

(d) Failure to make any reply to a challenge is not always an indication of enemy character. The vessel seen or contacted may be a neutral. However, if the vessel can be identified as a combatant type, the normal assumption is that she is hostile.

805. The action to be taken in case any suspicious vessel fails to establish her friendly character is left to the judgment of the commander of the vessel or the formation. The situation or the condition existing at the time, the actions of the suspicious vessel, and the course of the suspicious vessel in comparison with the fleet course are factors to be considered in reaching a decision.

806. Although the normal concepts of night action are based upon exploiting radar to its fullest extent, the fundamental principles of night chance encounter without our use of radar cannot be completely ignored. Effective countermeasures against radar and the use of radar by the enemy are to be expected.

807. On account of the uncertainties of night engagements, particularly when radar is not available for effective use, there is no assurance that such an engagement will be to the advantage

of the stronger force. The decision to seek or avoid a night action is made at the time by the officer in tactical command. Before making this decision the officer in tactical command, knowing his mission, carefully weighs existing conditions in regard to:

- (a) The strategical situation.
- (b) The tactical situation.
- (c) The uncertainty of night engagements. At night the superior or equal force risks forfeiture of the superiority or equality of its most valuable asset, its coordinated hitting power.
- (d) The proficiency of our force in night firing compared with its proficiency in day firing.
- (e) The proficiency of our force in night firing compared with the enemy's estimated proficiency.

808. If the decision of the officer in tactical command is to seek night engagement, the battle plan ordered by him is likewise dependent on the existing conditions enumerated above.

809. In general a vessel or vessels not prepared or equipped for offensive action avoid contact with the enemy by evasive tactics.

810. The action to be taken by vessels contacting, sighting or encountering enemy vessels at night depends to some extent upon whether our vessels are operating singly or in small detachments, whether they are a part of large dispositions, the location of the area of operations, the proximity to the limits of enemy bases, the intelligence and movement reports. The commander weighs all known considerations and decides his own plan of action for each visualized situation.

811. Promptness of action is essential in all night encounters, and every precaution is taken to prevent being surprised or caught at a disadvantage. Where enemy vessels are likely to be encountered, the appropriate condition of readiness for action is taken, special attention being paid both to lookouts and the operation of radar detection apparatus, and all preparations are made for illuminating immediately with star shell and searchlights, if required, and opening with effective fire. On sighting or contacting a suspicious vessel, guns and searchlights are so trained that fire is opened immediately, if the decision is made to do so, or if the other vessel opens fire first.

Section II. NIGHT BATTLE PLANS

812. The night battle plans which the commander issues take into specific consideration:

- (a) Own forces available.
- (b) Probable enemy forces to be encountered.
- (c) Geographical location of operating area.
- (d) Latest intelligence information.
- (e) Visibility.
- (f) Possibility of early detection by aircraft or by other means.

813. A night battle plan sets forth methods for the coordinated employment of task subdivisions of the command during battle. If prepared in advance, it usually contains:

- (a) Assumptions.
- (b) Intentions.
- (c) Battle disposition.
- (d) Gunnery, torpedo, illumination, and smoke doctrines.
- (e) Procedure for coordination of own reconnaissance aircraft.
- (f) Damaged ship procedure.

814. A night battle plan may include provisions for only a particular combat, or for a connected series of separate or coordinated engagements, possibly culminating in general action, and all directed toward the early attainment of a specified tactical objective.

815. The commander may prepare and issue several night battle plans based on different assumptions and situations. The plan to be used is placed in effect by a battle order, usually given by signal just prior to the battle.

816. It is incumbent on the commander of each force operating in an area where there is a possibility of encountering the enemy to keep his force informed of his general line of action in the event of night encounters. Battle plans are a means of doing this. They may be written or oral, but it is essential that they be clear and thoroughly understood by all concerned. It is also incumbent on the commander to keep his command informed of a rendezvous in event of a night action.

817. Night engagements are best fought in accordance with a set plan. However, the officer in tactical command must be prepared to act in accordance with his best judgment if the situation warrants deviating from prearranged plans. Flexibility of tactical maneuvering is essential. It is impossible to visualize all of the different situations which might arise in a Night Battle.

Section III. USE OF STAR SHELLS AND SEARCHLIGHTS

818. No illumination is used unless prescribed by the officer in tactical command or other competent authority. Night contact with an enemy normally is made by radar. By effective use of the combat information center, adequate information may be obtained of the enemy to track, approach, and attack if so desired. Although full use of radar in locating an enemy and controlling gunfire may obviate the need of illumination, it is nevertheless incumbent upon responsible commanders to be familiar with the general use of star shells and searchlights, as under some conditions their use may be required.

819. Both searchlights and star shells are visible from considerable distances, star shells from greater distances than searchlights. Therefore, if powerful enemy forces are known or suspected to be within the radius of visibility and our forces are endeavoring to avoid them, it is inadvisable to illuminate or open fire and thus disclose our position. Special instructions issued by the officer in tactical command or other competent authority, the general plan of the operation, the assigned task, the situation existing at the time, and other special circumstances will all influence the action to be taken.

820. When illumination of enemy vessels is required the following are considerations in deciding whether to use searchlights or star shells or both:

(a) Star shells:

Disadvantages

- (1) Delay in establishing illumination, but not if used in conjunction with radar-controlled fire.
- (2) Possible difficulty in maintaining illumination when the bearing of the enemy is changing rapidly, which will generally be the condition when ranges are short.
- (3) Low clouds make star shell illumination uncertain and sometimes impossible, even with excellent surface visibility.
- (4) If several ships are firing together, a definite control plan is required to prevent interference. One or more low bursts short of the target will ruin the illumination for some vessels and might make it ineffective for all vessels.
- (5) Not suitable for use at very short range.
- (6) Reduction of volume of effective fire especially in destroyer type.

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Advantages

- (1) Greater range.
- (2) Do not provide point of aim for enemy vessels except as is provided by flash of guns firing.
- (3) Can be used as part of first salvo in radar-controlled fire.

(b) Searchlights:

Disadvantages

- (1) Range of effective illumination limited to 4,000 to 6,000 yards with searchlights.
- (2) Searchlights provide a continuous point of aim for enemy vessels.
- (3) Difficult to hold on target in elevation. This sometimes causes lights pointed short of the targets to obscure them completely from view.
- (4) Danger of silhouetting friendly ships.

Advantages

- (1) Illumination can be established quickly if the bearing of the target is known. With modern fire control equipment, the searchlights can be pointed at the target before being turned on so that little searching should be necessary.
- (2) Can be kept trained on target whose bearing is changing rapidly.
- (3) Better suited for illuminating targets at ranges so close that star shell illumination would be impracticable.
- (4) Not affected by low clouds provided visibility on surface is good.
- (5) Comparatively simple doctrine enables searchlights to be efficiently used by several vessels in formation.
- (6) Blinding effect when trained on bridge of target vessel.

(c) General:

- (1) The area illuminated by star shell is larger than the area illuminated by a properly adjusted searchlight.
- (2) Searchlights, star shells, or aircraft flares will all produce silhouette effects which, depending on conditions, may be advantageous or disadvantageous to us.
- (3) On account of the silhouette effect, ships in the center of the disposition normally use searchlights as sparingly as the situation permits.
- (4) Burning ships provide good illumination in their vicinity.

821. If the situation requires the use of both searchlights and star shells, searchlights may be used first and gunfire opened immediately. The firing of star shells may be started at the same time, and when illumination is established by star shells the searchlights may be turned off. This method avoids the delay in establishing illumination which always occurs when star shells alone are used, but has the disadvantage of disclosing the position of the illuminating ships to the enemy.

822. Searchlights, if used, are turned on only when trained on the target and ready to open fire, and when by turning them on a positive advantage will be assured without disadvantage to other friendly ships in company.

823. Turning on searchlights and sweeping over wide arcs for the target is avoided. However, when a target is picked up, searchlights are swept short distances on each side in order that any other enemy vessels in the vicinity may be located.

824. In case of attack, no matter what method of illumination is used by the defending force, the greatest vigilance is exercised to guard against additional attacks through dark sectors or wave attacks through the illuminated sector.

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Section IV. NIGHT ACTION INSTRUCTIONS

825. In setting forth instructions for night actions the following assumptions are made:

- (a) That heavy units (battleships, carriers, and cruisers) will normally be screened.
- (b) That our heavy units do not carry torpedoes but enemy heavy units may.
- (c) That no opportunity will be missed to inflict damage on the enemy unless the nature of the mission prevents.
- (d) That radar is the primary means of detection at night to prevent surprise attack, but complete reliance cannot be placed on this means due to possible enemy counter-measures.
- (e) That if available, and operating conditions are suitable, aircraft will supplement the screen for searching in addition to providing fighter protection.
- (f) That some form of intelligence information will be received concerning movements of large enemy forces.

Based on these assumptions, certain situations are indicated in succeeding paragraphs with appropriate action therefor.

Vessel steaming singly making a single contact

826. Since all heavy units are assumed to be screened, this situation indicates a destroyer type making a single contact.

(a) *Contact by radar.*—The distance at which contact is first established generally indicates the size of the contact. Course and speed obtained by tracking, IFF, and movement report information assist in establishing the identity.

(1) If operating in an area where contact may be friendly, proceed toward contact, ready all stations for battle, identify visually if possible, challenge. If friendly character cannot be established, illuminate by searchlight, and be prepared to take immediate offensive action if contact appears to be hostile.

(2) If operating in an area where contact may be hostile, ready all stations for battle, close range, be prepared to take offensive action using all weapons. If visibility is such that contact's character cannot be made out and there is the slightest doubt that contact may be friendly, flash searchlight on target; if hostile take under gunfire and fire torpedoes. If positive of enemy character prior to flashing searchlight, take offensive action using torpedoes and gunfire without illuminating contact. If enemy gives no indication of being aware of your presence, the gunfire phase may be deferred until torpedo results have been obtained. Submarines normally submerge when discovered on the surface at night. A surprise attack prevents this.

(b) *Contact by visual sighting.*

(1) If operating in an area where contact may be friendly, alert gun stations prior to challenging. If friendly character cannot be established by proper reply or by visual means, illuminate by searchlight, and avoid closing the range to a dangerous distance until identity is known, as raiders may carry torpedoes.

(2) If operating in an area where contact may be hostile, ready all stations for battle. If positive of enemy character, take under immediate gunfire and fire torpedoes. Hostile contacts must not be permitted to get away. If the enemy has fired torpedoes, evasive action may be taken. If illumination is used, star shell illumination is best, and will help in preventing any other targets from making a surprise attack, as a searchlight offers a good point of aim.

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Vessel steaming singly making two or more contacts

827. Since all heavy units are assumed to be screened this situation indicates a destroyer type making two or more contacts.

(a) *Contact by radar.*—If definitely of hostile character, make surprise torpedo attack, using radar solution. By exploiting radar, no illumination is necessary. By evasive action await results of the torpedo fire, prior to commencing gunfire, unless the enemy is firing at you. If all torpedoes have not been fired, make a second torpedo attack to reduce the enemy to a more nearly equal strength. After the element of surprise no longer exists, if the enemy's strength is still superior, it may be best to avoid further contact by turning away and increasing speed to clear the area.

(b) *Contact by visual sighting.*—If numerous contacts are made and they are possibly enemy, turn away at high speed and await a more favorable opportunity to attack or to commence offensive action, inflicting as much damage as possible prior to the enemy's commencing his gunfire. Such an encounter may be a complete surprise. Make ready for action as quickly as possible after sighting, if not already done. If not positive of identity, it may be best to avoid further contact by turning away and increasing speed to clear the area. The enemy would have a distinct advantage if our position is disclosed by a flashing light.

Formation making a single contact

828. (a) *Contact by radar.*—The vessel making contact reports by primary warning system to the officer in tactical command. The vessel in the screen closest to the contact is normally designated to investigate. A second unit of the screen may be detailed to assist. If contact is believed to be hostile, the officer in tactical command may maneuver the remainder of the force away from the danger area until the situation has been clarified. The investigation proceeds in accordance with the instructions for a single vessel. The commanding officer of the vessel designated to investigate informs the officer in tactical command, prior to opening with gunfire, as it may not be advantageous to disclose the force's position until large enemy forces are encountered.

(b) *Contact by visual sighting.*—Visual contacts may be made by units of the screen, or if contact has successfully penetrated the screen, by units of the force screened. The vessel making contact reports by primary warning system to the officer in tactical command, and identifies. If necessary to illuminate for identification, use searchlight, training the beam on the bridge of the contact, and if hostile, take immediate offensive action, with due regard to the position of friendly ships. The officer in tactical command may maneuver the remainder of the force away from the danger area.

Formation making two or more contacts

829. Numerous contacts if friendly are normally known to the officer in tactical command.

(a) *Contact by radar.*

(1) The vessel making contact reports by primary warning system to the officer in tactical command, stating the number of contacts. The officer in tactical command, weighing the situation, transmits to the force his battle order, which places in effect one of his battle plans, or takes such other action as he decides upon.

(2) If engaging, the action then takes place in accordance with plan, or as modified by the officer in tactical command. Type doctrines for control of various weapons are used as applicable. Important developments are transmitted to the officer in tactical command as they become evident.

(3) In general, if the element of surprise is attained, the officer in tactical command may order a torpedo attack by destroyers in the van, opening fire with heavy units at the most effective ranges for types of heavy units, after torpedoes have been fired and van destroyers are clear. The range to the enemy is not closed unnecessarily by our heavy units in consideration of the enemy's torpedo threat. If within torpedo range a turn away is ordered by the officer in tactical command just prior to the time that enemy torpedoes are expected to reach our battle line. Additional torpedo attacks by the van or rear destroyers are ordered as appropriate. Targets of opportunity are taken under fire and no detached enemy ships are permitted to close our heavy units. It is imperative that combat information centers immediately inform flag and commanding officers if such a unit is detected so that it may be destroyed prior to attacking our forces, particularly with torpedoes.

(4) Carriers, if present, generally turn away from the direction of the contact and keep our battle line interposed between the enemy and the air (carrier) group. The screen accompanies as designated.

(5) If visibility is good and complete surprise is not possible, the officer in tactical command may open with gunfire from all units prior to ordering the destroyers to close for a torpedo attack.

(6) It is essential that combat information centers keep an accurate summary plot of the location of own as well as enemy forces because in night actions a force may become scattered and the recognition of friend or enemy becomes difficult.

(7) The officer in tactical command designates certain units to destroy cripples and rescue survivors.

(b) *Contact by visual sighting.*

(1) Unless visibility conditions are good it is doubtful if numerous contacts could be sighted visually at one time by one unit of a force. Visibility permitting, upon contact, the officer in tactical command may find it possible to form a battle disposition and fight an action in accordance with a prearranged plan, tasks having been assigned to the various task subdivisions of the force. Also if visibility is good there is always the possibility of launching a night air attack which may be coordinated with a surface attack.

(2) The vessel making contact reports by primary warning circuit to the officer in tactical command giving the information observed. Depending upon circumstances and the situation at the time, the officer in tactical command declares his intentions. If visibility is poor, forming a battle disposition as indicated above may not be feasible. If contacts are only from one direction, carriers are turned away and are gotten clear, while other heavy units are maneuvered by signal away from dangerous waters but in general interposing between our carriers and the enemy.

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Chapter 9. EMPLOYMENT OF SUBMARINES

Section I. SUBMARINE CHARACTERISTICS

900. The modern submarine is a seaworthy, rugged craft. On the surface it has long cruising radius, a maximum speed of 17-21 knots, guns for use against surface craft and aircraft, radio capable of long range transmission, and radar. Its maximum speed awash is about 14 knots. Submerged it has a low speed (2-knot) cruising radius of about 90 miles and a submerged endurance of about 45 hours lying on the bottom. Its maximum submerged speed is normally 8-9 knots, but usually with full battery charge this speed can be maintained for only about one hour. Although under certain conditions it can receive radio messages while submerged, this method cannot be relied upon as an effective means of communication.

901. Habitability on the surface and submerged is generally fair under all conditions of extensive operations, if submarines are equipped with air-conditioning apparatus. Although this equipment greatly improves the ship's habitability, oil fumes and battery gases cannot be disposed of when submerged.

902. The principal weapon of the submarine is the torpedo of 30-45 knots speed, with ranges of about 9,000-4,500 yards respectively. Both air-driven and electrically-driven torpedoes are used, the latter showing no wake. Chemically driven torpedoes, which are wakeless, may be developed.

903. All submarines can plant specially constructed mines through their torpedo tubes.

Section II. SUBMARINE TACTICS

904. In making a torpedo attack submarines may use radar, observe their target by short (about 10 seconds) exposures of the periscope, or keep track of its bearing and range by supersonic devices. In the latter case the attack can be made without recourse to the periscope from depths as great as 120 feet.

905. Group attacks are sometimes made in the form of a series of attacks, each submarine launching an attack when in a favorable position.

906. Submarines unsupported, or acting in conjunction with air reconnaissance, can deliver night surface attacks. To attain position for such attacks they may lie in wait in the path of the enemy, or may trail during daylight and proceed to an advanced position during the early dark hours.

907. When conditions permit and the choice is open to the submarine, its attack will be made:

- (a) With wind and sea astern.
- (b) From the direction of the sun.
- (c) From the side away from the moon.
- (d) With the target silhouetted against rising or setting sun.
- (e) From the side least protected by screening ships.
- (f) In reduced or spotty visibility from the dark side.

908. The most favorable position for firing with respect to bearing is from 70° to 110° relative to the target's course. However, the low submerged speed of the submarine limits its commander severely in the choice of approach bearings.

909. The ability of a submarine to submerge enables it to deliver surprise torpedo attacks at close range, to lay mines in waters controlled by or under observation of the enemy, and to obtain

information of the enemy under conditions which preclude scouting by other types. The small silhouette of an awash submarine is very difficult to see at night, and affords the submarine an advantage for night surface attacks.

910. The most serious limitations of the submarine are its vulnerability and medium speed on the surface and its short radius of action and slow speed submerged. The latter factors are coupled with the necessity of recharging batteries on the surface when the limits of submerged endurance have been reached.

911. Secrecy and surprise constitute the essence of successful submarine warfare. Any projected submarine operations which do not provide these elements, which do not contemplate utilizing the advantages accruing from the ability to submerge, and which fail to take into account the inherent limitations of the type, constitute a sacrifice of the potential military value of this weapon.

Section III. DOCTRINE OF GENERAL EMPLOYMENT

912. Submarines are normally employed to attack with torpedoes those enemy units whose destruction or damage would most seriously interfere with the successful prosecution of enemy operations. Given a choice of favorable targets, submarines ordinarily are required to attack heavy combatant ships or loaded transports in preference to light craft or auxiliaries. However, they are thoroughly indoctrinated to seize every opportunity for a successful attack on suitable enemy ships, and not to forego such opportunities in the hope of encountering a more important target.

913. On occasion the mission of the submarine may be such that the successful accomplishment of its task would be jeopardized by indiscriminate attacks. On such occasion the orders to the submarines must clearly state the circumstances under which they are to refrain from attacking.

914. Submarines are also employed for scouting, screening, attacks on enemy lines of communications, mining, and services to aircraft, including rescue of personnel. Other tasks may include delivery of supplies to blockaded ports, delivery of important communications, cable cutting, the landing and recovery of spies and demolition or raiding parties in enemy territory, and acting as beacons to guide attack forces to beaches, channels, or bombardment areas.

915 Even the occasional appearance of submarines in widely separated areas serves a useful purpose in requiring the enemy to take defensive measures out of all proportion to the submarine effort. The establishment of convoy systems and the adoption of circuitous shipping routes with their consequential reduction in the service of supply, the diversion of combatant forces to the defense of shipping, the dispersion of forces and the restrictions imposed on the free movements of combatant forces to the defense of shipping, the dispersion of forces and the restrictions imposed on the free movements of combatant units, are all forced upon the enemy by the skillful and judicious use of even a few submarines.

SCOUTING

916. Submarines are generally unsuited for tactical scouting due to their medium surface speed, the ease with which they can be forced to submerge, and the short distance to their visible horizon. They are, however, particularly suitable for conducting unsupported observation in waters under enemy control. When such waters are patrolled by enemy submarines or aircraft, the submarine scout is usually compelled to remain submerged during daylight to conceal his position and guard against surprise attack. It is also usually necessary for him to observe radio silence except for vital contact reports; otherwise he may be located promptly by radio direction finders, his safety jeopardized, and his usefulness greatly curtailed. However, under certain conditions submarines can receive radio messages while at periscope depth, or deeper if the power is sufficient, but this method cannot be wholly relied upon for effective communication. Transmission, when necessary, may be accomplished at night, accepting in such event possibility of enemy detection by radio direction finder.

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SCREENING

917. Submarines may be utilized for screening operations and are best employed as a distant screen across an enemy line of advance to inform own forces of any enemy attempting to intercept. However, enemy air activity will seriously reduce the effectiveness of this type of screen.

OPERATIONS AGAINST ENEMY LINES OF COMMUNICATIONS

918. Attacks on military lines of communication and the destruction of sea-borne commerce usually partake of the nature of patrol, individual submarines being assigned to well defined areas. As a countermeasure against this form of submarine warfare, the enemy will probably employ the convoy system, using surface and air escorts which will undoubtedly be reinforced near focal and terminal points. On the high seas enemy shipping, including convoys, will probably be given a circuitous routing.

919. In operations of this nature the concentration of submarine activities in the vicinity of focal and terminal points results in greater damage to the enemy, although the submarines themselves are subjected to intensified antisubmarine measures. Their positions are frequently shifted to cover variations in shipping routes and to evade enemy counter-action.

920. Submarines operating in enemy waters are not required to transmit reports by radio, except on special occasions where the importance of the communication to be transmitted justifies the disclosure of its position, or on occasions when it is desired to attempt to harass or mislead the enemy by transmissions.

MINING

921. Submarines lay mines in waters under enemy control where surface mine layers would be subjected to attack or detection. Submarines despatched on such missions attack with torpedoes any favorable targets encountered, unless otherwise directed.

SERVICES TO AIRCRAFT

922. Some submarines are capable of carrying gasoline, lubricating oil, and minor supplies for aircraft. Planes can be fueled underway in the open sea under favorable conditions as well as in protected roadsteads. A squadron of patrol planes can be serviced rapidly and efficiently. Thus, submarines may be used to support seaplane flights to and from outlying points where surface tenders are not available or cannot be maintained. Submarines may also be used for personnel rescue during air operations.

EMPLOYMENT OF SUBMARINES IN ANTISUBMARINE WARFARE

923. A basic advantage exists in the use of own submarines in operations against enemy submarines. If surface craft and even aircraft are used exclusively for this purpose, the enemy submarine can remain on the surface at least a portion of the time. On the other hand, if there is any possibility of our submarines being in the vicinity, the enemy submarine will probably remain submerged throughout daylight hours. This has the effect of forcing him to do all battery charging at night or in thick weather, and in addition reduces his effective speed of advance and lowers the efficiency and morale of his crew. For this same reason the mere presence of our submarines ahead of a surface force serves to reduce the effectiveness of enemy submarines in maintaining a striking position ahead of their own force.

OPERATIONS OF ATTRITION

924. In opposing an enemy advance, submarines may be employed for observation, reconnoitering and for attrition attacks. Normally this employment requires the stationing of submarines as patrol units near the enemy's known point of departure and along focal points in the

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line of his advance. When the enemy's speed is relatively high or when he has the choice of several divergent routes it is best to concentrate our submarines in the vicinity of his known destination, as otherwise he may be able to avoid the areas in which they are disposed. This is especially true in cases where slow submarines only are available. Operations of attrition may be conducted under circumstances in which the destruction of enemy auxiliaries or transports is temporarily of greater moment than the destruction of his combatant ships.

Section IV. SUBMARINE OPERATIONS IN CONJUNCTION WITH OTHER TYPES

925. While submarines may operate unsupported in any of the types of operations previously discussed, it is obvious that their effectiveness will often be enhanced if their activities are coordinated with or supported by the activities of other types.

926. A very profitable form of coordinated operations consists of cooperation between aircraft and submarines, the former supplying information upon which the submarines may proceed to positions favorable for attack.

927. In joint submarine and aircraft operations, except when specifically called for in pre-arranged plans, aircraft normally avoid areas known to be occupied by own submarines, do not approach submarines known to be friendly and avoid maneuvers which could be construed as attacks. Submarines are required to initiate identification procedure on sighting friendly aircraft.

928. Whenever submarines are operating with other forces all ships and aircraft must be informed of the location and probable operations of these submarines. This includes submarine operations ahead of our own forces, on scouting lines, in the enemy's probable track, and off bases or objectives.

929. Aircraft must be kept fully informed of submarine operations when submarines act in conjunction with aircraft. Submarines proceed to and from their stations in definitely specified lanes which they will enter at pre-established times. During at least part of their surface runs, especially when within range of shore defenses they are escorted by surface ships.

930. In the vicinity of our bases an area designated as a submarine sanctuary is established in which submarines will be free from attack during specified periods. When friendly submarines which have been submerged in the vicinity of the base desire to surface they do so within the limits of the sanctuary and identify themselves before proceeding out of it.

931. No positions for submarines are normally prescribed in approach, contact and battle dispositions as, in general, submarine operations are coordinated, but not closely combined with those of surface craft composing such dispositions.

932. In anticipation of a major action, the submarines may be deployed on the surface across or flanking the line of advance of the enemy heavy ships. If possible the deployment is made during darkness or low visibility or under cover of an aircraft screen, so that the disposition of the submarines will not be disclosed to the enemy. It is normally completed in time to permit undetected submergence in positions from which attack can be delivered.

933. Submarines that are initially unfavorably situated for attaining an attack position prior to a major action may be so disposed as to permit them to attack the enemy's heavy ships in case of a reversal of the action, or to sink damaged enemy heavy ships which may withdraw or fall out of his battle line.

934. In cases when it is probable that the enemy will retire to a known base or area, such submarines as have been unable to attack during the major engagement and submarines no longer in position to attack but having torpedoes remaining, may be disposed along the enemy's line of retreat for the purpose of attacking as he retires.

Section V. SUBMARINES CRUISING IN COMPANY WITH OR IN THE VICINITY OF FRIENDLY FORCES

935. Unless special precautions are carefully observed submarines are in grave danger of being treated as hostile if they come to the surface in the presence of their own forces.

936. Submarines do not pass through own dispositions or formations if it is possible to avoid doing so.

937. If it is necessary for submarines to pass through a disposition or formation they do so on the surface and are escorted by one or more surface vessels. All task subdivisions are informed of the movement.

938. It may be expected that a submarine will never emerge in the presence of friendly surface craft or aircraft, except in an emergency, without first establishing its identity.

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Chapter 10. AIRCRAFT OPERATIONS

Section I. AIRCRAFT EMPLOYMENT

1000. The employment of naval aircraft depends on:

- (a) Mission to be accomplished.
- (b) Types of aircraft available.
- (c) Characteristics and capabilities of types available.
- (d) Nature of bases from which operated.
- (e) Weather.

1001. In general the functions to be performed by aircraft operating from ship or shore bases are:

- (a) Patrol.
 - (1) Fighter (carrier and shore based aircraft only)
 - (2) Antisubmarine
- (b) Search.
- (c) Scouting (includes tracking).
- (d) Bombing.
- (e) Torpedoing (Carrier and shore based aircraft only).
- (f) Mining.
- (g) Interception (Carrier and shore based aircraft only).
- (h) Observation.
- (i) Reconnoitering and photography.
- (j) Smoke laying.
- (k) Aerial escort of convoy.
- (l) General utility, which includes sea rescue, message dropping, and transporting personnel and freight.

1002. Detailed information concerning the various types of naval aircraft is found in current fleet publications. Commanders who are responsible for aircraft operations acquaint themselves with type characteristics.

Section II. FORMS OF AIR ATTACK

1003. Forms of enemy air attacks which may be currently encountered are described in fleet tactical publications. The following are commonly used:

- (a) Bombing.
 - (1) High, medium, and low level.
 - (2) Skip.
 - (3) Dive.
 - (4) Glide.
 - (5) Depth charging.
 - (6) Remote controlled.
 - (7) Parachute.
 - (8) Rocket.
- (b) Torpedoing.
- (c) Strafing.

Section III. TACTICS OF ATTACKING AIRCRAFT

1004. The following types of tactics are used by aircraft in attacking dispositions and formations:

- (a) Concentrating sufficient strength to sink or completely disable individual ships, the main attack being directed against selected heavy ships.
- (b) Remaining out of sight of all ships until approach is started.
- (c) Attacking when target is under fire, firing, or otherwise restricted in its anti-aircraft fire and maneuvers.
- (d) Reducing opposition from screening ships by attacks with light bombers and fighters.
- (e) Coordinating two or more types of aerial attacks.
- (f) Protecting bombers with escorts of fighters.
- (g) Commencing approach not below 15,000 feet if ceiling permits, and from the direction of the sun if practicable.
- (h) Using cloud concealment if available.
- (i) Approaching from the dark side at twilight and during moonlight.
- (j) Delivering the attack as quickly as possible. For this purpose the approach on a large disposition is often made from the original direction of contact, rather than to take time to circle to another bearing more favorable in other respects.
- (k) Approaching down wind to hasten the attack and decrease one component of bombing error.
- (l) Approaching over that part of screen threatening least antiaircraft fire.
- (m) Approaching in radar blind spots; for example, over adjacent land at low altitude.
- (n) Splitting up of large raid and attacking from all sectors simultaneously.
- (o) Diverting fighters to throw off fighter interceptors from bombers.
- (p) Using flares or searchlight for illuminating target.

1005. Similar tactics are used against shore-based objectives when feasible, emphasis being placed on strafing planes on the ground and gun emplacements.

Section IV. AIRCRAFT OPERATING IN VICINITY OF FRIENDLY SHIPS

1006. Our aircraft flying within sight of friendly ships will always be in one of the following categories:

- (a) Aircraft engaged in a task which does not require them to remain or come within antiaircraft range of friendly ships.
- (b) Aircraft engaged in a task which requires them to remain within antiaircraft range of friendly ships, such as a patrol of fighting planes over a disposition.
- (c) Aircraft required to come temporarily within antiaircraft range of friendly ships.

1007. Aircraft engaged in a task which does not require them to remain or come within anti-aircraft gun range of friendly ships must keep outside of such range. The burden of avoiding anti-aircraft fire against such aircraft rests with the aircraft. They take such measures for identification as are prescribed.

1008. Aircraft engaged in a task which requires them to remain within antiaircraft range of friendly ships depend upon the assumption that their presence and task is known to the friendly ships. The burden of preventing antiaircraft fire against such aircraft rests with the ships. Such aircraft, however, avoid maneuvers which could be construed as attacks on the friendly ships. They take such measures for identification as are prescribed.

1009. Aircraft required to come temporarily within antiaircraft range of friendly ships, when proceeding to or returning from aircraft operations or in the course of their operations, avoid

maneuvers which could be construed as attacks on the friendly ships. They take such measures for identification as are prescribed.

1010. The measures for identification of aircraft include distinctive formations, painting with distinctive markings, special maneuvers, silhouette recognition, signals, and aircraft IFF, the employment of which conforms to current doctrine and instructions.

Section V. NIGHT OPERATIONS

1011. Night operations, although more hazardous than day operations, are necessary to take advantage of:

- (a) Element of surprise.
- (b) Placing enemy under constant pressure.
- (c) Striking objectives which during day time are out of reach of a fighter cover.
- (d) Less fighter opposition.
- (e) Inaccurate antiaircraft fire.
- (f) Searching undetected.
- (g) Spotting for bombardments.
- (h) Mining undetected.
- (i) Attacking enemy units which operate only at night.
- (j) Fighter protection (night fighters).

1012. Hazards which influence night operations are:

- (a) Absence of normal aids to aerial navigation.
- (b) Possibility of disclosing landing field or deck to the enemy, if illumination becomes necessary for aircraft taking-off or landing.
- (c) Added difficulty of aerial navigation, due to inability to determine the drift angle without use of flares.
- (d) Undesirability of using homing devices, due to restrictions on the use of radio or imposition of radio silence.

1013. Concerning visibility, details of terrain and objects on the land or water surface can be seen from aircraft only under favorable circumstances, while on the other hand, aircraft cannot be seen from the surface except during twilight or under unusually favorable circumstances. Numerous conditions affect visibility:

- (a) The use of searchlights renders the searchlight location visible to aircraft at great distances.
- (b) The visibility of objects illuminated by searchlights depends on the angle at which the illuminated surface is viewed. Thus it is probable that, from aircraft, objects illuminated by searchlights are more readily seen at long ranges and are much less readily seen when directly under the aircraft.
- (c) Aircraft beacons, surface lighthouses, street lights of cities, and the lights of an undarkened ship are plainly visible to aircraft, in clear weather, at great distances.
- (d) Airplane flares and the flares of star shells are themselves visible to aircraft at great distances.
- (e) Surface objects illuminated by aircraft flares or by star shells are visible to aircraft only at short distances.
- (f) The flashes of gunfire from guns larger than 3 inches in caliber, are visible from aircraft at great distances.
- (g) The glow from smokestacks, the wakes of vessels, and the reflected light of screened wake lights are visible from aircraft at only short distances.
- (h) The exhaust from aircraft engines is visible at short distances only.

(i) The reflection of moonlight from the water may, under favorable circumstances, silhouette darkened ships and render them visible to aircraft.

(j) Objects silhouetted against the sky are more readily visible than similar objects not so silhouetted, at the same range. This applies to visibility from both aircraft and surface vessels. Thus in evening or morning twilight aircraft can be seen from surface vessels and from other aircraft at lesser altitudes, when the surface vessel is invisible to the aircraft.

(k) During darkness, exclusive of twilight, aircraft are invisible from the surface except:

(1) When carrying lights or when illuminated by searchlights.

(2) Momentarily when silhouetted by moonlight, airplane flares, star shells, or the reflected light of illuminated cloud areas.

1014. The location of a darkened ship, force, base, or aircraft may be disclosed to aircraft by:

(a) Radar.

(b) Following vectored courses.

(c) Information of the geographical location and knowledge of geographical outline.

(d) Radio bearings of transmission by enemy or of transmission by trailing vessels.

(e) Intermittent or continual showing of lights, gunfire, or high speed wakes.

(f) Use of guide or directional lights, searchlights, or star shell by trailing vessels or the use of airplane flares by the aircraft themselves.

(g) Approaching the approximate location from the opposite side to the moon and silhouetting the darkened objective against the reflected light of the moon.

Chapter 11. SORTIE AND ENTRY

Section I. GENERAL

1100. The purpose of sortie and entry plans is to provide for the orderly departure or entrance of a large number of vessels from or into a port with the greatest possible security.

1101. Sortie or entry is made under any one of the following conditions or combinations of some of them:

- (a) No enemy opposition of any character.
- (b) Opposition from enemy mines.
- (c) Opposition from enemy submarines.
- (d) Opposition from enemy light forces.
- (e) Opposition from enemy heavy ships.
- (f) Opposition from enemy aircraft.

In addition to the above, opposition from enemy shore batteries may be encountered during entry.

1102. The plan to be used for sortie or entry is one suitable for the task organization and for the conditions to be encountered during the operation. Type plans are available in appropriate publications. Standard plans are practicable when there is no opposition of any character or when there is only opposition from mines and submarines. Standard plans are usually prepared well in advance. Special plans or operation orders are necessary when sortie or entry is made under other conditions. The nature of the port, the depth of water after clearing the entrance, the navigation channels and the number of entrances or channels are considerations that require a modification of standard plans.

1103. Prior to departure from or entrance into a port held by our own forces, if any opposition from enemy mines, submarines, or aircraft is possible, preliminary measures to contribute to the success of the operation are taken as much in advance as is necessary by the base defense force, or any other force in the port that is free to do so. These preliminary measures are:

- (a) Scouting by aircraft, surface vessels, or submarines.
- (b) Patrolling the area outside the harbor entrance to prevent the laying of enemy mines and to detect and destroy enemy submarines.
- (c) Sweeping of the navigation channels to deep water or specified lanes to deep water.
- (d) Marking of such channels by buoys or by range marks.
- (e) Maintaining constant radar watch on both surface and air search radar apparatus.
- (f) Maintaining constant watch on underwater detection apparatus.

1104. If the force is not restricted as to the course it takes, the preliminary sweeping operation is not confined solely to the one lane to be used, in order not to divulge to the enemy by the sweeping operations the lane that will be used. Unless otherwise prescribed, swept channels are 500 yards wide.

1105. Immediately prior to the operation, the forces at the port:

- (a) Establish an air patrol over the area to be used by the force.
- (b) Make a final sweep of the channel to be used.
- (c) Take measures to have all friendly submarines clear of the area to be used by the force in order that any submarines encountered may be considered hostile.

1106. The required Conditions of Readiness for action and Material Conditions to be assumed by individual units are, unless otherwise prescribed by the officer in tactical command, as set forth in current fleet publications.

1107. Sortie and entry procedures depend upon the task organization, geographical considerations, and probability of enemy opposition.

1108. Channel formations for sortie or entry are prescribed by task force commanders.

1109. The use of high speeds in passing through a narrow navigation or swept channel decreases the time to maneuver to avoid a ship mined or torpedoed. On the other hand, the use of low speeds in a narrow navigation or swept channel which is exposed to air or submarine attack increases the chance of ships being hit by bombs or torpedoed in those confined waters. In addition, low speeds in a narrow navigation or swept channel increases the time required for sortie or entry and thereby increases the possibility of submarine and air attack during a period when the ships are unusually vulnerable to such attacks.

1110. The senior officer present after a base has been occupied issues standard instructions regarding:

- (a) The channels to be used.
- (b) The channels or areas to be swept for enemy mines.
- (c) The extent of the area to be searched and patrolled.
- (d) The point or points of origin at which cruising or other dispositions will be taken.

Special instructions for sortie from and entry to a particular port are issued by the controlling authorities of that port.

Section II. SORTIE

1111. The purpose of sortie plans is to provide for the orderly departure with the greatest possible security of a large number of vessels from the same port so that they may readily take a cruising disposition or be in a suitable disposition to meet the enemy outside the port.

1112. Sortie plans prescribe the sequence of leaving port and the interval between task subdivisions in relation to the zero hour. They prescribe the speed to be used in the channels and, if enemy opposition is expected, assign appropriate tasks to the various task subdivisions. The operation order under which the force proceeds to sea includes among its provisions the sortie plan to be used, the time of zero hour, the course, speed, and disposition to be taken at the point of origin.

1113. If submarines are operating as a task subdivision of a force they normally clear the harbor first and sufficiently in advance of zero hour to be well clear when the surface vessels leave and to screen ahead of the force while it is taking the prescribed disposition. The light forces, aircraft carriers, battleships, and train normally follow in the order named. If opposition from enemy submarines, aircraft or surface vessels is probable during sortie or just after clearing the port, the officer in tactical command disposes his forces so as to best repel the attack. In this case, the train may remain in port until the situation clears.

1114. If vessels are not required to keep in a navigation or swept channel upon clearing the entrance to the port and if the only probable attack after clearing the port is one from submarines, it is necessary for the heavy vessels and train vessels to use the highest practicable speed until well clear of the entrance. The distance between vessels under these circumstances may be increased.

1115. Responsible commanders may order a sortie of their forces from port when an air attack is imminent. All vessels make preparations for getting underway when warning of approaching enemy aircraft is received.

Section III. ENTRY

1116. The purpose of entry plans is to provide for the orderly entry of a large number of vessels into the same port so that they may take up their assigned anchorages readily; to provide for overcoming enemy resistance at the port and to provide security to heavy ships and train while they are taking their station in the disposition for entering port and during the time their movements are restricted by the necessity of conforming to navigation or to swept channels.

1117. Entrance is always made under one of the following situations:

- (a) Port is held by our own forces.
- (b) Port is not occupied by own or enemy forces.
- (c) Port is held by the enemy.

1118. Consideration is given to the time of entrance in order that adequate investigation may be made after daylight and in order that sufficient hours of daylight remain to make the entry.

1119. When little is known concerning a port, reconnaissance is made to verify occupation by enemy or to ascertain enemy's strength or dispositions if enemy is present.

1120. The order in which the task subdivisions approach and enter the port depends upon circumstances. If there is no opposition from the enemy of any character, the order of entry may be the order in the cruising disposition, or it may be a different one if more convenient for taking assigned anchorages. If the force itself sweeps the entrance for mines and keeps enemy submarines down, the vessels assigned this task, proceed in advance of the rest of the force. If the force is being harassed by enemy surface ships or aircraft, measures are taken to cover the entry of any noncombatant types.

1121. The commander of a task force prescribes the order of his task subdivisions. The sequence in which they proceed depends to a great extent upon the relative position of their berths in the anchorage plan.

1122. Unless directed otherwise, antisubmarine screening ships patrol the area on the flanks and off the outer end of the navigation or swept channel. They leave their stations and enter as directed in the plan, normally after all heavy units have entered.

Chapter 12. MAJOR ACTION

FOREWORD

Major Action as used herein is considered to mean a day battle wherein all types of ships in large numbers are engaged but the instructions are intended to be of basic character capable of general application to smaller forces as appropriate and are to be so construed. The following considerations govern the subject matter of this chapter:

- (a) Air (carrier) groups will operate with our force with consequent greater and longer range offensive power.
- (b) Aircraft operating from land bases will be used to the maximum extent possible in the area of operations.
- (c) Aircraft will attack prior to surface vessels coming into contact.
- (d) Damage inflicted on the enemy by air attacks and damage inflicted on our own force by enemy air attacks possibly necessitates change in battle plans.
- (e) Fast and slow battleships do not ordinarily operate in the same battle line.
- (f) Effective use of radar and aircraft eliminate the element of surprise, besides permitting greater exploitation of indirect fire behind a smoke screen or in low visibility.

Section I. TASK GROUPS FOR A MAJOR ACTION

1200. A force composed of all types of vessels is normally organized for a major action into the task groups enumerated below. Unforeseen circumstances or the character and number of the vessels composing the force may make necessary a different organization or a different assignment of vessels to task groups.

1201. The normal task groups for a major action are as follows:

- (a) The flagship of the officer in tactical command with its screen. This ship may, however, be assigned to another task group for battle.
- (b) The Battle Line, composed of battleships with their observation plane squadrons, screen, and, if assigned, battle line carriers with their aircraft squadrons and screen. If no battleships are present, the battle line is composed of heaviest ships available.
- (c) The Detached Wing (if employed) composed of fast battleships, large or heavy cruisers with their aircraft and screen.
- (d) The Center, composed of cruisers with their aircraft, attack destroyers, and light minelayers. The center is usually in the van when cruising and on the fleet axis during the approach or retirement. In battle it proceeds to one of the battle flanks or is divided between the two flanks, and consequently loses its identity upon deployment.
- (e) The Right Flank, composed of cruisers with their aircraft, attack destroyers, and light minelayers operating on the right flank in battle, approach and contact dispositions, and stationed on the right flank in most cruising dispositions. Depending upon our deployment course, it may be in the van or rear in battle.
- (f) The Left Flank, composed of cruisers with their aircraft, attack destroyers, and light minelayers, operating on the left flank in battle, approach and contact dispositions, and stationed on the left flank in most cruising dispositions. Depending upon our deployment course, it may be in the van or rear in battle.

- (g) The Submarines, composed of any submarines in company or in the battle area.
- (h) The Air (Carriers), composed of aircraft carriers with their aircraft squadrons, supporting ships, and screen.
- (i) The Train, composed of all noncombatant types present, screen, and any combatant vessels specifically assigned as train guards. A convoy, when present, is part of the train.

1202. Under unusual circumstances—for example, when the enemy has no light forces or is very inferior in light forces—it is sometimes possible for a task subdivision of our force to operate ahead of or on the disengaged side of the enemy. In such cases, these ships join in the battle from that side of the enemy.

1203. Against an enemy battle line and fast detached wing, whose total strength is inferior to our battle line, a detached wing might be employed with advantage. If, under these circumstances, our force were accompanied by a large train, or a train which includes a large convoy, a detached wing of adequate strength is organized in readiness to defend the train or convoy against attack by enemy battle cruisers or other fast forces.

1204. Against an enemy battle line and detached wing the latter composed of battle cruisers or fast battleships, whose total strength is superior or equal to that of our battle line, a situation in which our force would probably not have a large train, it is not normally desirable to employ a detached wing.

1205. Fast battleships are best suited to form a detached wing. However, if sufficient large or heavy cruisers are available, it is desirable under some circumstances to employ them as a detached wing, provided their number is sufficient to give a volume of fire that would be effective against battle cruisers or the flank ships of a battle line which is engaged with our battleships.

1206. The number of cruiser divisions, attack squadrons of destroyers and light minelayer divisions available determines the number of task subdivisions of light vessels which can be organized, and the composition of each. When a sufficient number is available, there are normally three task groups of light vessels of approximately the same strength prescribed in the battle organization. This is particularly necessary if it is intended to use a defensive cruising disposition in which the light vessels are disposed as screens about the heavier vessels and train. Should the number of light vessels available be insufficient to provide three task groups, it is best to organize them into two task groups, omitting the center group. If the number of light vessels is very limited, or if for any reason it is desirable to do so, they constitute one task group.

1207. Cruisers armed with rapid firing main battery guns are better suited to breaking up an enemy destroyer attack than are cruisers armed with slower firing main battery guns. They are also better for clearing away the opposition of enemy destroyers when supporting our destroyer attacks.

1208. Fast battleships and cruisers are best suited to support carrier operations. Cruisers are best for attacking enemy aircraft carriers and for breaking up the support of enemy cruisers when enemy destroyers are attacking, or for clearing away the opposition of enemy cruisers when our destroyers are attacking. In battle, cruisers are assigned as required to the groups that will be on the flanks, or to the air (carriers), or to both.

1209. Heavy combat units and the train are provided reasonably adequate protection against submarines and aircraft. When a force is accompanied by a large train of slow speed, a relatively larger antisubmarine screen is required for the train. While destroyers are best for screening, light vessels of other types capable of screening vessels against submarines and aircraft are employed when practicable in order to have the maximum number of destroyers available for offensive action against the enemy. Vessels of the screen of aircraft carriers also act as plane guards.

Section II. INITIAL CONTACT

AIR CONTACT AND POSSIBLE RESULTS

1210. First visual contact with an enemy force is, if weather permits, usually made by aircraft sighting and may be one or more days in advance of possible meeting by our surface units. The aircraft making the initial contact may be operating from one of our land bases.

1211. It is extremely important once contact is made that the officer in tactical command receive early and accurate information concerning the enemy's position, course, speed and disposition. In this phase of a possible major action exact location of all of the enemy's carriers is essential. To accomplish this additional search planes may be necessary to develop the initial contact.

1212. After contact with the enemy has been made and developed and the enemy is within reach, our initial air strikes are made to destroy the enemy's carriers primarily and other heavy units secondarily.

1213. Depending on results of our air offensive, a major surface action may or may not then take place; or it may take place without any air support due to the loss of our own carriers or it may take place without any air opposition from the enemy in which case our aircraft may inflict heavy damage on the enemy during action between the surface forces.

SURFACE CONTACT

1214. During unsatisfactory flying conditions, the first contact with the enemy may be made by radar or by visual contact from a surface unit.

Section III. THE APPROACH

1215. The approach phase of an action normally begins with the first change from a cruising disposition to a disposition for approach and normally continues until a deployment into a battle disposition is ordered. An approach, once begun, might be interrupted by weather or visibility conditions, or the enemy might refuse action.

1216. The approach is for the purpose of placing the force, as a whole, in the most advantageous position for deployment for battle. Usually an approach is made by heading toward the enemy to close, and hence the name of this phase. The approach disposition is formed with the fleet axis in the general direction of the enemy even though the force may temporarily be headed in a direction other than toward the enemy, awaiting the enemy to close or in order to gain necessary time for the task subdivisions of our force to gather.

1217. The conduct of the approach is a most important duty of the officer in tactical command. In order that the force may be moved and oriented in the proper direction during the approach and in order that it may be deployed on the most advantageous course, it is necessary that the officer in tactical command receives early and accurate information of the enemy and is kept constantly informed of his position, course, speed, and disposition. An accurate bearing of the enemy battle line from our battle line is essential. Until the battle lines come within sight of each other, this bearing can usually be obtained best by aircraft or by the employment of vessels which are in sight of both battle lines.

1218. It is necessary that the fleet axis prescribed when the approach disposition is formed be approximately the same as the bearing of the enemy battle line from the center of our battle line in order, as the battle lines close each other, that the light forces on one flank or the other do not come under fire of the enemy battle line before the battle lines are engaged or in order to prevent their being forced back on our battle line to avoid coming under destructive enemy gunfire.

1219. An approach disposition is taken as soon as it appears evident that action with the enemy main force is imminent. Sufficient units in contact with the enemy battle line continue to scout tactically until relieved by aircraft or are ordered to do otherwise.

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1220. The officer in tactical command as soon as sufficient information is obtained regarding the enemy, promulgates by signal the battle plan to be used for the initial stage of the action, and when possible, the battle plans he intends to use for subsequent stages of the action. If no prescribed battle plan is suitable for the tactical situation encountered the officer in tactical command modifies an existing plan to make it suitable or promulgates a suitable plan by a dispatch battle order or by signals. The battle order embodies all the essentials of a battle plan, including his major tactical decisions as to the type of action to be fought and the tasks for the various battle task groups to carry out in the general plan.

1221. The officer in tactical command, when sufficient information of the enemy is obtained, may indicate to the force by signal, the general direction in which he intends to deploy. He may also start any groups which may be in advance of the force on the fleet axis toward their battle stations on the flanks by ordering a new approach disposition which has no groups on the fleet axis or he may direct by signal units on the fleet axis to proceed to one battle flank or the other.

1222. An approach disposition is such that—

(a) The stations of all groups and units in a battle disposition when ordered may be reached when a deployment is ordered in a minimum of time and with the minimum of changes in the organization of the task groups and in the communication organization.

(b) Stations may be regained readily if orientation of the disposition as a whole is necessary.

(c) Tactical concentration, with groups mutually supporting each other, may be maintained throughout the approach.

(d) When desirable, deployment may be made either to the right or left.

1223. Approach dispositions normally provide for light forces on one or both battle flanks and in addition light forces may be stationed in the center on the fleet axis. An approach disposition with light forces on one flank only may be used when the direction of our deployment can be determined before deployment is necessary. When the direction of deployment is uncertain and when sufficient light forces are available it is desirable to have light forces on both flanks in order that deployment may be made to the right or left with some light forces on each flank. If the disposition of the enemy light forces is uncertain, it is desirable that the approach be made with some light forces in the center in order that they may reinforce either flank when the decision regarding the direction of deployment is made.

Section IV. BATTLE TASK GROUPS DURING APPROACH

THE BATTLE LINE DURING THE APPROACH

1224. The direction of the movement of the battle line during the approach is governed by the orders to the force from the officer in tactical command while conducting the approach of the force as a whole because the other surface groups base their movements and positions upon those of the battle line.

1225. The officer in tactical command conducts the approach of the force so that the battle line may deploy readily and may bring the enemy battle line under gunfire at the ranges stipulated in the battle plan to be used.

1226. The commander battle line orders the battle line to take an appropriate formation from which a deployment may be made rapidly, if the battle line is not already in such a formation. He maintains the line of bearing of the battleship formation such that the battle line may conveniently and rapidly deploy on a course approximately normal to the bearing of the enemy battle line.

1227. As soon as sufficient information of the enemy is available, the commander battle line, issues the necessary instructions regarding the fire distribution of the battle line.

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1228. Observation planes on battleships are catapulted during the approach before the battleships commence firing or come under gunfire. The officer in tactical command, if in the battle line, normally initiates this unless he directs otherwise or has prescribed a different normal procedure. If the enemy battle line is endeavoring to avoid or delay action and is successful in delaying the opening of the engagement, catapulting of seaplane observation planes too early during the approach may result in their not being available for spotting, when required, due to exhaustion of fuel.

1229. It is important that the formation of the battleships be maintained in order that they may be ready for maneuver or immediate deployment. During the approach, main reliance for warning and defense against enemy submarines is left to the battle line screen and antisubmarine air patrol.

1230. Normally the screen of the battle line is maintained during the approach. This is particularly necessary if the enemy is avoiding or delaying action and may be employing submarines or aircraft to delay our approach or to inflict initial damage or losses before engaging.

THE DETACHED WING DURING THE APPROACH

1231. When the enemy is employing a detached wing of battleships or battle cruisers, our detached wing of battleships, if one is employed, takes a position on one or the other of our battle flanks or in the center where it can best oppose the enemy's detached wing. If a large train is present with our force, our detached wing takes a position where it can interpose between the enemy detached wing and the train. The detached wing avoids coming under the concentrated gunfire of the enemy battle line before our battle line is engaged. The detached wing supports the light forces to the extent permitted by the circumstances.

1232. A detached wing of large or heavy cruisers, if employed, takes a position where it can best oppose the enemy's heavy cruisers. Such a detached wing operating in advance of the battle line on the fleet axis may be utilized to force an early deployment on the part of the enemy by driving the enemy light forces toward one flank or the other. Such forced deployment of the enemy leaves the officer in tactical command the option of deploying in either direction as might be advantageous.

THE LIGHT FORCES DURING THE APPROACH

1233. The light forces consist of the cruiser, destroyer, and light minelayer units assigned to stations on the battle flanks and in the center on the fleet axis in the approach disposition.

1234. During the approach certain tasks are common to all light force task groups. They defend the general area in which they are stationed by preventing attacks of enemy light forces being driven in on our battle line, by driving off enemy tactical scouts, by destroying enemy aircraft and attacking enemy submarines encountered in their area. They in a general way maintain their assigned positions. They do not pursue minor enemy forces and retire toward our battle line in face of superior strength. They proceed to their battle stations when the deployment is made.

1235. When radar or sight contact is made with the enemy battle line, every effort is made to hold the contact by sufficient vessels in order that the officer in tactical command may be kept informed of its position, course, speed, and bearing. Units holding such contact with the enemy battle line avoid coming within destructive gun range of the enemy battle line. The officer in tactical command relieves the light forces of this duty when adequate and accurate tactical scouting is taken up by aircraft.

1236. The commander of each of the three light force task groups assigns sufficient destroyers from his command to form a screen for the cruisers of his group when the known or suspected presence of enemy submarines or aircraft makes it necessary to provide such protection until the force is ordered to deploy.

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THE CENTER DURING THE APPROACH

1237. The officer in tactical command moves the light forces in the center, except such as may be maintaining an important contact, away from the area between the battle lines as early as practicable to do so and directs them to proceed to the desired battle flank in order that, upon deployment, they may not be caught between the battle lines.

1238. If the light forces in the center are compelled to retire before superior forces or the enemy battle line to avoid destruction, they normally retire along the fleet axis toward the battle line rather than to retire in the direction of one battle flank or the other. If they retire toward a battle flank they may disclose prematurely the direction of our deployment or they may commit the officer in tactical command, by the resulting distribution of our light forces, to a direction of deployment different from the one contemplated or desired.

1239. Under conditions of poor visibility the commander of the center group initiates the movement of the center group to reinforce our flank opposite the most of the enemy light forces, informing the officer in tactical command of the action taken, unless he has knowledge of the intentions of the officer in tactical command which requires him to make other disposition of his group.

AIR (CARRIERS) DURING THE APPROACH

1240. When an approach disposition is taken, the carriers proceed to positions for launching aircraft. During the approach they operate so far as the direction of the wind and the general movement of the rest of the force permit, in an area protected in a general way by the force.

1241. If the officer in tactical command, from knowledge of the location of the enemy's forces, is reasonably certain that our carriers will not, while operating aircraft, be subjected to dangerous attack from enemy air or surface units, he may direct the vessels assigned as supports to carriers, or a part of them, to join other battle task groups.

1242. Weather permitting, aircraft are used for: tactical scouting to keep the officer in tactical command informed of the enemy's movements; antisubmarine patrol, particularly if the enemy is avoiding or delaying a general action in order to deliver a submarine attack; combat air patrol.

1243. During the approach, every effort is made to gain superiority over the enemy air force in order that the tasks of our aircraft in battle may be accomplished. The destruction of enemy aircraft carriers is a highly important means of accomplishing air superiority.

1244. Air operations, other than those indicated above, will, therefore, depend upon the situation:

(a) If the enemy aircraft carriers have not been located, our force is in danger of an air attack. In this situation, enemy carriers are to be located and destroyed, and at the same time, our fighters are to be ready to vigorously attack enemy aircraft. In making suitable disposition of our fighters to carry out this task, provision is made for their not being caught on the carrier's deck, or in the air, short of fuel.

(b) If the enemy aircraft carriers have been located with their aircraft on board, the opportunity is seized to reduce the enemy's air strength by vigorously attacking the enemy carriers in order to destroy enemy aircraft and carriers.

(c) If the enemy aircraft carriers have been located without their aircraft on board, our force is in immediate danger of an air attack. In this situation, it is necessary to reserve a large portion of our fighters for the protection of our force and carriers against air attack. Our bombing and torpedo planes, accompanied by such of our fighters as are not required for the protection of our force and carriers, attack the enemy carriers and destroy them.

SUBMARINES DURING THE APPROACH

1245. Submarines, due to their relatively slow speed when submerged and due to the fact that they must usually submerge upon making sight contact with enemy vessels or aircraft, cannot maneuver in an approach disposition like surface vessels.

1246. During the early stages of an approach submarines may be able to obtain some information of the enemy for themselves, but it is probable that they will be forced to submerge before they sight the enemy battle line. In order that all submarines may begin to move at the earliest moment toward areas from which attacks on the enemy battle line or heavy ships will be possible, it is necessary that the commander of the submarine force be kept informed of the position of the enemy battle line and heavy ships and of their movements. The commander submarines directs the movements of submarine units to place them in positions for attack.

1247. If it is the intention of the officer in tactical command to fight a delay action in order to give our submarines an opportunity to attack, the movements of the battle line and other surface groups are regulated during the approach to accomplish this.

TRAIN DURING THE APPROACH

1248. The train owing to its slow speed cannot maintain any definite station with reference to other groups which are much faster. Unless otherwise directed it follows the general movement of the force endeavoring to maintain a position protected in a general way by the rest of the force. It takes such measures as may be practicable for defense against enemy submarines and surface vessels that may have eluded our combatant ships, and against enemy aircraft.

Section V. FORCES IN CONTACT

1249. A number of situations might arise after contact with the enemy force has been made in which engagement is not possible or desirable at the moment, but in which it is vital or desirable to maintain contact with the enemy force or in which contact cannot be avoided. Situations might also arise after engagement in which it is vital to maintain contact or in which contact cannot be avoided. Typical contact dispositions are found in appropriate publications.

1250. The following are illustrations of situations in which a contact disposition is employed:

- (a) During approach when visibility is low or poor.
- (b) During a delay action.
- (c) Maintaining contact with an enemy force.
- (d) During pursuit at night or when visibility is low or poor.
- (e) During a temporary retirement in action.
- (f) During a withdrawal from action.
- (g) Cruising.

1251. The contact dispositions are similar to the approach dispositions in the general arrangement of the various task groups, but differ from the approach dispositions in the arrangement of the light forces. In the approach dispositions each light force task group is disposed, generally speaking, on the same bearing from the battle line; that is, on each flank and on the fleet axis, while in the contact dispositions each light force task group forms a screen in the area assigned to it.

1252. In contact dispositions the direction of the fleet axis is usually the bearing of the enemy battle line or the general direction of the enemy.

1253. In contact dispositions there is no protection in the general area (normally the rear) not occupied by the light forces. If it is considered necessary to cover this area sufficiently, at least to detect a raid coming in through the area, it is desirable to use the screens of the battle line and train for this purpose in order that the light force task groups may still remain in positions from which they can deploy readily. However, if detachments from light force task groups are

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stationed in this area for added protection, they cannot reach their deployment stations as quickly as if they were concentrated in their regularly assigned areas for the disposition.

1254. If a detached wing is employed its mission will be assigned by the officer in tactical command. The station of a detached wing is dependent upon its mission.

1255. No stations are prescribed for submarines. Their stations will depend entirely upon the purpose for which the contact disposition was formed.

1256. Some of the situations for which contact dispositions are considered necessary are nullified by the effective use of radar. In low visibility use of radar may provide necessary protection against destroyer and light force attacks with the force in an approach disposition.

Section VI. DEPLOYMENT

1257. By a deployment, the force changes from a cruising, approach or contact disposition to a disposition for battle.

1258. Deployment is normally made before the battle lines come within effective range of each other. If the enemy is late in deploying, an advantageous concentration of fire may then be possible. This is the normal procedure for high visibility conditions. Under reduced visibility the use of radar will assist deploying prior to coming within effective gun range but the situation may not be clear to the officer in tactical command. The location of the enemy battle line may not be definitely established. Under reduced visibility conditions but without the use of radar deployment may be made while firing or while under fire. Delay in deploying before the battle lines come within effective range of each other may be caused by the necessity of repelling air attack. In such an event deployment is made as soon as the situation permits.

1259. Provided the enemy force is not too close when located, our force takes an approach disposition before deploying, since an approach disposition is more easily maneuvered than a battle disposition. Moreover, while in an approach disposition, the distribution of the groups can be changed within limits if required, when the decision to deploy is made and the direction of deployment is determined. This is the normal procedure under high visibility conditions. Under low visibility conditions, also, the enemy might be located, particularly if the use of radar is effective, in sufficient time and with sufficient accuracy to permit this to be done.

1260. If contact with the enemy force is unexpected, or if it is located at a relatively close distance so that there is no time to take an approach disposition, our force deploys immediately from the cruising disposition. This normally does not occur under conditions of high visibility, but under conditions of reduced visibility, or when radar is ineffective this may be necessary.

1261. If contact with the enemy force is made late in the day, so that there may not be time to engage and defeat the enemy before darkness falls, circumstances determine whether it is better to deploy and to engage as long as conditions permit, or to maintain contact during the night in order to engage the following day.

1262. In view of the length of time required to make a deployment, particularly from a cruising disposition with enveloping defensive screen, it is essential that consideration be given to probable change in bearing of the enemy during the interval of time elapsing between the commencement of the deployment maneuver and its completion. This change in bearing is small if the deployment course is approximately parallel to and in the same direction as the course of the enemy. More allowance is made if the deployment course is opposite to or at a considerable angle to that of the enemy.

1263. When a deployment is completed, the direction of the fleet axis should be approximately the same as bearing of the center of the enemy battle line from the center of our battle line.

1264. Task group commanders are informed of the battle plan of the officer in tactical command prior to deployment. Considerable initiative is given to the task group commanders. Deployment is not a rigid maneuver. Reaching and maintaining stations are important only insofar as they contribute to carrying out the battle plan. The proximity of parts of the enemy force or the

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commencement of the battle, locally or generally, may make it necessary or advisable to disregard station keeping.

THE DIRECTION OF DEPLOYMENT

1265. The general direction of the deployment of the force may be affected by strategical or tactical considerations.

(a) Strategical considerations:

(1) If superior in strength and adequate time is available, and speed permits, the advisability of interposing between the enemy force and its base or across its most probable line of retreat is considered. A favorable opportunity for defeating the enemy is, however, not lost.

(2) If of approximately equal strength, tactical considerations will probably govern. The mission, however, may require that consideration be given to the direction of deployment.

(3) If inferior in strength, the direction of deployment usually permits our force to keep between the enemy force and our nearest base or an advantageous direction of retirement.

(4) The location of land and shoals.

(b) Tactical considerations:

(1) The relative positions of the two forces and the distribution of groups between the two battle flanks of each force may make a deployment in one general direction more advantageous than a deployment in an opposite general direction.

(2) A superiority or inferiority in speed may affect the direction of deployment.

(3) The relative position and relative speeds of the two forces together may influence the direction of deployment to make possible a concentration and attack by superior subdivisions of our force against an inferior portion of the enemy force.

(4) The location of enemy mine fields or submarines.

(5) *Wind.*—If the wind and sea are heavy, the windward position is advantageous for our destroyers to attack and to use smoke screens. The windward position is also advantageous with regard to the interference of spray with fire delivery, especially from broadside batteries. The windward position is advantageous for aircraft operations. The windward position is not advantageous with regard to interference due to gases or smoke, which may be very serious.

(6) *Sea.*—The condition and direction of the sea, if such as to cause yawing or excessive or irregular rolling, is a factor that affects adversely the rate and accuracy of fire delivery.

(7) *Sun.*—The bearing of the sun has little effect upon fire delivery when the sun is more than 20° above the horizon. When the sun is less than 20° above the horizon, a vessel firing into the sun may suffer some disadvantage unless the glare can be overcome by ray filters. At dusk and dawn it is advantageous from a visibility standpoint to have the enemy silhouetted against the light horizon.

(8) *Radar.*—Effective use of radar assists in eliminating many handicaps of maneuvering, positioning, searching and firing during periods of low visibility and into the sun.

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1266. The direction in which the officer in tactical command desires the force to be moving during the main action may be approximately opposite to the initial direction of deployment. Therefore, a distribution of the light forces may be ordered upon the initial deployment or during the approach with a view to their preponderance of strength being in the van when the deployment course is reversed to the direction in which the force will be moving for the main action.

Section VII. BATTLE DISPOSITIONS

1267. A battle disposition is only a means to an end. As taken upon deployment it is only an initial arrangement of the battle task groups in positions that mutually support each other and that are normally advantageous, and from which coordinated or simultaneous attacks upon the enemy battle line may be made.

1268. Battle dispositions normally provide for light forces on both battle flanks if sufficient numbers are available. It is normally desirable to have approximately two-thirds of the light forces on that flank which is in the van and approximately one-third on that flank which is in the rear. If the number of light forces is insufficient to have light forces on both flanks it is usually desirable to station all of them in the van. An unusual arrangement of the enemy's light forces might require other disposition of our light forces.

1269. The battle line is normally in a battleship battle formation whose line of bearing is approximately normal to the bearing of the enemy line or such that a redeployment of the battle line can always be made on a course approximately normal to the bearing of the enemy battle line.

1270. When the battleships are deployed in a battle formation, the battle line screen normally forms in two units with approximately two-thirds of their number ahead of the battle line and one-third astern. In these positions they are in readiness to assume a formation for air defense, to patrol against enemy submarines, to repel enemy destroyers that may get by our light forces, to reinforce our light forces on the flanks, and to relieve attack destroyers that have expended their torpedoes. If directed to form an air defense or antisubmarine screen, the unit ahead takes assigned stations spreading out in general from broad on one bow through ahead to broad on the other bow and covers the van of the battle line against air or submarine attack depending on which menace is the primary threat. The screen avoids taking stations which embarrass the battle line from employment of any of its armament. The unit astern if directed to form an air defense screen takes stations in general spreading out from broad on the quarter through astern to broad on the other quarter and protects the rear of the battle line from attack. The unit astern is also in readiness to screen ahead if the battle line reverses course or takes over the task of keeping down or destroying any enemy submarines that may have been forced down by the unit ahead.

1271. A detached wing, if employed, normally maintains a position on a flank of our battle line where it can support our battle line and our light forces and receive support from our battle line. If the enemy is employing a detached wing, our detached wing is on that battle flank which will enable it to oppose the detached wing of the enemy.

1272. The light cruisers, destroyers, and light mine layers are stationed on one or both battle flanks depending upon the distribution of the light forces made upon deployment. Heavy cruisers if assigned to the flank forces are usually stationed on the extreme battle flanks. Light cruisers are usually stationed nearer the battle line and the destroyers between the light cruisers and the battle line. The light mine layers are usually well out on the flank on the disengaged side of the cruisers.

1273. Carriers take station and operate, so far as the direction of the wind and the general movement of the engagement permit, in an area protected in a general way by our force.

1274. Submarines have no prescribed stations in a battle disposition. They can only endeavor to attain positions from which attacks can be made on the enemy battle line or other heavy ships. They avoid areas occupied by our vessels.

1275. The train remains on the disengaged side of our force.

1276. Typical battle dispositions are found in appropriate publications.

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Section VIII. BATTLE PLANS

1277. While no one can predict with certainty in advance the manner in which an action will be fought, particularly on the part of the enemy, it is imperative, if coordinated action is to take place and if effective results are to be obtained, that the officer in tactical command indicate his intentions and direct the units of his command. He endeavors to impose his plan upon the enemy. He has a definite intention to win by employing a definite method. Indecision on the part of the officer in tactical command creates indecision and inaction in his command and invites disaster. An action begun with the declared intention to bring about an attainable result in a specified way gains the initiative. The tactical initiative is usually held by the faster force, but by prompt and energetic initial effort it may be possible for the slower force to seize the tactical initiative.

1278. Battle plans are prepared by each task force commander, who by the nature of his assigned task may become at any time, until he joins a senior task force commander, an officer in tactical command in the presence of the enemy. His battle plans are necessarily those which will enable him to carry out his assigned task in the strategic plan, and are necessarily based on his available force and the enemy forces likely to be encountered. The term "available forces" includes any land based aircraft which are assigned to a commander and are controlled either directly or indirectly by him, or which due to the nature of their normal missions may lend support to his force by carrying out certain planned tasks or by assisting the air (carrier) groups in carrying out their tasks prior to, during, and after an action. The term "enemy forces" includes enemy land based aircraft which may be operated against his force due to nearness of enemy air (land) bases. When the situation is known and when the forces involved can be compared with reasonable accuracy, specific plans are prepared after an estimate of the tactical situation has been made. If the situation and forces are not known, plans are prepared for assumed situations and forces, and there must be a sufficient number of plans for the more probable situations that may be met.

1279. Battle plans utilize our known or estimated factors of superiority in methods, skill, and material to defeat the enemy by taking advantage of his known or supposed weaknesses or by nullifying his elements of superiority. Battle plans express the intention resolutely and clearly. They state what is to be done by the whole force and the manner in which it is to be done by the force as a whole. Tasks are assigned to each battle task group, tasks which when accomplished will accomplish the task for the whole force, for, if commanders of task groups are permitted to select their own tasks as their part in carrying out the general plan, the necessary coordination of effort may not result. Subordinates are not given instructions as to the method of accomplishment of their assigned tasks except to the extent necessary to insure coordination of the various task groups.

1280. It is desirable that all battle plans be drawn up in a uniform manner and that each plan embody the following:

- (a) Designating number.
- (b) The specific signal for promulgating the plan.
- (c) A statement of the object of the plan if the plan is one for use whenever appropriate for a situation, or a statement of the mission of the plan if a specific one is drawn up after a special estimate to meet a specific situation.
- (d) The definite information or the assumptions upon which the plan is based; that is, the conditions or situation it is designed to meet.
- (e) A statement of the general plan for the force as a whole, what is to be done and how it is to be done.
- (f) The task organization.
- (g) A statement of the specific task for each battle task group organized.
- (h) The measures to insure coordination of the various task groups.
- (i) The location of the officer in tactical command.
- (j) The communication plan to be used. Time zone description.

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1281. If the officer in tactical command believes that the action may pass through one or more stages requiring different plans for the different types of actions in these stages, he indicates to the force the battle plan that will be used initially and those that may be used subsequently if the action develops as expected. The indication of the plans that may be used for subsequent stages of the engagement is for information only and these plans become effective only when each is promulgated by its specific signal.

1282. The information or assumptions upon which a battle plan is based are stated in order that a clear understanding may be had of the tactical situation which the plan is designed to meet. The assumptions may not include every assumption that might be made. They are essential conditions which affect the character of the plan of battle for the situation assumed. Some of the assumptions may be alternates, and it is not always necessary that the situation agree exactly with that drawn by the assumptions in order that the plan may be appropriate. The more important assumptions naturally govern. A knowledge of the assumptions, moreover, will enable task group and other commanders to recognize more readily any change in the tactical situation, to estimate its effect on the general situation and on the battle plan being used, and to estimate its value to the officer in tactical command and the urgency of informing him of the altered situation.

1283. The tasks assigned to each battle task group further the general plan and support the battle line in its action with the enemy battle line. All battle plans require plans or particular orders supplementing the plans by each battle task group commander to carry out the task assigned him in each battle plan of the force.

1284. The measures for coordination include instructions regarding the initiation of attacks by the light forces, for the initiation of counter attacks or for similar operations, in order that task group commanders may know whether they have discretion in these matters or whether the officer in tactical command will initiate action.

1285. Typical battle plans are found in the General Tactical Instructions.

Section IX. TYPES OF MAJOR ACTIONS

1286. In a major action the character of the action between the opposing battle lines establishes the type of action and battle plans are usually based on the idea that the gun action between the opposing battle lines is the focus of the fight about which the contributory efforts of the other battle task groups center. A form of action which is not predicated on battle-line gun action but in which a force furnishes support is an air action. An air action might be a prelude to a major engagement or due to an air action a major action might not develop. This is given consideration in the formulation of battle plans.

1287. The battle plans of a force normally include plans for the following types of actions:

- (1) Normal action, the battle lines moving initially approximately parallel to each other and on approximately the same course.
- (2) Reverse action, the battle lines moving initially approximately parallel to each other and on approximately opposite courses.
- (3) Pursuit action, including following action.
- (4) Retirement action, our battle line moving so as to impose a following movement by the enemy battle line.
- (5) Delay action, to await results of light force, air, or submarine attacks.
- (6) Withdrawal action, in order to avoid decisive action or to break off action.
- (7) Night action.

1288. In any protracted major engagement, the action might begin with any of the types (1) to (6) and might develop on the part of one or the other opponents into any one of these types of action either by design or chance.

1289. To illustrate the possible scope of battle plans required there follows a list embracing plans for all types of actions mentioned above. The battle plans of a large force composed of all types of vessels might include plans covering the same scope as that covered by the following list, while those of a force not comprising all types of vessels would naturally not be so comprehensive.

1290. Offensive battle plans:

Normal action at extreme ranges.
 Normal action at long ranges.
 Normal action at moderate ranges.
 Normal action at close ranges.
 Reverse action at extreme ranges.
 Reverse action at long ranges.
 Reverse action at moderate ranges.
 Reverse action at close ranges.
 Massed heavy cruiser attack across enemy's van.
 Massed heavy cruiser attack across enemy's rear.
 Pursuit, light forces on the defensive.
 Pursuit, light forces attacking from both flanks.
 Pursuit, light forces attacking from right flank.
 Pursuit, light forces attacking from left flank.
 Pursuit, aircraft attacking.
 Retirement, light forces attacking from both flanks.
 Retirement, light forces attacking from right flank.
 Retirement, light forces attacking from left flank.
 Retirement, light forces on the defensive.
 Delay for submarine attack.
 Delay for air attack.
 Delay for light force attack.
 Delay, using any combination of submarine, air, or light force attack.
 Night action, normal, light forces attacking.
 Night action, reverse, light forces attacking.
 Night action, pursuit.

1291. Defensive battle plans:

Withdrawal, light forces on the defensive.
 Withdrawal, light forces attacking from center.
 Withdrawal, light forces attacking from both flanks.
 Withdrawal, light forces attacking from right flank.
 Withdrawal, light forces attacking from left flank.
 Night action, withdrawal.
 Defense of heavy ships and train against destroyer raids at night or low visibility.
 Defense of heavy ships and train against cruiser raids at night or low visibility.
 Defense of heavy ships and train against air attacks.

1292. To facilitate designation of ranges and to facilitate writing plans and orders the following arbitrary classification is prescribed:

Extreme ranges	27,000 yards or greater.
Long ranges	27,000 to 21,000 yards.
Moderate ranges	21,000 to 17,000 yards.
Close ranges	17,000 yards or less.

1293. The arbitrary classification refers to ranges of the battle line.

Section X. GENERAL INSTRUCTIONS FOR BATTLE TASK GROUPS IN MAJOR ACTIONS

1294. The instructions which appear in this section are of a general nature and usually will be applicable to most types of actions. In the sections pertaining to the different types of actions, which follow, are found the instructions which are particularly applicable to each type of action.

THE BATTLE LINE

1295. The normal mission in battle of the battleships of the battle line is to place the enemy battle line (or enemy detached wing and battle line) under maximum effective gunfire in order to destroy it by gunfire. The commander of the battle line initiates all orders to the battle line for its formations, its deployment in accordance with the deployment of the whole force ordered by the officer in tactical command, all fire distribution and gunfire signals, and all movements to change its line of bearing, to close, maintain, or open the range as prescribed by the battle plan ordered.

1296. The commander battle line keeps the officer in tactical command (if the latter's flagship is not in the battle line), and the battle task group commanders informed of the course being steered by the battle line, except when it is a course ordered for the force by the officer in tactical command.

1297. The visibility conditions prevailing or the effectiveness of radar, and the ability to use aircraft for spotting determines the ranges at which it is possible for the battle lines to engage. The total strength of our battle line when compared to the total strength of the enemy heavy units present determines whether the engagement at very long or extreme ranges is advantageous. The protection of our own and enemy vessels against side and deck hits further determines the ranges at which it is advantageous for our battle line to engage.

1298. Fire is opened, normally, at the maximum range at which an effective fire can be delivered under the conditions which exist at the time. The advantage of an initial superiority is so great that every effort is made to establish early hitting. It is to be remembered, however, that at extreme ranges the ammunition expended is excessive as compared with the damage inflicted. When conditions permit, the battle line closes or opens through ranges that are unfavorable as rapidly as possible. When compelled to engage at ranges that are unfavorable, an endeavor is made to present a target angle which is unfavorable for impacts against the side armor of our ships, having due regard for the loss of gunfire that results from insufficient train of turrets.

1299. The battle line keeps the enemy battle line under fire, at the ranges stipulated in the battle plan in effect until the enemy battle line is defeated or until the maneuvers of the enemy no longer permit the action to be continued at the desired ranges.

12100. However, when our battle line is threatened with dangerous salvos of approaching torpedoes or with heavy air attack the commander of the battle line, unless specifically directed by the officer in tactical command, decides whether to accept the menace of the torpedoes or air attack in order to keep the enemy battle line under gunfire or to initiate evasive maneuvers by the battle line as a whole. The situation existing at the time governs his decision. If it is estimated that the enemy can be defeated only by continuing the maximum amount of gunfire, the torpedo menace or air attack is accepted and the battle line is maneuvered as a whole, to minimize the danger from the attack. Any evasive maneuvers made by divisions or individual ships should entail the minimum loss of gunfire. If it is estimated that the probable damage and loss of ships in our battle line from the torpedo or air attack will be such as to subsequently prevent our battle line from defeating the enemy battle line, our battle line maneuvers as a whole to avoid the attacks. Under these circumstances the most radical maneuvers, if necessary, are justified at the expense of the loss of gunfire or even temporary cessation of gunfire.

12101. At extreme or long ranges the reversal of the course of the battle line by division column movements may be practicable. At shorter ranges, or when our battle line is under heavy enemy gunfire, this method is not as efficient as the simultaneous turn of individual ships or the ripple turn of individual ships begun at the rear. The division column movement blankets our

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fire for too long a time. In extricating the battle line from a dangerous tactical position, bomb, torpedo or mine menace, turn movements may often be used to advantage without undue loss of gunfire.

DETACHED WING

12102. A detached wing of battleships, if employed, has a peculiar and important role to play in action. Its movements cannot be prescribed for it, but depend much upon the movements of our battle line and those of the enemy's detached wing of battle cruisers or battleships.

12103. Under normal conditions, the usual tasks of a detached wing of battleships are:

- (a) To engage the enemy detached wing in order to counter its operations.
- (b) To support our battle line and light forces.
- (c) To defend a designated group, such as our train if present during battle.
- (d) To attack a designated objective.

12104. Care is taken that the detached wing does not become isolated and exposed to concentrated fire from the enemy battle line.

12105. A detached wing of large or heavy cruisers likewise cannot be given precise instructions. Its movements depend much upon the movements of the enemy's cruisers or the majority of his cruiser strength.

12106. Under normal conditions, the usual tasks of a detached wing of large or heavy cruisers are:

- (a) To engage the heavy cruisers of the enemy or the bulk of the cruiser strength of the enemy.
- (b) To support our light forces.
- (c) To attack a designated objective.
- (d) To defend a designated group.

12107. If sufficient numbers of large or heavy cruisers are available, so that the volume of fire is adequate, they are under some circumstances employed against battle cruisers or battleships that are engaged at the same time with our battleships.

RIGHT AND LEFT FLANK GROUPS

12108. The general tasks of the right and left flank groups are:

- (a) To attack the enemy battle line.
- (b) To defend our battle line against attacks by enemy light forces.

12109. The light forces, therefore, have a dual role. Their primary task is indicated by the task assigned the flank groups in the battle plan in effect.

12110. The general plan of the battle plan, the task assignments for the flank groups, and the measures for coordination of effort indicate the character of the action to be fought by the light forces and their objectives.

12111. The right flank group normally operates in the area on the right battle flank of our battle line and the left flank group normally operates in the area on the left battle flank of our battle line. Both groups avoid the area between the battle lines unless the type of action requires them to operate in that area, as for example, in withdrawal, or unless in making or withdrawing from an attack it is impossible to avoid the area.

12112. Their positions and courses are determined by the task assigned them in the battle plan, and whether or not they can attain or maintain the desired positions to accomplish their tasks is dependent upon the amount of enemy opposition encountered. At all times due consideration is given to the deployment course of our battle line, in order to support the battle line and, furthermore, in order not to interfere with it. Mere station keeping is not sufficient to accomplish the tasks assigned in the battle plan.

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12113. The employment of the light forces in battle is governed by definite reasons and supports the general plan of battle. The light forces do not necessarily attack immediately following the opening of gunfire between the battle lines. It may be inadvisable to strip our battle line of its light force defense for the purpose of a doubtful light force attack with consequent losses, particularly if the gunnery action between the battle lines is progressing favorably for our battle line. Under such circumstances, the enemy can overcome the gunnery disadvantage by forcing our battle line to maneuver to avoid torpedo attacks, with consequent loss of effective gunfire, and the employment of our light forces on the defensive to permit the battle line to continue to hold its gunnery advantage is probably advisable. On the other hand, if our battle line is engaging under a disadvantage, it may be possible to employ the light forces offensively in order to break the advantage held by the enemy.

12114. When coordinated attacks against the enemy's battle line are made by the light forces on both battle flanks, the measure for its coordination is usually taken by the commander of our light forces on the battle flank which is opposite the van of the enemy's battle line. The battle plan indicates whether the officer in tactical command or the light force commander initiates the attacks. When aircraft and light forces are attacking the same objective the aircraft endeavor to coordinate the timing of their attack with that of the light forces to the extent practicable.

12115. Scouting or other light forces absent when the engagement begins and joining later join our groups nearest them or they may take their regular assigned stations if no undue delay results. In no case should their movements to join other groups or to take their stations interfere with groups already engaging the enemy. They also avoid superior enemy forces while proceeding to a battle station. The officer in tactical command may direct vessels joining up to take a particular station or to join a particular group or organization.

12116. The light forces inform our battle line or detached wing when enemy light forces menacing them fire torpedoes or when salvos of torpedoes are seen to be running toward our ships. In reduced visibility it is probable that the light forces in the van may observe the firing of torpedoes by enemy vessels when our battle line or detached wing cannot observe the firing or the light forces in the van may sight torpedoes running before they can be seen by our battle line or detached wing.

CRUISERS OF THE FLANK GROUPS

12117. The general tasks of cruisers of the flank groups in day battle are:

- (a) To support the attacks of our destroyers against the enemy battle line and detached wing.
- (b) To defend our battle line and detached wing, if employed, against the attacks of enemy light forces.

12118. Either of these tasks may be the paramount one depending upon the task of the flank groups in the battle plan in effect. The primary task is usually to support the destroyers in their attacks, but when the gun action between the battle lines is progressing favorably for our battle line, the defense of our battle line against attacks by enemy light forces becomes increasingly important, as the enemy must initiate some form of attack by his light forces to break our advantage.

12119. The cruisers always watch the enemy's cruisers prepared to meet any action they take giving due consideration to the possibility of enemy cruisers launching a torpedo attack. Detached light cruiser action is not sought unless it supports the battle plan. Under ordinary conditions independent action is taken only upon signal from the officer in tactical command, unless a situation arises which demands that the cruisers act quickly and independently in furtherance of the general plan of battle. In such situations the officer in tactical command is kept adequately informed.

12120. Cruisers are not restricted to remaining within supporting distance of the battle line. They, however, remain where they can give support to the battle line if required. Cruisers are

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careful not to draw heavy gunfire upon themselves at times when the enemy battle line can afford to use its main battery on them.

DESTROYERS OF THE FLANK GROUPS

12121. The general tasks of destroyers of the flank groups in day battle are:

- (a) To attack the enemy battle line and detached wing with torpedoes.
- (b) To defend our battle line, and detached wing if employed, against attacks by enemy destroyers.

Either of these tasks may be the paramount one depending upon the task of the flank groups in the battle plan in effect.

12122. The purpose of the destroyer torpedo attack in battle may be offensive or defensive. In offensive torpedo attacks the purpose may be to sink enemy capital ships in order to reduce the enemy's strength, or the purpose may be to reduce the speed of the enemy capital ships in order that our battle line may engage at ranges which are favorable to it, or in order that our battle line may bring about an engagement with a faster enemy battle line that is avoiding action. In defensive torpedo attacks the purpose is usually to cause the enemy battle line to maneuver so that our battle line may disengage itself from an unfavorable tactical situation, as when being pursued by a superior force.

12123. The battle plan in effect may prescribe that the officer in tactical command will initiate destroyer torpedo attacks or the plan in effect may permit the commander of a flank group to initiate a destroyer torpedo attack if a favorable opportunity is presented. An offensive torpedo attack by destroyers in day battle is justified only when results in damage by torpedo hits or damage to the enemy's capital ships in some other manner will compensate for expenditure of torpedoes.

12124. Normally, destroyer torpedo attacks are not made until after the battle lines are engaged in order that our destroyers may have the support of gunfire of the battle line and also in order that the battle line may reap any advantage which may accrue due to the loss of gunfire by the enemy battle line by its maneuvers to avoid our destroyers' torpedoes. The battle plan in effect, however, may call for destroyer torpedo attacks to be made without the full support of our battle line as in pursuit or delay type actions.

12125. When a destroyer attack is launched in accordance with the general plan of battle, the attack is made with adequate numbers to accomplish the desired result.

12126. Upon the initiation of an attack on the enemy battle line by our destroyers on one battle flank, the destroyers on the other flank, if not actually attacking with torpedoes in a coordinated attack, take position to threaten the enemy battle line if it turns toward them in order to make it accept the menace of a torpedo threat on each of its flanks, and to make more difficult its problem of avoiding torpedoes by maneuver.

12127. A favorable opportunity for an effective torpedo attack on the enemy battle line is seized. Opportunities of this character may be presented during low visibility. Unexpected maneuvers on the part of the enemy battle line may present an apparently favorable opportunity for a torpedo attack. Care is exercised to distinguish between those opportunities which appear momentarily favorable merely because of being on a suitable bearing for firing torpedoes. The latter opportunities cannot be profitably exploited if the target is free to maneuver.

12128. Attacking destroyers meeting resistance from enemy light forces while proceeding to positions for firing torpedoes use gunfire to the utmost to defend themselves. Such engagements with the enemy light forces are incidental to reaching torpedo firing positions. Our destroyers do not seek engagement with the enemy light forces until after their torpedoes have been fired.

12129. Destroyers that have fired all their torpedoes may be directed to attack the enemy's destroyers, to defend our battle line, or they may be directed to relieve destroyers with torpedoes that may be acting in screens or as plane guards.

MINELAYERS

12130. Since mines as long as they are afloat are a menace to our own vessels as well as enemy vessels, their use is restricted to very definite prescribed purposes or to prescribed areas in order to reduce the menace to vessels of our own force.

12131. The general tasks of minelayers in battle are:

(a) To lay mines tactically as ordered by the officer in tactical command or as prescribed by the battle plan in effect.

(b) To mine a particular area as ordered by the officer in tactical command.

12132. Tactical mining primarily to damage or sink enemy vessels, in order to be successful, is conducted without the enemy becoming aware of the fact. This practically precludes such mining operations by surface vessels in day actions except behind smoke or by chance.

12133. Mines are not laid in the battle area except as ordered by the officer in tactical command or as prescribed by his battle plan in effect. When mines are laid in the battle area, it is essential that they be laid exactly as ordered or as prescribed in the battle plan in effect.

12134. The officer in tactical command is informed promptly of the beginning and completion of the mining operation in order that he may know how long the field laid is effective and still remains a menace. He is also informed of the nature and location of the field as actually laid. The officer in tactical command will inform task group commanders of areas in which mines have been laid and the duration of their effectiveness, if such information is necessary to insure the safety of our groups.

12135. Minelayers also give the location of mine fields to commanders of units which are operating in the vicinity of mine fields or which are seen to be standing toward our mines.

12136. Possible tactical uses of floating mines in battle are:

(a) To force maneuver upon the enemy in avoiding mine fields.

(b) To damage or sink enemy vessels.

12137. In order that a mine field may force an enemy battle line to change course radically or to reverse course, the mine field is laid ahead of the enemy battle line and is of considerable area. In normal or reverse action this requires that the minelayers operate far ahead of the enemy battle line and unless the minelayers are supported by other groups superior to the enemy groups on the enemy's van flank, the operation has little chance of success. Only minelayers with approximately the same speed as cruisers and destroyers are so employed.

12138. Minelayers may use smoke to cover their operations or may have aircraft lay smoke to assist their operations, provided the smoke does not interfere with the accomplishment of the tasks of other groups.

12139. Light minelayers may be assigned to the light force task groups or they may be assigned as screening vessels.

12140. If withdrawal is contemplated, minelayers may be stationed on the disengaged side of our battle line or close in on the flanks of our battle line in positions of readiness to lay mines when the withdrawal is made.

AIR (CARRIER) GROUP

12141. Commanders of carrier groups maneuver their units away from the enemy, in general taking positions on the disengaged flank of own battle line. Carriers launch for an air attack in accordance with the battle plans. The operating area for carriers is restricted only to the extent that our main body is kept interposed between carriers and the enemy force.

12142. The tasks of the cruisers and destroyers of the air (carrier) groups are to support and guard the carriers during all their operations unless ordered by the officer in tactical command to do otherwise. The support rendered carriers defends them against air, surface or submarine attack.

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AIRCRAFT, CARRIER AND LAND BASED

12143. During day battle suitable tasks for aircraft are listed herein. It is not expected, however, that aircraft of the various types listed can undertake more than one or two of the tasks given. If more than one task of each type is assigned, the priority of each is established, and the aircraft squadron commanders accomplish these tasks in the order specified, subject to the limitations imposed by the enemy or by other restrictions.

- (a) The Fighting Squadrons:
 - (1) Destroy enemy aircraft in the battle area.
 - (2) Defend our ships and aircraft against attacks by enemy aircraft.
 - (3) Prevent tactical scouting and spotting by enemy aircraft.
 - (4) Support attacks of our own bombing and torpedo squadrons.
- (b) The Bombing and Torpedo Squadrons:
 - (1) Scout tactically.
 - (2) Attack the enemy battle line, detached wing and carriers.
 - (3) Attack enemy light forces.
 - (4) Lay smoke screens as directed.
 - (5) Spot for battleships as relief for observation squadrons.
- (c) The Cruiser Scouting Squadrons:
 - (1) Scout tactically.
 - (2) Attack enemy light forces.
 - (3) Patrol against submarines, torpedoes and mines.
 - (4) Spot for cruisers.
 - (5) Spot for battleships as relief for observation squadrons.
- (d) The Observation Squadrons:
 - (1) Spot for battleships.
 - (2) Scout tactically.
 - (3) Patrol against submarines, torpedoes and mines.
- (e) The Patrol Squadrons:
 - (1) Attack enemy battle line with bombs and torpedoes.
 - (2) Lay smoke screens as directed.
 - (3) Attack enemy detached wing or carriers.
 - (4) Search.

Normally all planes are equipped with cameras which may be used in conjunction with accomplishing the above tasks for the purpose of recording photographically desired matter. The officer in tactical command and commanders use this material as applicable.

12144. Enemy aircraft carriers are objectives of the highest importance in attaining air supremacy. In conjunction therewith the attacks of enemy aircraft must be broken up before they reach our vessels and enemy aircraft must be followed back to their carriers, attacking them vigorously.

12145. After superiority in the air has been obtained and is securely held, our own activity, normally is directed against the enemy battle line. The objective of bombing attacks is designated by the battle plan in effect or by fleet doctrine. The objective may also be designated by the officer in tactical command or may be requested by the commander battle line. The selection of the objective may be influenced by the fire distribution of our battle line or other circumstances.

12146. When aircraft and light surface forces are attacking the same objective, as a destroyer and torpedo plane attack on the enemy battle line, the aircraft endeavor to coordinate the timing of their attack with that of the light forces to the extent practicable. They do not, however, delay their attack if to do so would jeopardize its success by losing a favorable opportunity by exposing our aircraft to dangerous attack by enemy aircraft while waiting for our light forces to attack.

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12147. In engagements between battle lines at extreme and long range, the defense of our observation squadrons and the attack of enemy spotting planes is of much greater importance than in engagements at shorter ranges when ships are not so dependent upon observations from aircraft for spotting.

SUBMARINES

12148. The employment of submarines as attack units in battle is difficult owing to their comparatively low surface speed and still lower submerged speed. If not in positions initially from which attack is possible, the opportunity to attack subsequently might come only by chance. The general task of submarines in battle is: To sink enemy heavy ships.

12149. Every opportunity to attack enemy battleships, battle cruisers, and aircraft carriers is seized. When there is no probability of attack on these types, cruisers or other important enemy types become suitable objectives.

12150. When maneuvering to attack enemy battleships, battle cruisers, and aircraft carriers, torpedoes are not fired at other types in order not to reveal the presence of our submarines to the objective of their attack. Torpedoes are not wasted on small vessels.

12151. Submarines adapt their movements to further the battle plan as best they can. In general, if not initially favorably located for attack, they seek positions ahead of the enemy battle line or positions in areas into which it is expected the enemy battle line will move.

12152. Submarines unable to get ahead of the enemy battle line follow the enemy battle line, prepared to meet the enemy battle line upon a possible reversal of course or a favorable change of course, or to deliver the coup de grace to enemy heavy vessels whose injuries have caused them to fall behind.

12153. When all torpedoes have been exhausted, submarines unless otherwise directed, withdraw from the battle area and proceed to the base or tenders. While a submarine without torpedoes may sometimes create a threat by making her presence known, yet the resulting effect may not be advantageous and the submarine is also exposed to needless risk of destruction.

12154. Any submarines which lose contact during the battle and which still have torpedoes left unless otherwise directed, take up positions on the enemy's probable line of retreat or on the course to his base.

12155. Our submarines avoid revealing their presence to vessels of our force under circumstances making it possible to mistake them for enemy submarines.

12156. Any fast surface vessels, which may be assigned to submarine units, do not remain in the immediate vicinity of our submarines. They take positions where they can observe the movements of the enemy battle line and transmit information or appropriate instructions for the guidance of the submarines.

TRAIN

12157. The train keeps well clear of the combatant units in order not to interfere with their movements, but does not get out of supporting distance of our force, and endeavors to conform in direction to the general movement of our force to the extent that the speed of the train will permit. It takes such measures as may be practicable for its own defense against enemy vessels and aircraft.

Section XI. FIRE DISTRIBUTION

12158. Fire distribution is a systematic assignment of targets to the batteries of a number of vessels by signal or by doctrine.

12159. The purpose of fire distribution is to provide a means whereby the enemy, when within effective range, may be kept under the most effective gunfire at all times.

12160. In order that this purpose may be accomplished, provision is made to:

- (1) Avoid misunderstanding as to the target (or targets) assigned to each ship.
- (2) Permit all enemy ships, that are within effective ranges, to be kept under effective fire at all times.
- (3) Permit natural or artificial concentrations to be effected when such concentrations are desirable or necessary.

12161. The kinds of fire used to accomplish the purpose of fire distribution are:

- (1) Divided fire. Dividing the fire of a ship's battery against two targets.
- (2) Single fire (ship for ship). Directing the fire of the entire battery of a ship against a single target.
- (3) Concentrated fire. Directing the fire of the batteries of two or more ships against a single target.

12162. The battery referred to in (1), (2), and (3) above is any one of the following:

- (1) Ship's main battery.
- (2) Secondary battery on one side.
- (3) Antiaircraft battery on one side.

12163. Fire distribution normally is ordered by the task group commander, but the responsibility for seeing that their vessels are firing at the correct targets rests with the division commanders and the commanding officers. Such officers, having regard for prescribed doctrine or instructions, use initiative in selecting targets:

- (1) In the absence of fire distribution orders from a senior at the time that action is joined.
- (2) When, due to low visibility, confusion of battle, or other conditions, the control of fire distribution by a senior is impracticable.

12164. One of these situations will exist with regard to numbers and consideration is given to the appropriate action under these circumstances as follows:

- (a) When our ships within effective range are greater in number than the enemy, opportunity is afforded to use natural concentrations against selected enemy ships, other enemy ships being covered by single fire.
- (b) When our ships within effective range are the same in number as the enemy, the enemy may be covered by single fire of all our ships or by artificial concentration on selected enemy ships. Use of artificial concentration in these circumstances entails divided fire against some enemy ships or leaving some enemy ships not under fire.
- (c) When our ships within effective range are less in number than the enemy, divided fire is imposed upon some, possibly all, of our ships, unless some of the enemy ships are left not under fire.

12165. In determining the fire distribution to be used, the commander ordering it is governed by his judgment of the distribution best suited to the battle plan under the existing situation. In forming this decision the following are considered:

- (a) Initial distributions that require cross firing involve some risk of misunderstanding. Cross firing arising from a change in relative positions of targets, after fire is opened, is not necessarily disadvantageous.
- (b) Unnecessary changes of fire distribution and frequent shifting of targets are avoided.
- (c) In divided fire, the fire power of one-half the battery is usually less than one-half the fire power of the whole battery in single fire.

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(d) The fire power of an enemy not being fired upon is decidedly greater than that of one being fired upon by single or divided fire.

(e) In concentration fire, the combined fire power of the concentrating ships is usually less than the sum of their fire powers when firing singly. The loss of fire power through concentration increases rapidly with the number concentrating on one target. With two ships concentrating on one the loss may be slight; with three the loss may be greater but still permissible under certain circumstances. The concentration of more than three ships on one usually involves so great a reduction of fire power as to render its use prohibitive.

12166. In selecting targets for concentration fire, the following are considered:

(a) Enemy ships which combine hitting power with defensive weakness to the greatest degree.

(b) Enemy ships at ranges which are favorable for a higher percentage of hits or a higher percentage of penetrative hits on either vertical or horizontal armor.

(c) Parts of the enemy formation which offer favorable opportunities for enfilade or where the results of damage may cause more than usual confusion. Enemy flagships, ships in the center or van of enemy's formation and overlapping units of the enemy formation may be considered in this class.

12167. Division commanders and commanding officers prepare to open fire without signal for opening fire or for fire distribution. In this case they select and bring under fire, the targets which logically are theirs counted by the colored splashes of the flagship of the officer in tactical command of the firing unit, task force commander, or division commander as the case may be.

12168. Attention is invited to the various type instructions for additional information regarding the application of the principles of fire distribution given above to specific types of ships.

Section XII. TORPEDO INSTRUCTIONS

12169. The number of torpedoes carried by any vessel is limited and the replacement of expended torpedoes may be difficult, uncertain, or long delayed. Torpedoes are fired only when there is a reasonable expectation of obtaining results which justify the expenditure. The circumstances under which torpedoes are fired and, the enemy types that may be considered appropriate torpedo targets, vary with the situations and assigned tasks.

12170. Enemy battleships, battle cruisers, and aircraft carriers are always appropriate torpedo targets and no chance opportunity to torpedo these enemy types is lost.

12171. A situation, such as an enemy superiority in cruisers or other special types, may increase the relative importance of such special types and cause them to become appropriate torpedo targets. When in the opinion of the officer in tactical command or other competent authority, such a situation exists, he issues appropriate instructions designating the types he considers to be suitable torpedo targets.

12172. In battle, the enemy's battle line is the enemy force upon which the united offensive effort of our force is concentrated. With this end in view, torpedoes are legitimately expended:

(a) To sink, disable, or reduce the speed of vessels of the battle line, aircraft carriers or vessels of a detached wing.

(b) To coerce the enemy battle line to maneuver into our submarine attack groups or mine fields or to execute radical maneuvers which will result in a tactical or gunnery advantage to us.

(c) To sink or disable enemy cruisers which are blocking or delaying a crucial destroyer attack on the enemy battle line when a few torpedoes fired at short range will produce the desired results.

- (d) To cover the retirement of our battle line.
- (e) To break up a crucial day destroyer attack when a few torpedoes fired at short range will produce the desired results.

12173. The following general instructions are normally followed in firing torpedoes.

- (a) Torpedoes are normally fired in salvos as this method offers the best chance of damaging the enemy.
- (b) In order to insure decisive results in attacking enemy major ships, the maximum number of torpedoes available are normally fired.
- (c) Precautions are taken that friendly ships are not endangered.
- (d) A sinking cruiser or destroyer fires her torpedoes at the best available enemy target which can be fired at without endangering our own vessels.
- (e) Spread gyro angles and depth settings are in accordance with the instructions in appropriate publications.

Section XIII. SMOKE SCREENS IN BATTLE

12174. Smoke screens are of two general types—those laid by surface vessels, usually destroyers or cruisers, and those laid by aircraft. The choice of the type to be employed depends upon the availability of surface vessels or aircraft capable of making smoke, and the suitability and limitations of each type of smoke screen. Atmospheric conditions affect the efficiency of both types.

12175. Smoke screens laid by surface vessels have the following advantages:

- (a) Smoking can be continued for an indefinite time, much longer than is possible with aircraft.
- (b) Vessels requiring smoke for their own protection can begin smoking when necessary without the delay sometimes resulting due to communications or lack of perfect coordination with smoke-laying planes.

12176. Smoke screens laid by surface vessels have the following disadvantages:

- (a) The laying of a smoke screen by surface vessels takes a longer time than aircraft require.
- (b) Due to the vulnerability of light vessels, they cannot lay smoke screens close to the enemy.
- (c) Vessels laying a smoke screen are not always protected by their smoke screen and hence surface craft cannot always be counted upon to lay a smoke screen when within effective range of the enemy.

12177. Smoke screens laid by aircraft have the following advantages:

- (a) Aircraft smoke screens are laid in less time than that required by surface vessels.
- (b) Aircraft, due to their high speed and small target size have a greater chance of successfully completing smoke-laying operations.
- (c) Aircraft smoke screens can usually be laid much closer to enemy vessels than can smoke screens laid by surface vessels.

12178. Smoke screens laid by aircraft have the following disadvantages:

- (a) Since the amount of fuel in a plane is limited, aircraft will not be available immediately to lay smoke when required unless a flight of smoke-laying planes is maintained in the air. They cannot be maintained available indefinitely without reliefs.
- (b) Since the amount of chemical carried by each smoke-laying plane is limited by considerations of weight, aircraft cannot lay smoke indefinitely.

12179. The advantages of smoke screens laid by aircraft make them particularly valuable for tactical use wherever smoke screens are advantageous or practicable. During an engagement, the officer in tactical command, if practicable, has some smoke-laying planes available in the air, so that they may place an effective screen in any desired position on short notice.

12180. The use of smoke screens in conjunction with surface craft operations requires coordination of the highest degree and rapid and sure communications.

12181. Some of the possible uses of smoke screens in battle are enumerated below:

- (a) To aid the battle line.
 - (1) By protecting it while passing through unfavorable gun ranges.
 - (2) By concealing it during a reversal of course.
 - (3) By interposing between our battle line and the enemy when it is practicable to use indirect fire.
- (b) To conceal or protect light surface craft when making a torpedo attack, particularly an unsupported attack.
- (c) To screen torpedo planes when launching their torpedoes.
- (d) To isolate a portion of the enemy, a detached wing for example.
- (e) To cover the movements of a force in breaking off an engagement to cover its retirement after an attack or its withdrawal from action.
- (f) To assist any surface craft when attacked by enemy surface or aircraft.

12182. The accurate placing of a smoke screen with reference to enemy vessels free to maneuver is a matter of extreme difficulty. If the wind is strong, accurate estimate of the wind is essential if the screen is to be placed accurately. If the screen is laid more than 10 or 15 minutes in advance of the time when the maximum use will be made of it, unexpected maneuvers by the enemy may cause the screen to become ineffective or only partially effective.

12183. The grave danger of smoke laid for a given purpose drifting down on parts of our own force or remaining in an area which parts of our force may subsequently desire to enter renders it imperative that smoke screens be used and laid with sound judgment.

12184. In a major engagement the orders to use smoke are normally given only by the officer in tactical command. These orders may be contained in the battle plan placed in effect or they may be specifically given by signal. When the use of smoke is prescribed or permitted in the battle plan, the commander of the group which is to lay smoke uses his initiative as to when to lay the smoke, being guided by the general plan of battle, the specific purpose of the smoke screen and the necessity of avoiding interference with our own groups.

12185. A smoke screen to cover our battle line or to interpose between our own and the enemy's battle line or a portion of it may be ordered by the commander of the battle line, provided it promotes the success of the battle plan and does not interfere with other groups in carrying out their assigned tasks in the battle plan.

12186. Smoke as cover for attacking destroyers under some circumstances and for torpedo planes is of great value, provided there is no danger of interference with the gunfire of our battle line or with other groups in carrying out their task.

Section XIV. OWN VESSELS DISABLED IN ACTION

12187. While engaged in action with the enemy every effort is made by each vessel to maintain its position in formation. The formation is kept closed up and all gaps left by vessels falling out are closed up immediately. Vessels may have to maneuver to avoid disabled ships and to fire over disabled ships that have turned toward the enemy.

12188. Any vessel of a formation unable to maneuver with her formation avoids hampering the movements of vessels which can maintain their stations in the formation. Such vessel hauls clear of the formation. She continues to engage the enemy as long as it is possible to inflict

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damage on the enemy or to divert enemy fire which otherwise is directed at more effective units. If the disablement is temporary the vessel endeavors to follow in the rear of her formation. If unable to rejoin her formation she joins a following unit of an appropriate type or takes such part in the action as circumstances permit.

12189. A disabled vessel makes the "breakdown signal" upon leaving her formation and keeps the "breakdown flag" or "lights" displayed until danger to or from vessels of her own formation is past. If required for safety, upon the approach of other vessels of our force she indicates by appropriate signals that she is broken down. The "breakdown signal" is not displayed any longer than necessary. Notification of difficulty is made to the officer in tactical command and warning is given to vessels astern.

12190. If forced to haul out of formation, the disabled vessel, if possible, hauls out on the side which causes the minimum of interference to other vessels of the formation. Disabled vessels which are smoking heavily haul out on the disengaged side if possible to do so. Any disabled vessel compelled to haul out on the engaged side, endeavors to gain distance from the formation in order to shorten the time when she may blanket the fire of other vessels and also in order that other vessels may fire over her.

12191. Destroyers or fast vessels whose speed has been reduced so that they are unable to keep up with effective units of their type, but whose remaining speed is adequate to screen larger and slower vessels, relieve effective units engaged in such screening duties.

12192. Disabled vessels when no longer able to take part in the action, either in an offensive or defensive role, proceed to port or to the rendezvous. The principle of exploiting all opportunities to engage enemy cripples, prosecuting damage control measures with utmost diligence and tenacity and not giving up the ship are followed. Depending upon the situation, their type and their condition, disabled vessels may be employed to render assistance or to tow other damaged vessels or to rescue survivors. A vessel disabled and unable to escape is never allowed to fall into the hands of the enemy. Action is taken to insure sinking her even if she is boarded by the enemy.

Section XV. FLAGSHIP DISABLED IN ACTION

12193. If the flagship of the officer in tactical command is disabled, a report of the fact is made as quickly as possible to the next senior officer present with the force engaged in the action.

Section XVI. ENEMY VESSELS DISABLED IN ACTION

12194. As long as other enemy vessels remain in the vicinity and can be engaged, no effort is made to accept the surrender of disabled enemy ships.

12195. No disabled enemy vessel is allowed to escape unless the conditions and the situation at the time make complete destruction or capture impossible.

Section XVII. AIRCRAFT DISABLED IN ACTION

12196. Prior to taking off or being launched aviators are, in addition to other matters, informed of special rescue provisions. However, in general when an airplane is disabled during a major action the pilot:

- (a) Of a carrier plane returns to parent carrier or nearest carrier he can reach and lands if possible.
- (b) Lands in water 1000 yards ahead or on lee bow of vessel designated by the officer in tactical command as rescue ship.
- (c) Lands in friendly territory if location of action makes such landing feasible.
- (d) Sinks plane if it is in danger of falling into enemy hands.
- (e) Destroys all confidential or secret publications if there is danger of their falling into enemy hands.

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12197. Communications are established and maintained between planes and base (ship) while planes are air borne. If plane is disabled a report is made, prior to landing, to base and rescue ship as to intentions and location of where plane is to be let down into the water. Any plane observing another plane making a forced landing or observing personnel landing in the water by parachute and if no report has been made makes the required informatory report. If the situation permits, the observing plane circles the spot and marks the spot until the rescue vessel definitely has plane or personnel in sight.

12198. The rescue ship recovers personnel and sinks the plane by gunfire. The parent ship is notified of rescue and action taken.

12199. Life rafts are dropped to personnel by ships passing close when the tactical situation does not permit stopping.

Section XVIII. ASSISTANCE TO DISABLED VESSELS DURING ACTION

12200. If the flagship of the officer in tactical command is disabled the two nearest destroyers close her, both prepared to embark the officer in tactical command and his staff, if directed. The destroyer not embarking the officer in tactical command remains with the disabled flagship.

12201. If a battleship is disabled and unable to maneuver with the battle line a vessel from the battle line screen group astern proceeds at once, without waiting for orders to defend the disabled battleship against submarine and air attack and remains with her unless otherwise directed.

12202. If a large, heavy, or light cruiser, except those of carrier groups, is disabled, the commander of the task group to which the cruiser belongs directs a vessel of his command to defend the disabled cruiser against submarines and enemy aircraft, if the number of suitable vessels available and the state of the action permit. The commander of the destroyers attached to the same task group as the disabled cruiser may do this on his own initiative if the existing situation permits.

12203. If an aircraft carrier or cruiser of an air (carrier) group is disabled, the commander of the air (carrier) group initiates appropriate action under the circumstances by other vessels of the air (carrier) group. If a carrier is disabled he directs the other vessels of the air (carrier) group not essential to her protection, to report to other task groups. If her deck is damaged so that she cannot receive aircraft, the commander of the air (carrier) group immediately informs the officer in tactical command in order that the latter may arrange for other carriers to receive the damaged carrier's aircraft.

12204. If a heavy vessel of the train is disabled and unable to maneuver with the train, the nearest vessel of the train screen proceeds at once, without waiting for orders, to defend the disabled vessel against submarine and air attack and remains with her unless otherwise directed.

12205. No effective combatant ships other than those specified in the above paragraphs are to attempt to assist disabled ships until the engagement is over or until the officer in tactical command authorizes assistance to be given to disabled ships.

12206. The above general procedure is carried out when applicable unless the officer in tactical command determines otherwise. He may state in his damaged ship procedure contained in his battle plan any specific changes or tasks he desires to be carried out in the event units of his force are disabled. This is particularly true regarding the number of vessels that can be spared to screen, the employment of aircraft for antisubmarine and combat air patrols and, depending upon types of vessels in his force, what types will be employed for towing purposes.

12207. Smoke screens may be used to protect disabled ships from enemy gunfire provided such smoke screens do not interfere with the gunfire or movements of effective units.

12208. Subject to instructions from the officer in tactical command, the commander of the train, if present, directs suitable vessels (tugs, minesweepers, salvage vessels, etc.) to assist important disabled vessels upon their request or upon his own initiative when the situation is known and permits.

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Section XIX. RESCUE OF SURVIVORS DURING ACTION

12209. No combatant ships which are capable of continuing the action attempt to rescue or to search for survivors until authorized by the officer in tactical command. Vessels guarding our own disabled battleships, cruisers, aircraft carriers, or train vessels are excepted and they rescue the personnel of such disabled vessels that sink if circumstances permit.

12210. No vessel attempts to rescue the personnel of our aircraft which have been driven down or forced to land on the water unless rescue can be accomplished without jeopardizing the safety of the rescuing vessel or the execution of the task in which she is engaged unless the officer in tactical command has designated a vessel to perform that specific task in which case consideration is given to development of the action. In such case unnecessary risks are avoided.

12211. As long as effective enemy vessels remain in the vicinity and can be engaged, no effort is made to take off the personnel of sinking enemy vessels or to rescue the survivors of enemy vessels that have sunk.

Section XX. NIGHT ATTACKS BEFORE MAIN ENGAGEMENT

12212. A night search and attack is for the purpose of locating the enemy and delivering a night attack. The night attack is made by aircraft, destroyers or light forces composed of cruisers and destroyers. An attack by any one group may be coordinated with an attack by any of the other groups. A night action by large dispositions or a night engagement involving only light forces when a subsequent main engagement is not contemplated, is not considered as pertaining in this section. Pertinent instructions for such cases are found in appropriate sections of this publication.

12213. In case the position of the enemy is known with sufficient accuracy, a night attack may be made without preliminary search operations. Such attacks may be made before a general engagement or as a separate operation which is not directly connected with the major action. If the enemy battle line is protected by heavy cruisers, it may be necessary or desirable to reduce the enemy strength in heavy cruisers by repeated raids and night destroyer attacks preliminary to the main action.

12214. The composition of opposing forces and the general situation may be such that a major action will not take place until after one or more destroyer and cruiser actions and air engagements which have as their objectives the reduction of enemy forces before the main engagement. The commander having superiority in forces or who may by night attacks gain such superiority or a tactical advantage normally presses that advantage to conclusion.

12215. Normally, the light forces of a force are not dissipated in night attacks preceding the general engagement. However, destroyers with the force which find themselves in favorable positions to attack enemy major units before the general engagement may be directed to attack such units by the officer in tactical command.

Section XXI. NORMAL ACTION

12216. An action in which the opposing battle lines are moving initially approximately parallel to each other and on approximately the same course is termed in these instructions "normal action". In this type of action all task groups of the force are in mutual support of each other. If the battle lines are approximately of the same strength so that decisive engagement is sought by both, each hopes to win by its expected superior ability to inflict damage on its opponent while accumulating damage at a lesser rate than its opponent. It is the type of action that will probably be sought by the stronger battle line, particularly if it has superior speed so that it can impose an enveloping flank attack on the van flank of its opponent. With a battle line inferior in strength to the enemy's battle line, it is not advisable to contemplate fighting this type of action unless this inferiority is balanced by superiority in other types of vessels or in weapons.

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12217. A flank attack by our slow battleships against the van of the battle line of possible opponents is not a probable development of normal action due to their inferior speed and the lack of battle cruisers. Such a type of attack might be possible for our slow battleships if the speed of the enemy battleships is markedly reduced by the attacks of light forces, submarines, and aircraft, and by gun damage. A situation might arise by chance, due to poor visibility or by errors on the part of the enemy, so that our slow battleships can make a flank attack against the van of the enemy's battle line. If such a situation arises in any manner, the opportunity for advantageous concentration of fire on a part of the enemy's battle line is seized.

12218. A massed flank attack by large or heavy cruisers, supported by light cruisers, destroyers, and aircraft, across the van of the enemy battle line while it is decisively engaged with our battle line, may force the enemy battle line to turn with a resulting advantage to our battle line. Plans for such type of flank attack are prepared if the number of large or heavy cruisers permits this employment of them.

12219. Assuming that our fast and slow battleships will normally not operate in the same battle line, the considerations enumerated above do not apply when our battle line is composed only of our fast battleships. A commander having such a battle line chooses the type of action he desires to fight and forces it upon the enemy without speed considerations.

12220. A commander having in his force battleships of both fast and slow characteristics normally does not sacrifice the speed of faster ships by confining both types to operate together in one battle line but may use one or the other types as a detached wing.

BATTLE LINE

12221. The battle line is normally in a prescribed battleship battle formation, whose line of bearing is approximately normal to the bearing of the enemy battle line. The commander battle line, keeps the line of bearing of the battleship battle formation approximately normal to the bearing of the enemy battle line at all times. A commander having a battle line of only fast ships finds this possible. If the enemy battle line is appreciably faster than our battle line, which is quite possible if our battle line is composed of slow battleships, an ultimate unfavorable tactical and gunnery situation can only be prevented by redeployments of the battle line or changes in the direction of its line of bearing to keep the bearing of the enemy battle line approximately normal to the line of bearing of our battleship formation.

DETACHED WING

12222. If it is decided to employ a detached wing of battleships in the van, such detached wing is stationed on the desired flank during the approach. With no excess of speed over the battle line, it is almost impossible for it to be projected quickly to a position sufficiently advanced if the decision to employ a detached wing were made after deployment unless both fast and slow ships are present, in which case the fast ships may be designated as detached wing and proceed to assigned stations after deployment.

12223. If the enemy is employing a detached wing of fast battleships or battle cruisers in his van, it is desirable for us to employ a detached wing of fast battleships to counter the operations of the enemy's detached wing by denying its positions from which it can concentrate advantageously on the van of our battle line. A detached wing can also prevent an enemy detached wing from driving our van light forces back upon our battle line from the positions they normally seek to attain before launching their attacks. If unopposed, an enemy detached wing could do this easily.

12224. If we do not employ a detached wing of fast battleships as a counter to an enemy detached wing of battleships or battle cruisers, an alternate counter measure is to concentrate our air attack on the detached wing and possibly to isolate it by smoke screens laid by aircraft.

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LIGHT FORCES

12225. In normal action it is necessary to have light forces on the van battle flank in order that they may be in initial positions from which successful attack on the enemy battle line is possible, and furthermore, that they may repel enemy light force attacks against our van. It is desirable to have some light forces on the rear battle flank as a potential threat to deter the enemy battle line from reversing course or as a group in readiness to attack if the enemy battle line reverses course.

12226. It is usually desirable to have approximately two-thirds of the light forces on the van battle flank and approximately one-third on the rear battle flank. Special conditions or the actual distribution of the enemy's forces may make a different allocation of our light forces necessary or more advantageous.

12227. In action at extreme ranges, the support which the gunfire of the battle line can give to light force attacks will probably be much less effective than at moderate or close ranges and it may be impossible to follow or observe the progress of our light force attacks. Hence, in normal actions at extreme ranges it is probably best to withhold the attacks of our light forces. A light force attack launched when the battle lines were at extreme ranges may result in a loss of vessels and an expenditure of torpedoes without any commensurate toll taken from the enemy.

12228. The conditions at long ranges are similar, but the opportunity to follow the progress of an attack is better. If long ranges are unfavorable for our battle line and if it is unable to break such an unfavorable situation by maneuver, attacks by light forces to force the enemy battle line to maneuver and thus break the unfavorable situation for our battle line is justified.

12229. At moderate and short ranges a battle line can afford support to light force attacks, not only by keeping the enemy battle line under fire of turret guns, but broadside guns may be employed, or may be employed against enemy light forces opposing our attacks. At moderate and short ranges, a light force attack can be followed and observed, and therefore better cooperation can be given.

12230. The officer in tactical command reserves to himself the initiation of light force attacks or he delegates the discretion to the commander of the light forces on the van battle flank with whom the initiative otherwise naturally rests. The latter gives such instructions as are required to the light forces on the rear flank, if a coordinated attack from both flanks is contemplated.

AIR (CARRIER) GROUPS

12231. The usual tasks of the air (carrier) groups in normal actions are to maintain control of the air in the battle area (which includes the destruction of all enemy aircraft encountered in the battle area and the defense of our own vessels and aircraft in the battle area); to scout tactically; to destroy enemy aircraft carriers and to neutralize enemy air fields within range; to attack the enemy battle line and detached wing, and to patrol against enemy submarines.

12232. During extreme and long range actions, the defense of our observation squadrons and the attack on enemy spotting planes is of greater importance than in engagements at moderate and close ranges. For similar reasons the enemy may not use any fighting planes at the shorter ranges to defend his spotting planes and to attack our observation squadrons, and hence may employ all of his fighting planes in attacks against our surface vessels and aircraft.

12233. In engagements at moderate and close ranges, the menace from enemy light force attacks may be greater, and therefore, enemy forces opposite our van become one of the suitable objectives for our air (carrier) groups.

SUBMARINES

12234. The initial positions of the submarines when the engagement opens depends almost entirely upon the relative movements of the two forces while closing each other during the approach and upon deployment.

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12235. Some submarines may find themselves in favorable positions initially from which they can attack and every effort is made by them to take advantage of what may be their only opportunity to attack the enemy battle line and detached wing.

12236. Other submarines may find themselves in the general area ahead or on the bows of the enemy battle line after its deployment and these endeavor to reach positions from which an attack may be possible later if the enemy continues in the same general direction.

12237. Those submarines that are well astern of the enemy battle line upon its deployment will have no chance to attack if the enemy continues in the same general direction. They, unless otherwise directed, follow the enemy battle line so that they may be in position to attack the enemy when the latter reverses course or to attack any enemy ships that fall behind.

TRAIN

12238. The train if present, normally follows the general direction of our force at its best speed, but keeps well clear and concentrated on the disengaged side.

Section XXII. REVERSE ACTION

12239. The reverse type of action is that in which the opposing battle lines are approximately parallel to each other, but on approximately opposite courses. An initial deployment by the two forces on opposite courses may not be unfavorable to either force so that the battle may continue to be fought as a reverse action. Such an action has been termed a "chase tails" action, which is applicable when the opposing forces are of approximately the same speed. However, if an important speed differential pertains the faster force may in fact circle the other's rear, an evolution fully as effective tactically as "crossing the T."

12240. On the other hand, an action begun as a reverse action might not continue very long as a reverse action for several reasons. If both forces happen to deploy at approximately the same time on opposite courses, one or the other may not desire to fight a reverse action and may reverse the direction of deployment to fight a normal action. The deployment of one force may have been made on inaccurate or incomplete information so that when the situation is more accurately known, the force may reverse course in order to continue the action under more favorable conditions. If one force deploys early, the distribution of the light forces by the force deploying afterwards may make it necessary for the force which deployed first to reverse course in order to avoid an unfavorable situation.

12241. An action begun as a normal action may develop into a reverse action by the maneuvers of one battle line to avoid an attack or the threat of a torpedo attack against its van by the light forces of the other force. Such reversal of course to avoid torpedoes may be only temporary to permit the torpedoes to pass ahead, after which the original course and normal action is resumed.

12242. The reverse type of action may be sought initially by the force with the slower battle line, or an action begun as a normal action may develop into a reverse action by the maneuvers of the slower battle line to avoid an enveloping attack on its van flank by the faster battle line or by a fast detached wing.

12243. If our force can induce the enemy force to deploy with the greater part of its light forces or fast detached wing in its van in one direction, or if our force when relatively weaker in light forces, can delay deployment until the enemy force has deployed with the greater part of its light forces or fast detached wing in its van in one direction, a deployment by our force in the opposite direction is advantageous under these circumstances. This is because it places the enemy's light forces opposite our rear in a position from which they cannot make a successful attack, and a reversal of course by the enemy force will not improve the situation for the enemy unless a redistribution of light forces is made.

12244. Reverse action, consequently, is less likely to continue for as long a time as normal action and it is not likely to continue for an entire battle. The tactical situation may change very quickly on account of maneuvering by the enemy or by changes in his dispositions. Hence, in this type of action unexpected situations are likely to occur and our force must be alert to avoid being caught at a disadvantage and also alert to exploit favorable opportunities presented.

BATTLE LINE

12245. The battle line is normally in a prescribed battleship battle formation, whose line of bearing is approximately normal to the bearing of the enemy battle line. The commander battle line keeps the line of bearing of the battleship battle formation approximately normal to the bearing of the enemy battle line at all times. This will require more frequent changes in the line of bearing than in normal action because the battle lines are moving in opposite directions.

DETACHED WING

12246. If it is intended to employ a detached wing of battleships in the van, such detached wing is stationed on the desired flank during the approach. If it is intended to employ a detached wing in the rear, the rear battleships of the battle line can reach positions astern quickly and need not be stationed there during the approach.

12247. If the enemy is employing a detached wing of fast battleships or battle cruisers, our detached wing of battleships, is stationed either in our van or rear, depending upon the position of the enemy's detached wing. A detached wing in our van is used to defend our van, if the enemy is employing a detached wing in support of his light forces in their attacks on our van. A detached wing in the rear is used in support of our light forces attacking the enemy's van, or employed to counter the operations of an enemy detached wing operating against our rear.

LIGHT FORCES

12248. In reverse action, except when the light forces on both flanks are making a coordinated attack, the light forces in the van can only be employed profitably in defending our battle line against enemy light forces, while the light forces in the rear are the only ones in positions from which an attack on the enemy battle line is possible. Consequently in reverse action, it is usually necessary to have light forces on both flanks.

12249. If sufficient light forces are available it is usually desirable to have approximately one-half of the light forces on each battle flank in order that our light forces on one flank or the other may not be decidedly inferior if our battle line or the enemy battle line reverses course subsequently. If our force is superior to the enemy force in light forces, this is the normal distribution for reverse action. Special conditions or an unusual distribution of the enemy's light forces may make a different allocation of our light forces more desirable.

12250. The support which the gunfire of the battle line can give to light force attacks at the various ranges is the same as in normal action.

12251. The officer in tactical command may reserve to himself the initiation of light force attacks or he may delegate the discretion to the commander of the light forces on our rear battle flank (i. e., our light forces opposite the van battle flank of the enemy) with whom the initiative otherwise naturally rests. The latter gives such instructions as are required to the light forces on the van flank, if a coordinated attack from both flanks is contemplated.

OTHER TASK GROUPS

12252. The tasks of the air (carrier) groups, submarines and train are similar to those of normal action.

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Section XXIII. DAY PURSUIT ACTION

12253. Pursuit action will be necessary when an enemy battle line is able to put off engagement with our battle line until ready to engage or is able to avoid action entirely with our battle line.

12254. During an action an enemy battle line, particularly if it is faster and weaker than our battle line, may employ retiring tactics to draw our battle line over enemy submarines or to drive in destroyer attacks against our battle line while at the same time placing our light forces in positions from which an attack on the enemy battle line is impossible or most difficult. Such retiring tactics on the part of the enemy battle line will impose a following movement by our battle line. While an action of this type is not a pursuit in the sense of pursuing a withdrawing enemy, yet the measures to counter such tactics are similar to those of pursuit action, and hence an action of this type is included here under pursuit.

12255. Pursuit action may also develop after an action if the enemy breaks off engagement and withdraws in an orderly manner. The speed of the enemy battleships may or may not be greater than that of our battle line, depending upon the amount of damage the battleships of both sides have received in the engagement.

12256. When the enemy force becomes disorganized and the efforts of the more or less detached units are directed primarily to escape, the pursuit becomes a chase.

12257. It is normally assumed in pursuit action that our strength is superior to that of the enemy and that we are seeking a decisive engagement.

12258. Our battle line and heavy ships following a retiring or withdrawing enemy force will be in a disadvantageous position as regards torpedoes fired from enemy vessels and also as regards floating mines. Effort is made to avoid following directly in the wake of vessels which may carry mines. If our force is superior and the situation demands, the torpedo and mine menace is disregarded in order to bring the enemy force to decisive action.

12259. A retiring force may use smoke to cover its movements from following vessels.

12260. A retiring enemy force may also employ submarines to advantage and the retirement may be a deliberate plan to draw our pursuing force over enemy submarines. Hence, measures for the detection of enemy submarines during pursuit have an added importance.

12261. A battle disposition will usually be suitable for a day pursuit action, but situations may arise in which a contact disposition may be better.

BATTLE LINE

12262. Action by detached battleships, or a detached division of battleships out of support of other battleships, is not sought against an undefeated enemy battle line. Generally speaking, in following an undefeated battle line, our battle line pursues as a concentrated unit.

12263. When the enemy is delaying or avoiding action, our battle line endeavors to bring the enemy battle line under fire at the earliest moment. The formation of the battle line is one which permits the maximum number of guns to fire when the enemy comes within range, and which also permits the pursuit to be continued. The line of bearing of the formation permits of a quick deployment, when necessary, toward either flank.

12264. When the enemy is withdrawing after an engagement, our battle line continues to keep the enemy battle line under fire at the most advantageous ranges and the formation of our battle line permits this and also permits the pursuit to be pressed.

12265. The screen of the battle line patrols the area through which the battle line will pass and normally is well ahead of the battleships.

DETACHED WING

12266. In the pursuit, the employment of a fast detached wing of battleships may bring about an engagement with the retiring enemy battle line. If the enemy employs a fast detached

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wing to threaten a flank of our battle line or perhaps to threaten our train in an effort to delay our pursuit a detached wing of adequate strength is normally employed as a counter to such enemy measures.

LIGHT FORCES

12267. Our light forces are under great disadvantages when our force is pursuing an enemy force or following an enemy force that is using retiring tactics in battle. In order to reach positions from which torpedo fire is effective, they approach very close to the enemy battle line if their attack is to be delivered from astern or on the quarters of the enemy's battle line formation, or they make wide detours or are under fire for a long time if their attack is to be delivered on the bows of the enemy's battle line formation. Our light forces in either case may be engaged for a very much longer time with the enemy's light forces than if their attack had been started initially from positions ahead or on the bows of the enemy's battle line formation.

12268. If our battle line is pursuing or following a faster enemy battle line, our light forces and air forces are the only units which have sufficient speed to overtake and attack the enemy battle line. Their attacks to be successful result in damage to the enemy battleships which will reduce the speed of the enemy battle line or will cause the enemy battle line to maneuver radically to avoid their attacks, so that the loss of speed or the loss of distance, or both is sufficient to enable our pursuing battle line to get within effective gun range of the enemy battle line. If the battle lines are not within effective range of each other, any attacks made by our light forces are without support from our battle line.

12269. If our battle line is pursuing a faster enemy battle line which is avoiding action, it probably is best to employ our air force to attack the enemy battle line in an endeavor to slow it down to force it to fight rather than to risk the almost certain large losses of light forces in an unsupported attack. The light forces, with their torpedoes, are conserved for the general engagement which may follow. Their best use in such pursuit is to beat off the enemy light forces which are endeavoring to delay our battle line by torpedo attacks.

12270. In the situation in which our battle line is following and is engaged with an enemy battle line that is employing retiring tactics, our light forces on the battle flanks are not in favorable positions to attack, even though the battle lines are engaged with each other so that their attack is a supported one. The enemy's light forces, on the other hand, are favorably situated for attack and our light forces will probably be forced to use every effort to prevent the enemy light forces from delivering successful attacks on our battle line.

12271. In the situation, in which our force is pursuing an enemy force that is attempting to withdraw after an action, the situation will be similar to the foregoing cases, except during the action our destroyers, or many of them, may have expended their torpedoes so that the necessity of conserving them for future torpedo attacks is no longer a factor to be considered. Consequently, our destroyers may take the offensive with guns against the enemy light forces, if desirable, instead of the more passive role of defense against enemy light forces which are actually threatening or attacking our battle line.

12272. If we have an inadequate air force or if an air attack has not resulted in slowing down the enemy battleships, or our battle line speed is too slow to prevent the escape of the enemy battle line, it is necessary to use the light forces in an unsupported attack to accomplish this, such attacks are made under cover of their own smoke or smoke laid by aircraft. Our destroyers have to be vigorously supported by our cruisers in order that they may break through the enemy's light forces to reach positions at which torpedo fire is effective.

AIR (CARRIER) GROUPS

12273. When pursuing or following a faster enemy battle line, the air (carrier) group is the one arm that has sufficient speed to overtake the enemy battle line quickly and if the enemy is

employing smoke it may be the only group that can observe and that can deliver an attack. Consequently, bombing and torpedo planes are the best means in such actions to damage the enemy battle line in order to reduce its speed, and the air (carrier) group may be the only group which can accomplish this end.

12274. If our battle line has the enemy battle line under effective fire or is faster than the enemy battle line, it may then be best to employ our aircraft to defend our battle line against enemy bombing and torpedo attacks in order that its speed may remain unimpaired for the pursuit. Aircraft may also be used in attacking enemy light forces to assist in breaking up the attacks of enemy light forces which may be endeavoring to delay or damage our battle line. The proportion of our aircraft which are employed for defense will depend upon the strength and character of the enemy air force at the time pursuit is taken up.

12275. If our light forces have to attack the enemy battle line in order to delay it or slow it down, smoke-laying planes are made available to assist them in their attacks.

12276. In any pursuit or following action, aircraft patrol the area through which our force is advancing to detect and attack enemy submarines and to detect enemy mine fields, and maintain control of the air.

12277. As in any action, aircraft are used to scout tactically to keep the officer in tactical command informed of the situation, and if the enemy employs smoke to cover his movements aircraft tactical scouts and radar are the only means by which the movements of the enemy are followed.

SUBMARINES

12278. Any of our submarines advantageously located attack or seek positions on the line of the enemy's retirement in order to attack. Submarines unable to gain such positions follow the enemy force to attack and destroy any enemy ships which may fall behind.

TRAIN

12279. The train, if present, follows the general movement of our force in order that it may have the protection of our force in a general way and not become isolated and liable to attack from detached enemy units.

Section XXIV. RETIREMENT ACTION

12280. In retirement action the tactical attitude is offensive. A retirement action is in no sense a retreat (withdrawal) to avoid action or to break off action. The use of retiring tactics in this type of action is for the sole objective of gaining an immediate or subsequent tactical advantage.

12281. A movement to maintain the range, if the enemy is endeavoring to close the range, or a movement to increase the range quickly, partakes of the nature of a retirement even though the battle plan in effect may be one for normal or reverse action.

12282. A retirement action can probably be used to best advantage to impose a following movement on the part of the enemy battle line, not necessarily placing the enemy battle line astern of our battleships but placing the enemy battle line somewhere abaft the beam of our ships. This places the enemy light forces following in a more disadvantageous position to attack than if the enemy battle line were abeam or forward of the beam of our ships. At the same time it places our light forces in an advantageous position to use torpedoes and possibly mines. This is predicated on the assumption that the enemy will follow. Same advantages apply for enemy if he desires to fight a retirement action.

12283. A retirement action is advantageous to our force if we are inferior in light forces, particularly destroyers, because of the more unfavorable position imposed upon the enemy light forces. The enemy destroyers must come very close to attack the rear flank of our battle line.

To attack the van flank of our battle line, the enemy destroyers have a greater distance to proceed to reach effective firing positions than if the enemy battle line were abeam or forward of the beam of our battle line.

12284. A retirement action is also advantageous to our force if we are equal or superior in light forces, because the torpedo menace from enemy light forces, is lessened. If the enemy battle line is following our battle line our destroyers will be able to fire their torpedoes from a greater range than if the enemy battle line were abeam or forward of the beam of our battle line. Our destroyers on the rear battle flank may be able to reach effective firing positions under these circumstances without having to approach too close to the enemy battle line.

12285. If our submarines are known to be between the battle lines or are known to be in an area on an engaged flank of the enemy battle line, the direction of retirement of our battle line may be selected, so that the enemy battle line, if it follows our battle line, may be drawn towards our submarines or towards positions for firing torpedoes that can reach.

BATTLE LINE

12286. The battle line maintains a formation, line of bearing, and course that will permit maximum gunfire on the enemy battle line. It avoids courses that will permit only the after turrets to be fired, unless the officer in tactical command prescribes a course for the force which places the enemy battle line astern or on the quarter of our battleships.

12287. If the enemy battle line is forced to maneuver to avoid torpedoes or is in confusion as the result of a successful torpedo attack by our destroyers, our battle line acts quickly to exploit any possible advantage.

DETACHED WING

12288. If the enemy is employing a detached wing of fast battleships or battle cruisers, it may be desirable for us to employ a detached wing of battleships to counter the operations of the enemy's detached wing by denying it positions from which it can be used to our disadvantage. A detached wing can also prevent an enemy detached wing from driving in our light forces on the flank on which it is stationed and might be able to support our light forces in their attacks.

LIGHT FORCES

12289. In retirement action, it is usually desirable to have light forces on both battle flanks.

12290. If the enemy battle line is following approximately astern of our battle line, our light forces on each battle flank are in favorable initial positions to attack.

12291. If the enemy battle line is following approximately on the quarter of our battle line, our light forces on our van flank will be approximately ahead or sharp on the bows of the enemy battleships. The destroyers on our rear flank close in toward our battle line so that when they start to attack they will have gained as much bearing as possible on the enemy battle line.

AIR (CARRIER) GROUPS

12292. The tasks of the air (carrier) groups are in general similar to those in a normal action except when our destroyers are attacking, the enemy light forces become suitable objectives for attack by our air (carrier) groups in order to assist in breaking up the resistance by enemy light forces.

SUBMARINES

12293. The submarines take advantage of every opportunity to attack enemy battle line and detached wing. If they are suitably located it may be possible for the movement of our force to draw the following enemy battle line toward our submarines.

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TRAIN

12294. The train, if present, conforms to the general direction of movement of the force at its best speed. Generally speaking it tries to gain distance from the enemy force in order not to hamper our force.

Section XXV. DELAY ACTION

12295. Our tactical attitude in a delay action is offensive. In a delay action a general engagement is postponed temporarily until we can better our own situation.

12296. It is usually assumed also that the enemy is seeking action. If the enemy is forcing a general engagement, it may not be possible to fight a delay action or if begun, it may not be possible to continue it as long as desired.

12297. It may be necessary to delay the general engagement until our strength becomes adequate to insure victory in a decisive engagement either through the arrival of sufficient reinforcements or by reducing the strength of the enemy by secondary attacks. Or it may be desirable, if time permits, to delay the general engagement, if by so doing victory can be made more certain or complete, or can be gained with less cost to us.

12298. A considerable portion of our light forces may be away on scouting operations or may be disposed in a distant screen, so that their absence in battle may place our force at a decided disadvantage. A delay action may be imposed on us until they join up and take their stations for battle. If our battle line is inferior in strength to that of the enemy battle line, it probably is best to fight a delay action initially in order to employ torpedoes and bombs, possibly mines, to reduce the strength of the enemy battle line before accepting a general engagement.

12299. Submarines and aircraft are particularly well adapted for making the secondary attacks in delay actions. In the case of submarines, they must, of course, be in favorable positions initially so that the enemy battle line proceeds toward them or toward positions that the submarines can reach. Their positions might also be such that the movements of our force or battle line draws the enemy battle line toward areas in which our submarines are located. Consequently, the use of submarines in delay actions cannot be counted upon with certainty, as usually they cannot attain favorable positions for attack if not in the vicinity of such positions initially.

12300. Aircraft can usually be counted upon with certainty for making the secondary attacks in delay actions, provided the weather and visibility conditions permit air operations. Overwhelming air superiority on the part of the enemy is the only factor that may prevent success of all air attacks.

12301. Light forces, cruisers and destroyers, are employed for secondary attacks under some circumstances, particularly if the enemy is relatively weak in light forces. But such attacks have little chance of success unless they are made under the cover of smoke, preferably laid by aircraft. If such attacks are supported by our battle line, the action assumes a different type.

12302. The officer in tactical command is informed promptly of the results of all secondary attacks in order that he may determine whether the results are satisfactory and if so when to change to another battle plan for a general engagement. In the case of submarines, he also is informed when the majority of our submarines are no longer in a position from which they can attack.

12303. Depending upon circumstances, a battle, an approach or contact disposition, is suitable for a delay action. A contact disposition is particularly advantageous if it is our desire to mask the distribution of the light forces and the direction of our deployment until the delay stage of the engagement is terminated.

BATTLE LINE

12304. The battle line normally avoids action with the enemy battle line in delay action, but if the enemy battle line has superior speed and forces action, this might not be possible. A suitable formation for the circumstances is taken.

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DETACHED WING

12305. The employment of a detached wing is normally not required. However, if the enemy is employing a detached wing to attack our light forces or to otherwise force action, it may be necessary to employ a detached wing as a counter to such measures.

LIGHT FORCES

12306. If the secondary attacks are being made by submarines or aircraft, the normal task of the light forces is to defend the battle flanks and the center against enemy light forces and against submarines. If the light forces are used for secondary attacks, their role becomes offensive and they attack in accordance with the particular delay battle plan promulgated.

AIR (CARRIER) GROUPS

12307. In all delay actions the air (carrier) groups have the general task to maintain control of the air and to defend our force against enemy air attacks. Depending upon the particular delay battle plan promulgated, the air (carrier) groups may have the leading attack role and they may also have the task to assist our light forces with smoke if the light forces are directed to attack. A patrol against enemy submarines is normally established. If the enemy's carriers are located with certainty and with their planes on deck, a delay action may be advisable until the enemy aircraft or the greater part of them are destroyed, and thus eliminated as a factor in the engagement to follow.

SUBMARINES

12308. In order that submarines are effectively employed in a delay action, the officer in tactical command knows their location with reference to the enemy battle line with sufficient accuracy to determine whether they can attack or whether it is possible by the movements of our force or battle line to draw the enemy battle line toward our submarines.

TRAIN

12309. The train normally remains concentrated on the side of our battle line away from the enemy.

Section XXVI. WITHDRAWAL ACTION

12310. Withdrawal is in accordance with a definite plan in order that it may be orderly and not a rout.

12311. A withdrawal action may be one in which the initial tactical attitude is strictly defensive because of inadequate total strength or because of strategic considerations. The presence of a large convoy with the train may make a general engagement inadvisable until the convoy has been delivered at its destination or a safe place.

12312. It may be desirable to break off action because of low visibility conditions, such as fog or approaching darkness. Withdrawal may be forced upon a force because of damage or losses received in battle.

12313. If withdrawal is made when our force is intact, there is greater scope in the employment of our groups according to a plan. The light forces and aircraft are employed defensively to guard the heavy ships and train, or they are employed offensively to beat off the pursuing enemy. Withdrawal affords opportunities for the use of smoke and also affords one of the best opportunities for the use of mines and torpedoes.

12314. If withdrawal is made after an engagement and is made as a result of losses or damages received in battle, the scope of the employment of the groups is obviously dependent upon the numbers and types remaining.

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12315. It may not be practicable to take a cruising disposition while in contact with a pursuing enemy force, therefore, battle or contact disposition is normally suitable for a withdrawal action, unless air attacks are expected in which case a disposition for repelling an attack is formed.

12316. When our force is definitely committed to a withdrawal, the course prescribed should, if possible, lead to a protected base. If a junction can be made with reinforcements, the course should, if possible, permit of concentration with the reinforcements.

12317. In a withdrawal action, tactical concentration and mutual support between all task groups are essential. Units will conform to the course prescribed by the officer in tactical command insofar as the accomplishment of their tasks in the plan of withdrawal permits. They do not scatter unless so directed by the officer in tactical command.

12318. The prescribed speed for the force is close to the maximum of which the force is capable.

BATTLE LINE

12319. If the enemy battle line has greater speed than our battle line and imposes action, and if our force is embarrassed by the presence of a slow train, our battle line is not able to withdraw, except as its maneuvers to oppose the enemy battle line have a resultant in the general direction of the force's withdrawal and not greater than the speed of the train.

12320. If the withdrawal is to avoid action when a train is present, our battle line avoids action with the enemy battle line except as may be necessary to prevent the enemy attacking the train. Our battle line maintains a position where it can always interpose between the enemy battle line and our train.

12321. If the withdrawal is to break off action, the initial change of course is usually a radical one, and it will probably be advantageous in most cases to perform the turn away maneuver by a simultaneous ship movement rather than by division column movement. The maneuver to break off action may be covered by smoke if necessary. If aircraft are not available to lay smoke screens, this is done by destroyers of the battle line screen.

12322. In either situation so far as circumstances permit the formation of the battle line is such as to develop the maximum possible fire power while on the course selected or imposed, it also is such as to prevent the enemy battle line from having a particularly advantageous part of the formation upon which to concentrate its fire and such that our battle line can deploy readily for a counter attack if the opportunity is presented.

DETACHED WING

12323. If the withdrawal is made when a train is present and if the enemy is employing a detached wing to harass the train, it is normally necessary for us to employ a detached wing as a counter to an enemy detached wing. A detached wing of battleships operating on interior lines should usually be able to interpose between a train and an enemy detached wing faster than our battleships.

LIGHT FORCES

12324. The task of the light forces in withdrawal actions depends upon whether our force is avoiding a general engagement when a large train is present or whether our force is avoiding action with a much superior force or is breaking off action as a result of losses or damages received in battle. In the former situation the light forces are normally employed on the defensive to defend the battle flanks, particularly against enemy light forces attempting to pass around our flanks in order to attack the train. If the enemy battle line is pressing action against our battle line it may be necessary to employ the light forces or some of them to attack the enemy battle line in order to relieve the pressure on our battle line.

12325. In the situation in which our force is endeavoring to avoid action with a much superior force or is breaking off action, the light forces are employed offensively in order to delay or turn the enemy battle line, so that our battle line may withdraw.

12326. Light forces use smoke freely in withdrawal actions not only to screen themselves, but to cover other groups.

MINE VESSELS

12327. A withdrawal action affords one of the best opportunities for the use of floating mines in tactical operations. This is because the mine fields laid will usually not be of future danger or embarrassment to our force. Furthermore, mine vessels, if the enemy is following, do not have to attain positions far out on the flanks where their mining operations cannot be supported and a withdrawal action permits the use of mine layers with moderate speed as well as light mine layers of high speed. Mine layers, if protected by smoke, should be able to lay floating mines effectively, and mine fields or the threat of mine fields, might turn or delay a pursuing force. Dummy mines or simulated mine-laying maneuvers have a deterring effect upon the enemy.

AIR (CARRIER) GROUPS

12328. If the withdrawal is for the purpose of avoiding action, the air (carrier) groups are normally employed defensively to defend the battle line and train against enemy air attacks. This is best attained by gaining and maintaining control of air in local area, but aircraft may also be employed offensively to attack the enemy battle line if it is putting too great a pressure on our battle line.

12329. If the withdrawal is to break off action, the air (carrier) groups are normally employed offensively to attack the enemy battle line and light forces.

12330. Smoke laid by aircraft is most effective in withdrawal actions to screen retiring vessels from enemy gunfire, to assist our light forces in beating off the pursuing enemy vessels, and to assist our mine layers.

SUBMARINES

12331. Our submarines endeavor to attack the enemy's heavy ships. As in all other types of actions, they must be favorably located initially in order to reach positions from which attack is possible. In withdrawal actions they must, therefore, be in the general area between the two forces. Submarines unable to reach attack positions follow the enemy force in the hope of being able to attack if the enemy gives up the pursuit or to attack enemy disabled ships.

TRAIN

12332. The train, with its slow speed, is an embarrassment in withdrawal actions, because of the probable necessity when a train is present of insuring its safety. The train makes maximum speed in the direction of the force's withdrawal, or the direction prescribed for it by the officer in tactical command.

12333. If the withdrawal is the result of defeat, the train scatters in order that vessels with the best speeds may have some chance to escape. A rendezvous is designated for the train prior to ordering it to scatter.

Section XXVII. NIGHT ACTION

12334. Due to the uncertainties of a general engagement at night, there is no assurance that such an engagement will be to the advantage of the stronger force. As previously stated in this chapter the concept of a major action is based on a day action; being guided by this concept a major night action is not envisaged in the scope where a major force deliberately engages an enemy major force in its entirety at night. This is a contrary concept to a night action as depicted in

ORIGINAL

Chapter 8 concerning a night engagement of a small task force. It is not considered sound for the officer in tactical command of a large task force to seek a major engagement at night but not being able to make decisions for the enemy a major night action may be forced upon him. The officer in tactical command must, therefore, act accordingly. The decision of the officer in tactical command as to whether to accept or avoid a major night engagement, and as to the selection of a battle plan if engagement is accepted, are dependent on the situation. Possibility of night air attack in conjunction with such an action is also considered.

12335. Our fleet is trained for night action in order that full advantage may be taken of an encounter at night with the enemy.

12336. Surprise actions between the battle lines should not occur. This should be prevented by scouting, screening, and the effective use of radar.

12337. If encounter between the battle lines occurs, radar ineffective, the action may be initially either normal or reverse if the enemy battle line is encountered on either beam. If the enemy battle line is encountered ahead, it may be possible to choose to fight a normal or reverse action, provided the approximate course of the enemy battle line has been ascertained. The effective use of radar determines the enemy course while he is still at long range, thereby assisting the officer in tactical command to force his plan and type of action on the enemy.

BATTLE LINE

12338. If action with an enemy battle line at night is accepted, our battle line takes a formation that will permit of developing maximum gun fire and at the same time permit radical maneuver to avoid enemy torpedo attacks.

12339. With effective radar we may select the range at which to fight, otherwise the range is usually dependent upon the method of illumination of the targets, either by other units of the force or by the battle line itself with searchlights or star shells.

12340. In a night pursuit or withdrawal, the formation is usually such as to permit radical maneuvering to avoid torpedo attacks and to develop fire against destroyers or cruisers and aircraft. The divisions are not so widely separated as to preclude mutual support should the enemy battle line in a night pursuit turn to fight or should it in a withdrawal on our part overtake our battle line and impose action upon it.

DETACHED WING

12341. If the tactical organization of the force provides for a detached wing of battleships normally such detached wing forms a part of the battle line in night actions except when otherwise prescribed by the officer in tactical command.

LIGHT FORCES

12342. Possibility of a coordinated air and surface attack by the enemy may influence the officer in tactical command in his stationing the light forces in the battle disposition. Light forces perform the same general tasks and follow the same general procedure in night actions as in day actions, depending on the type of action to be fought, with the exception of the task of illuminating targets. This latter task may not be necessary, particularly at the beginning of the action unless positive recognition of enemy types is essential, provided we are enjoying the use of radar.

12343. In carrying out the tasks of the light forces the following considerations are applicable at night especially if visibility is low:

(a) Cruiser support of destroyer operations is not so essential as support of their operations in day action. Therefore, it is usually advisable to employ our cruisers to guard our heavy combatant units and the train against attack from enemy destroyers and to employ our destroyers offensively without the support of our cruisers.

(b) By using our destroyers to attack the enemy without cruiser support, in which darkness allows for greater success with less risk of damage, enemy destroyer targets in the vicinity of our heavy units are more readily identified. The same principle applies to cruiser targets encountered by our destroyers in the vicinity of the enemy heavy units. An accurate summary plot maintained in combat information centers assists in positive identification but such plots have their limitations in situations where numerous ships are involved. An enemy may be assumed friendly with disastrous consequences.

(c) Using radar, coordinated attacks by destroyers from different flanks is possible but without its use they may not be.

(d) If radar is ineffective cruisers illuminate the targets of the battle line when practicable to do so and if operating with destroyers cruisers may also illuminate destroyer targets.

AIR (CARRIER) GROUPS

12344. Under favorable conditions aircraft perform the same tasks at night as they do in day action and drop flares for exploratory illumination or for illuminating targets for other forces when so directed. When the forces are in close proximity aircraft are careful not to illuminate or injure our own ships.

SUBMARINES

12345. Submarines are at the same disadvantage as in day actions. Darkness, however, permits them to operate part of the time on the surface. If destroyers and submarines are attacking the same objective at night, the latter attack from deep submergence if there is any probability of interference between the two types of vessels.

TRAIN

12346. The train is directed by the officer in tactical command to take a prescribed course and speed in order that its location can be determined at any time. If circumstances require a departure from such orders, task group commanders and the officer in tactical command is informed by the train commander.

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Chapter 13. PROCEDURE FOLLOWING A DAY ENGAGEMENT

Section I. GENERAL

1300. The procedure to be adopted following a day engagement depends upon many factors, among them:

- (a) The extent to which the enemy force has been defeated and disorganized and the extent to which our own forces have suffered in the engagement, as well as the supply of fuel and ammunition remaining in our ships.
- (b) The strategical situation including the position of the enemy with reference to his bases and our position with reference to our bases or destination.
- (c) The existing weather conditions.

1301. The officer in tactical command indicates to his force the general plan to be followed. If the results of the engagement have been favorable to us, his decision includes any of the following general plans of action:

- (a) Pursuit or chase of the enemy.
- (b) Maintenance of contact with the enemy in order to:
 - (1) Resume the engagement at a later time.
 - (2) Launch air attacks against enemy.
 - (3) Make night attacks on the enemy.
- (c) Withdraw from action if unable for any reason to pursue or attack the enemy.

1302. If the results of the engagement have not been favorable to us, his decision includes any of the following general plans of action:

- (a) Maintenance of contact with the enemy in order to:
 - (1) Make night attacks on the enemy, the results of which may make engagement possible with the enemy on the next day under favorable conditions.
 - (2) Launch air attacks against enemy.
 - (3) Move our principal force away from the enemy principal force if further engagement would result in disaster.
- (b) To withdraw from action if compelled to withdraw before overwhelming enemy force.
- (c) Fight our way through the enemy force in order to reach a secure base.

1303. The following instructions are applicable to most conditions following an engagement:

- (a) Action between battle lines is broken off when directed by the officer in tactical command.
- (b) Ships which have become separated from their own divisions or their own proper tactical commands join the nearest division or command of similar type.
- (c) The officer in tactical command broadcasts or otherwise keeps our forces informed of the position, course, and speed of our battle line or principal combatant force and of other important units such as a train or convoy. A train or convoy normally is directed to take a specific course or direction.
- (d) The officer in tactical command designates suitable units for maintaining contact with the enemy or for making night attacks on the enemy. Other units, not engaged

in such operations or in chase, are directed to steer a specific course or they are directed to form a disposition suitable for the situation.

(e) A reference position of the fleet guide, or battle line, or other unit is signaled in order that units may assemble or otherwise regulate their movements. A rendezvous is designated by the officer in tactical command prior to commencement of an engagement.

Section II. CHASE

1304. In these instructions "pursuit" has been used to designate the operations of following or endeavoring to bring to action an enemy force which is employing retiring tactics or is withdrawing or delaying action and which is still an organized force subject to the control of its commander. "Chase" is used to designate the pursuit of a disorganized enemy force that has definitely withdrawn from action and whose efforts are primarily directed toward escape. Under such conditions, and owing to differences in the remaining speed of enemy vessels and the courses taken by different enemy units, there may be a wide dispersal or scattering of enemy vessels.

1305. Victory is not complete unless the enemy force is annihilated. Every enemy unit, if possible, is destroyed. If impossible to destroy enemy vessels, effort is made to force them ashore or into neutral ports for internment.

1306. The action to be taken in chase follows the turn of events and is according to the circumstances of the situation. Besides the material condition of the enemy vessels and our vessels and the direction or directions of flight of the enemy vessels, the proximity of land, enemy air bases, shoals, mine fields or ports of refuge for the enemy are factors which will influence the action that can be taken.

1307. Chase is normally initiated by the officer in tactical command and when practicable he issues appropriate instructions to insure that our efforts to complete the victory are coordinated.

1308. In the absence of any special instructions from him, subordinate commanders, when a chase is ordered, take the initiative in forming suitable units for the chase and in selecting suitable objectives for such units. The senior officers in the different parts of the battle area take appropriate action to insure a coordinated effort by our force.

1309. The following instructions are applicable to most conditions of chase:

(a) Appropriate types of available aircraft are employed in the chase, their effort being primarily directed against capital ships which are outdistancing our surface units and secondarily against enemy units which are faster than our vessels. Aerial photography is employed as feasible to assist the officer in tactical command in selecting a course of action.

(b) All available combatant units are employed in the chase.

(c) The chasing units are composed of vessels of similar type and approximately equal maximum speed, adhering to the existing organization as far as practicable. The units should be of adequate strength to destroy enemy vessels of similar type.

(d) Chasing units normally select as their objective enemy vessels of similar type.

(e) The slower chasing units follow the faster units, engaging the enemy's slower units and any of the disabled vessels from faster enemy units that may have dropped behind.

(f) Chasing units proceed at maximum speed consistent with adequate concentration. Small units or individual ships avoid becoming isolated and overwhelmed by superior enemy strength.

(g) In order to avoid mines, ships do not follow directly in the wake of enemy vessels.

(h) No attempt is made to accept the surrender of disabled enemy ships or to rescue survivors of enemy ships by vessels which have any chance of overtaking or destroying other enemy vessels. It is desirable that vessels which have no prospect of taking further

part in the action occupy enemy vessels before they are destroyed or sunk by the enemy, and rescue enemy survivors.

1310. The chase, as long as there remain enemy vessels to be destroyed, is not broken off at nightfall or when low visibility conditions are encountered unless because of shortage of fuel, ammunition or for other necessary reasons it is not wise to continue the chase. An enemy fleeing may scatter under cover of darkness with intention of permitting some units to escape.

1311. Aircraft, provided flying conditions are satisfactory, maintain contact with fleeing units at night and attack as practicable. Enemy heavy units are primary targets.

1312. Contact is maintained at night and tracking is accomplished on all targets that radar is capable of indicating. Enemy heavy units may possibly be definitely located by knowledge of radar indications. Attacks are made on these targets as opportunity affords and as frequently as possible by our destroyers, the larger units lending gunfire support as feasible and as required. The remainder of our force follows the general movement of the enemy as developed by tracking in anticipation of inflicting more damage as opportunities arise.

1313. Contact may be lost by enemy speed enabling them to reach beyond our radar range in which case the enemy may escape unless our aircraft can effectively slow them down or destroy them. But if contact is lost during the night because of radar being ineffective, suitable units with adequate speed are so disposed as to intercept the enemy the following day. Normally cruisers cover the enemy position circle of the following daylight preparatory to scouting.

Section III. DISABLED VESSELS AFTER ACTION

1314. Battleships and other large combatant ships which are incapable of fighting and incapable of towing other disabled vessels, but which are able to steam proceed to the nearest friendly port or to the designated rendezvous, or proceed as directed.

1315. Battleships and other large combatant ships whose ammunition is exhausted, or whose speed is so much reduced that they cannot keep up with effective units, but are capable of towing, may be utilized, if the situation permits to tow disabled vessels or to rescue survivors. They are not used for these purposes if there is any possibility of enemy submarines being in the vicinity or if possibility of air attack exists.

1316. Destroyers and other light vessels whose speed is reduced so that they cannot keep up with effective units of their type or cannot be used as screening vessels for effective large combatant vessels, are employed to screen or assist other disabled vessels, to rescue survivors, or to tow light vessels.

Section IV. ASSISTANCE TO DISABLED VESSELS AND RESCUE OF SURVIVORS AFTER ACTION

1317. The officer in tactical command after an action issues appropriate instructions regarding rendering assistance to disabled vessels and regarding the rescue or search for survivors. He uses his discretion as to the numbers and types to be employed. The existing situation determines whether it is prudent to use effective combatant vessels for this purpose and what precautions are necessary to safeguard the vessels engaged in assisting disabled vessels and picking up survivors.

1318. The commander usually designates in advance of an action an agency, normally a carrier, to correlate reports of downed aircraft and to control rescue operations using the available rescue facilities. Such rescue facilities may include submarines, destroyers, or specially designated and equipped aircraft or rescue boats.

1319. A rescue vessel having unwounded aviation personnel among the survivors picked up makes every effort possible to return them to their own ship in order to make them available for operations.

Chapter 14. AMPHIBIOUS OPERATIONS

Section I. DEFINITION, PURPOSE AND SCOPE

1400. An amphibious operation is an over water assault by armed forces to effect a landing on a hostile shore. It includes the operations of naval, air, and ground components in over water movement, support, and assault, together with the logistics required to attain the objective. The term "amphibious operation" is synonymous with the term "joint overseas expedition" when the armed forces involved consist of Army and Navy components.

1401. An amphibious operation is undertaken in order to accomplish one or more of the following objectives:

- (a) To secure a beachhead from which to project large scale operations.
- (b) To seize and secure an area for use as a base from which to support further operations of a fleet or components thereof.
- (c) To seize and secure an area in order to deny the use of that area to the enemy.
- (d) To destroy by raiding enemy installations, to obtain information, or to draw enemy forces away from another area.

1402. An appropriate Task Force maintains control of the sea and adjoining air necessary to the accomplishment of an amphibious operation. The Task Force commander commands all forces engaged in the operation including the naval covering force, the striking force and the joint expeditionary or attack force.

1403. A major amphibious operation can be expected to involve the use of all types of naval vessels and aircraft, and the tactics appropriate to their employment. The remainder of this chapter is limited to the discussion of those forces and their functions which are peculiar to amphibious operations.

Section II. ORGANIZATION

1404. An amphibious force is a permanent naval administrative organization established for the purpose of planning, training for, and conducting landing operations. It consists normally of:

- (a) Headquarters.
- (b) Transports.
- (c) Cargo Vessels.
- (d) Landing, control, and close support ships and craft.
- (e) Amphibious training command.
- (f) Amphibious operating, repair, and training bases.

1405. For landing operations, an amphibious force is augmented, as the situation demands, by appropriate naval combatant vessels, aircraft, and troop units, to form an operational organization known as an attack force.

1406. The composition of task subdivisions of an attack force varies with the strategical, tactical, hydrographical, and geographical factors underlying the operation. Generally the force is made up to fit the situation to be encountered. The major required components of an attack force are:

- (a) Flagship:
Headquarters of naval commander of Attack Force; headquarters of Commander Landing Force; headquarters of Commander Support Aircraft.

- (b) Transport Group:
 - 1. Transports.
 - 2. Cargo Ships.
 - 3. Landing Ships and Craft.
 - 4. Control and Salvage Vessels.
 - 5. Transports Screen.
- (c) Expeditionary Troops:
 - 1. Landing forces.
 - a. Assigned troops and equipment.
 - 2. Garrison forces.
 - a. Assigned troops and equipment.
- (d) Fire Support Group:
 - a. Assigned combatant vessels.
- (e) Support Aircraft Groups:
 - a. Assigned carriers with their aircraft and screen.
- (f) Minesweeping, net and minelaying groups:
 - a. Assigned minesweepers, net and minelayers.
- (g) Service group:
 - 1. Oilers.
 - 2. Tugs.
 - 3. Fire Fighting and Salvage Ships.
 - 4. Other auxiliary vessels.

For some operations, the required air support may be provided by air groups not carrier based. Also, for certain operations, it is not necessary to land garrison or advance base forces for services as such, as their normal tasks are accomplished by designated units of the landing force.

Section III. COMMAND RELATIONSHIP

1407. A joint expeditionary force, or attack force, is under naval command until the troops are established ashore at the objective. Command of the expeditionary troops, or landing force, is exercised through the commander expeditionary troops, or landing force, during this period. When the troops are established ashore at the objective, the commander expeditionary troops, or landing force, assumes command of the forces ashore.

1408. Initially the commander joint expeditionary force commands all task organizations employed in the amphibious operation at all objectives through interrelated attack force commanders. Since the employment of troops, including the reserve troops engaged in the seizure of objectives, is subject to the capabilities of the surface units to land and support them, directives issued by the commander expeditionary troops as to major landings or as to major changes in tactical plans require approval of the commander joint expeditionary force prior to being issued.

1409. At each objective, the related commander attack force commands the landing force through the related commander landing force until the latter assumes command of the landing force ashore.

1410. Landing forces, after their respective commanders have assumed command ashore, are under command of the commander expeditionary troops. The commander expeditionary troops retains command of all forces established at each objective until it is determined that the mission is complete at which time command of all forces established at each objective passes to the garrison or other designated commander.

Section IV. MAJOR GROUP TASKS

1411. The tasks assigned may include operations to be accomplished in advance of the landing operation such as:

- (a) Bombing and bombarding targets other than the objective in order to neutralize or destroy enemy forces and positions.
- (b) Bombing and bombarding the objective to neutralize positions and harass the enemy.
- (c) Beach reconnaissance and underwater demolition.

1412. The general tasks of the major groups of an attack force after reaching the objective are:

(a) *The flagship* provides necessary command facilities for the attack force commander, the commander support aircraft, and the commander expeditionary troops or landing force until the latter goes ashore.

(b) *The transport group* functions and its transportation facilities are designed to put the landing force, with its equipment and supplies, ashore over beaches against opposition.

(c) *The expeditionary troops or landing force*, consisting of embarked troops, equipment, and supplies, lands in assault and proceeds to accomplish its objectives.

(d) *The fire support group* furnishes naval gunfire support, screens, and protects the attack force in the landing area.

(e) *The support aircraft groups* attack enemy installations and shipping, strafe and bomb enemy positions in support of our troop movement and, in addition, furnish as required aircraft for the following missions.

1. Combat air patrols.
2. Antisubmarine patrols.
3. Troop support aircraft when called for.
4. Liaison plane (air coordinator) (air observer).
5. Photographic.
6. Smoke.
7. Aerology.
8. Mine searching.

The term "support aircraft," as applied, includes carrier task group aircraft of the attack force and all other aircraft while operating in the landing area on support missions.

(f) *Minesweeping group*, clears all mineable waters necessary to the conduct of the operation. Maintains these waters clear by additional sweeping as required. Net and minelayers are employed to provide security for ships in the landing area.

(g) *Service group* furnishes necessary logistic support to the vessels of the attack force including supply, repair, salvage, and fire fighting.

Section V. PLANS

1413. All amphibious operations possess the following general characteristics:

(a) The location of the landing is determined in advance.

(b) Because of (a), detailed intelligence is available concerning enemy strength and dispositions, geographical and meteorological conditions, etc.

(c) The attack force consists of a large number of various types of naval, air, and ground units. The size and complexity of the attack force does not permit a high degree of tactical flexibility.

1414. The inherent characteristics of an amphibious operation, as outlined in the preceding paragraph, make the preparation of a detailed and specific operation plan possible, and mandatory if the maximum results are to be attained.

1415. The operation plan may include any or all of the following in the body of the plan or as annexes:

- (a) Landing plan.
- (b) Bombardment plan.
- (c) Fire-support plan.
- (d) Movement plan.
- (e) Air-support plan.
- (f) Air-sea rescue plan.
- (g) Logistic plan.
- (h) Communication plan.
- (i) Intelligence plan.
- (j) Medical plan.
- (k) Storm plan.
- (l) Smoke plan.
- (m) Loading plan.
- (n) Salvage plan.
- (o) Major action plan.
- (p) Screening plan.
- (q) Defense and development plan.
- (r) Aerological plan.
- (s) Mine-sweeping plan.
- (t) Demolition plan.
- (u) Special plan—such as pontoon causeway plans, etc.

Section VI. TRAINING

1416. Careful and detailed rehearsals of the landing plan are a most important feature of the preparations of assault forces for amphibious operations. A very high degree of coordination is necessary for a successful assault. A commander strives by training and rehearsals to attain perfection prior to actual landing. As feasible the other task groups of an attack force take part in training exercises, particularly the air support group. Amphibious operations demand perfect teamwork and coordination for their success by the participating task subdivisions.

Section VII. GENERAL

1417. Joint Action of the Army and Navy delineates information governing joint action policies, agreements, instructions, and agencies. Detailed information concerning amphibious equipment and the tactics and technique of conducting landing operations is found in other publications.

1418. Marine forces organized as landing forces perform the same tasks as stated for the Army in Joint Action of Army and Navy, whether operating with the Navy alone or in conjunction with the Army and Navy in an amphibious operation.

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