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RULES

FOR THE

CONDUCT OF THE WAR GAMES.

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RULES FOR THE WAR GAMES.

SECTION I.

THE DUEL OR SINGLE-SHIP GAME.

The Duel is played by two ship commanders and an Arbitrator. The commanders plot the tracks of their own ships, keep tally for their batteries, and measure gun fire. The Arbitrator decides all questions that may arise. His decision is absolute for the moment; all criticism and discussion is to be reserved until the close of the game.

*Detail
of
Players.*

The scale track curves show the wake of a battle ship turning with the helm hard over; they are marked at various points of the curve with the corresponding times from the beginning of the turn. Special curves are provided, showing the track of a battle ship when the helm is shifted from hard over one way to hard over the other way; this is marked at various points on the curve, with the corresponding times from the moment of shifting the helm, and for the distance made good during the first move after straightening out. These markings vary with the speed.

*Scale
Track
Curves.*

Small transparent cards are used to determine the relative bearing of an opponent. Disputed questions of bearing are at once determined by the Arbitrator.

*Relative
Bearing.*

The score wands are marked with gun-fire values for every weight of fire from a single

*Gun-fire
Score
Wands.*

pair of 8-inch guns to a full broadside, and for every range up to 2,000 yards. The lesser values on the score wand are those where the striking angle is less than 45°; the greater, where the striking angle is greater than 45°.

Speed of Fire. The rapidity of gun fire is considered as follows: 12-inch guns may fire every three minutes; 8-inch guns every two minutes; rapid-fire battery fires four times every minute.

Speed of Ships. Two speeds are permitted; "standard speed," which is shown upon the track curve used, and "slow speed," which is half of standard speed. A ship may at any time change speed or stop, but shall be governed in these movements by the following rules:

From "standard" to "slow," and *vice versa*, takes effect the next move after.

From "standard" to "stop," and *vice versa*, takes effect six moves after.

From "slow" to "stop," and *vice versa*, takes effect the next move after.

Ramming. Large-scale cardboard curves are provided for the purpose of aiding the Arbitrator in making decision when collision takes place. In ramming, a stem to stem blow makes a "draw." To win, the stem of one ship must strike the side or stern of the other.

Torpedo does. Four torpedoes are allowed to each ship; two on a side, with arcs of train from bow to quarter. The "torpedo card" and special dice are used in connection with them.

Torpedo Cards and Dice. The face of the torpedo card is arranged in "zones of chance." This card is ruled vertically by "five-second" lines, from 0 seconds to 35 seconds; horizontally, in lines for each "point" of *impact*, from the striking angle of 0 points to an angle of 8 points.

A player wishing to fire a torpedo will designate the position at the moment of firing, expressed in seconds from the beginning of the move, and the arc of train of the tube, either to port or starboard, reckoned in "points" from right ahead. Then the line drawn on the game board *from* this designated position *to* the target shows the angle of impact in "points." Plotting on the torpedo card with the angle of impact in points, and the time of firing in seconds, will indicate the "zone of chance" within which the shot falls. The die is then thrown with the chance offered by this found zone, to determine whether the shot is successful.

To begin the game, each player writes upon his score card *two* moves, *of a half minute each*, making use of the proper symbols. When these moves are written and submitted, the Arbitrator directs the players to plot the first move. Gun fire is then scored.

At the next call from the Arbitrator, each player writes the third move, and, when this is submitted, the second move is plotted and properly numbered; and so on to the close of the game.

In this way the players are committed to one move, of a half minute's duration, in advance of what is plotted.

This method simulates, as near as may be, that interval of time which a ship commander requires to detect the probable intention of the adversary, and to plan a counter move; and during this interval the ship stands on.

The position at the close of every move is marked by a small circle inclosing a figure indicating the number of the move; thus, ①.

Method of Play.

Limit of Game. The game is continued until either the allotted time agreed upon beforehand expires, or until closed by the Arbitrator. The latter usually determines upon a certain number of moves as the limit for that game, before commencing to play.

RULES FOR THE DUEL GAME.

1. The limit of gun fire is 2,000 yards, and the opposing ships are placed on the board, at the beginning of the game, at least this distance apart.
2. The length of time represented by a move is one-half minute.
3. Whenever the Arbitrator calls for a move, each player must submit his move within one-half minute or forfeit that move; in the latter case his ship stands on without change for the next move.
4. All guns are loaded at the beginning of the game.
5. When a ship changes the relative bearing of the target four points or more during any one minute, the wand values are reduced 50 per cent during such change.
6. A player wishing to fire a torpedo must write on his move the location of the tube, whether to starboard or port; the time of firing, in seconds, from the beginning of the move; and the arc of train of the tube, in "points," from right ahead. Then the Arbitrator, inspecting the plotting and throwing the die, will decide the success of the shot.
7. The time of opening gun fire must be indicated.
8. A game is closed, by decision of the Arbitrator, when either ship runs ashore or into neutral waters, or when either ship is successfully rammed or torpedoed.

SECTION II.

THE FLEET TACTICAL GAME.

Two fleet commanders.

Two umpires who also act as movers.

There must be an Arbitrator, who acts as

scorer.

A recorder who keeps the sketch record.

In addition, officers are necessary to represent "fire commanders" when forts are considered in the problem under consideration; and to represent commanders of destroyers, of submarines, or of torpedo boats whenever used.

The fleet commanders have entire control of their respective fleets, and maneuver them under the rules, by signal. These signals are written and submitted to the Arbitrator whenever called for. The umpires receive the signals from the Arbitrator, and move the fleets in accordance therewith, subject only to the criticism of the Arbitrator.

The recorder keeps record in a series of sketches, of the relative positions of the fleets at the close of every move. Remark or criticism at any time during the progress of the game must be retrained from. Memoranda will be made of all mooted points for discussion and criticism at the close of the game.

The Arbitrator keeps record of the gun fire for both sides. He will decide all questions and his decision must be accepted as final for the time being.

Special Duty of the Arbitrator.

Game Board.

The scale of the board on which the game is played is 10 inches to 1 mile; so that a board 20 feet square represents a sea space 24 miles square. The face of the board is divided into squares by lines 5 inches apart, and is punched with small holes 1 inch apart in the square and arranged in quincunx order.

Ship Models.

The ships are made to the scale of the board, and furnished with metal wings carrying their numbers. They are numbered consecutively from 1 to 12.

The several classes of ships are represented by variation in coloring the models; thus—*Battle ships*.—Blue or red hulls, bright metal wings.

Armored cruisers.—Solid colors, either blue or red for both hulls and wings.

Protected cruisers.—White hulls with either red or blue wings.

Implements.

The gun-fire score wands are sticks of wood $\frac{3}{4}$ inch square in section, and 6,000 yards long on the scale of the board. The sides of the wands are marked as follows, viz:

Broadside fire against broadside target.—Red against red.

Broadside fire against end-on target.—Red against white.

End-on fire against end-on target.—White against white.

End-on fire against broadside target.—White against red.

Colors are used to facilitate their use; red indicating *broadside*, either fire or target, and white *end-on*, either fire or target.

Thus, on the side of the wand showing broadside fire against end-on target, the firing end of the wand is colored red, the target end

white. The "bow and quarter line" is the dividing line for distinguishing between broadside and end-on; the diagonal lines of the small holes, arranged in quincunx on the board, assist the eye in determining the kind of fire and the kind of target presented, whether end-on or broadside.

The scale-turning curves used in moving the ships, when any change of direction is made, show the turning curves of the *Kearsarge* and *Kentucky*, as determined during last summer's cruise of the North Atlantic Squadron.

These cards show, on the scale of the board, and for any angle of turn from 1 point to 16 points, the distance and direction of a single move of 2.5 minutes. The present cards are constructed for two speeds, 12 knots and 14.4 knots.

Score cards are used for checking up points of gun fire against ships as the game progresses.

Metal rings are used in indicating ships whose gun fire has been reduced 50 per cent, by having 500 points scored against them.

A battle signal code, and torpedo cards and dice are used, though the latter not generally in this game.

The limit of gun-fire range used is 6,000 yards, which is the approximate length of the score wand. Firing does not begin until signal is made to that effect.

Wind.

The arrow on the dumb compass flies with the wind. The direction of the wind is considered by the Arbitrator in making decisions regarding fog, drift of ships, or interference of gun fire by smoke.

Speed. The speed of the fleets is laid down in the beginning. Changes in speed must be made according to the "Rules."

Drift of a fleet stopped is at the discretion of the Arbitrator.

Moves. Scoring takes place after every move when the fleets are within gun-fire range of each other. Every move covers an interval of two and one-half minutes, so that a fleet moving at 12 knots speed, covers a space of 5 inches on the board at every move, if going straight ahead with the helm amidships.

Whenever the helm is moved, in order to change direction any number of points, from 1 to 16, the turning cards are used and the position and heading are determined by the outer edge of the card.

Helm. The easiest and most natural helm is always used. All doubt as to what is to be used in certain cases must be removed before beginning a game, by the players stating to their respective umpires what helm is to be used.

Torpedo does. Each ship carries two tubes on each side, with arcs of train from bow to quarter; they can not be reloaded during a game; torpedo fire must be announced by the player; the effect of torpedo fire is at the discretion of the Arbitrator.

Sketch Record. The sketch record shows graphically the relative positions and strength of the opposing fleets at the close of every move. They are designed, in connection with the score cards, to afford a clear history of a game for subsequent study. Whenever concentration of fire occurs, it should be noted graphically on the sketch board as well as on the score cards.

The fleet tactical game is usually played in open water, with free maneuvering distance between the fleets at all times. Should the fleets approach very close to each other, or so close as to involve actual collision between them, the Arbitrator may (a) close the game at once and give a decision, or (b) work out the situation to a finish, under the Rules for the *Mêlée*.

Mined channels are named in the particular problem under consideration. The mines will be indicated to the Arbitrator, but will not be visible on the board; and ships will be disabled or sunk at the discretion of the Arbitrator.

Submarine torpedo boats may be used by the defense in the games for interior waters. If allowed by the particular problem under consideration, they are maneuvered according to the Rules for Submarines.

RULES FOR THE FLEET TACTICAL GAME.

1. Before beginning the game, each fleet commander will indicate to the Arbitrator which particular ships are flying the flags of the commander in chief and of the second in command.

The flag may not be shifted during the game unless the fleet be stopped, and then for such time as the Arbitrator may decide necessary.

2. The speed of the fleets is discretionary; usually 12 or 14.4 knots; these being most convenient for moving on the scale of the board.

3. Evolutions may be performed only in obedience to signal; these, or signal numbers, must be written and submitted to the Arbitrator by the fleet commander whenever called for.

The exception is, change of direction of the head of column when a flagship is leading.

Mêlée.

Subma-

rine

Mines.

Subma-

rine.

Sketch Record
Actual
Sketch

Command
Sketch

of course - chief -

4. As a general rule, when a fleet is in column of vessels, flagship/leading, it is understood that all vessels will follow the motion of the flagship as regards change of direction of head of column. So, whenever a call for signal is made by the Arbitrator, a fleet commander may inform him of any such change, and such change will go into effect at once.

5. Except change of direction of head of column, *every evolution must be completed before another is begun.* That is, no signal may be made to a fleet in a state of transition from one formation to another; the fleet must be completely formed up in some one of the standard formations, or it can not move in obedience to an evolutionary signal.

6. When time is called at the beginning of a game, each fleet commander will hand to the Arbitrator a signal, or a signal number, which is the signal for an evolution to take place two and one-half minutes later, i. e., for the second move.

After gun fire is scored for the first move, another signal is called for, which is the signal for the evolution of the third actual move. And so on, until the game is closed.

7. When a fleet commander submits no signals within one minute from the time signals are called for, his fleet stands on without change in the next move.

8. One evolutionary signal only may be made at the same time; but special signals in regard to concentration of fire may be handed to the Arbitrator at the same time with any evolutionary signals.

9. A fleet commander may suspend, or annul a signal already in the hands of the Arbitrator,

but not yet given to the umpire for execution; in this case the fleet stands on for that move.

10. If a flagship is leading, it is unnecessary to annul a signal for change of direction of head of column, when it is desired to make a greater or less change of direction than that already signaled.

11. In scoring gun fire it is assumed that a battle ship will endure direct fire from the broadside of an enemy of equal force at 2,500 yards for fifty minutes, at the end of which time she will be destroyed. The value of the gun fire thus destroying a vessel is called, for convenience in scoring, 1,000 points. Upon receiving 500 points a ship's efficiency of gun fire is reduced one-half, and thereafter her offensive power of gun fire is divided by two in scoring. When not indicated by signal or by general instructions at the beginning of the game, concentration of fire will be made by the mover, but will never be on less than one-fourth of the fleet opposed.

12. While 1,000 points are necessary to put an armored cruiser out of action, her gun fire will be estimated as only 50 per cent of that of a battle ship, and the score wand values will thus be divided by two.

13. When a vessel has 500 points scored against her and her gun fire is reduced one-half, it is indicated by placing a small metal ring upon the vessel's mast.

14. If a ship finds herself in such a position that enemy's targets are presented on both sides of her, bow or white fire may be scored against each of two of the enemy's ships; provided that one of these bears at least 2 points,

(600)

and the other at least 4 points on the bow of the scoring ship.

15. When a vessel is sunk during a move, gun fire may not be scored across or over her during that move; at the close of the scoring for that move, the vessel sunk is removed from the board.

16. Changes in speed may be made as follows, viz: Proceeding at standard speed, "slow" takes effect at next move after signal is made, and is one-half standard speed; "stop" takes effect the third move after signal is made, that is, two slow moves, then stop; "ahead slow" from "stop" takes effect at once; "ahead standard speed" from "slow" takes effect at once; "ahead standard speed" from "stop" third move after, that is, two slow moves, then standard speed.

17. ~~The~~ ships of a fleet turning through an arc of over 8 points during any one move, lose 50 per cent of their gun-fire score for that move. Thus, in a simultaneous movement where ~~all~~ ships turn together through more than 8 points, ~~all~~ lose 50 per cent gun-fire score for that move; in successive movements where only, perhaps, a certain number of the ships of the fleet have turned through more than 8 points, the gun-fire score only of those having made the turn will be reduced 50 per cent, the remaining ships that have preserved a steady course retain full values.

18. In action, at distances less than 600 yards, the score wand may be discarded at the discretion of the Arbitrator, who may then decide arbitrarily the effect of each move.

19. In case opposing vessels approach within 600 yards of each other, the Arbitrator may

decide the effects of torpedo fire, following as far as practicable the torpedo rules of the Duel Game.

20. The game may be stopped and the score determined at the discretion of the Arbitrator. If the fleets come together and a mêlée is imminent, the game should be closed, as a general rule, at the end of the last move before the fleets come in contact. If desired, the position of the vessels when the game is closed may be transferred to the other board and fought out under the "Rules for the Mêlée."

21. The value of the fire of forts is shown on the game board in proper arc and multiple, and is expressed in figures, the "battle ship" being the unit. The broadside fire values of the battle-ship score wand will be used to score their fire.

22. The effect of ship fire upon forts will be measured as follows, viz: If a fort receives 300 points during any one move, its fire for the succeeding move is reduced by one-half; if it receives 500 points, it is silenced for the succeeding move.

PARTICULAR RULES FOR SUBMARINES.

1. The use of submarines is limited to the defense, but the fact only of their possession, and not of their use by the defense, is known to the attacking force.

2. The speed of a submarine is 7.2 knots.

3. Whenever a submarine runs awash to within 400 yards of the target without discovery, the chances of a hit may be taken as 1 in 3, and the question of a hit will be decided by the Arbitrator.

4. If a submarine be discovered running awash, but trimmed for diving, within 1,000 yards of its target, but dives and fires without again rising, the chances of a hit may be taken as 1 in 6, and the question of a hit will be decided by the Arbitrator.
5. One torpedo only is allowed a submarine for a single game.

RULES FOR THE MÊLÉE.

1. Each move represents one minute.
2. Signals can not be made oftener than every third move.
3. Signals involving simultaneous evolutions require five moves.
4. If vessels bid fair to come together so close as to prevent tactical maneuvers, the Arbitrator declares "Close action." Vessels are then maneuvered by their captains, irrespective of fleet tactics. No signals can then be understood in less than five moves.
5. Either commander in chief may signal "Close action," when the above rule will hold.
6. Vessels receiving 500 points gun fire lose one-half their fire power.
7. Either commander in chief may signal "Follow movements of commander in chief," providing the leading ship is Flagship. Changes of direction may then be made at will.
8. Torpedoes may be fired on any move by captains.
9. Captains of ships may order "Cease firing" or "Commence firing," unless orders to the contrary are given by commander in chief.
10. Gun fire will be counted against nearest enemy's vessel on which guns will bear. Con-

- centration can be made on any vessel, if specially ordered before the game, or afterwards by signal.
11. The commander in chief of either side may give in advance a plan of attack against any position of an enemy's line, and concentration of fire may then be scored against that part.
12. In all other respects the rules of the Duel Game apply.

SECTION III.

THE STRATEGIC GAME.

Representing, as this game does, the larger *Preparation* operations of war, it requires careful preparation and study by the Arbitrator, his aids, the umpires, and the players.

Charts of the theater of operations are necessary, one for the central, or Arbitrator's, room; one for each fleet commander in chief, and one for each commander of a detached force.

The Arbitrator, attended by his aids, keeps *Arbitrator* record, upon the chart before him, of all movements and positions of the forces of both sides. He announces, in accordance with the rules, the time and duration of each move. He notes and records the information brought by the umpires for each side and issues such information and makes such decisions as he deems proper.

His decision is absolute.

Upon the charts of the fleet commander of each side, as well as upon those of any commanders of forces detached from the Flag, are plotted the positions of the various forces at the end of every move or at any other time, as may be directed by the Arbitrator. These positions are traced and transferred to the Arbitrator's chart by the umpires for the respective sides. The courses of ships, or groups of ships, must be drawn on the tracing paper in full.

The umpires, one for each side, are the sole means of communication between the Arbitrator and the players. They are careful to refrain from comment or criticism at any time during the game. They should determine the correctness and accuracy of plotted positions and of all other information sent to the Arbitrator. To this end they are expected to read orders, telegrams, and all reports of whatever nature passing through their hands, and to plot positions whenever they may be in doubt regarding the correctness of them.

Framing of Orders.

Special care should be observed by the fleet commanders, not only in writing the plan submitted to the Arbitrator before the game, but in the framing of all orders to subordinates, whether prepared beforehand as part of the plan or written during the progress of the game. The orders should be correct, not only in substance, but in form.

Implementments, Weather, etc.

At the Arbitrator's table are kept, for reference use, a record board, showing the number of the move and other data concerning the game, a cable and consulate map, a clock and a spinning arrow, the last to determine the direction of the wind and the kind of weather, which shall be established by the Arbitrator.

RULES FOR THE STRATEGIC GAME.

Moves.

1. The length of time represented by a move is at the discretion of the Arbitrator.

The Arbitrator decides when each move shall begin. When ready, he rings a bell to call attention; the time represented by the move and the state of sea and weather are then announced. Within five minutes each player must plot on his chart the change of position

of his forces. If the required positions be not plotted in the five minutes allowed, such positions remain unchanged.

When vessels sight each other, the moves for these particular vessels will be reduced to fifteen minutes, at the option of the Arbitrator, until a decision regarding them is made.

2. If armored vessels come within 2,000 yards, or unarmored within 4,000 yards, of each other, and remain within these distances for more than an hour, the action will be decided, at the option of the Arbitrator, by the relative number of points at which each vessel is valued.

3. In case a vessel wishes to transmit a telegraphic message through a consul or friendly agent, such a message will reach its destination in one hour in daytime and one hour and a half at night for each 1,000 miles, from the time of receipt by operator, provided the lines do not pass through the enemy's territory. Time of transfer by boat and other delays will be decided by the Arbitrator.

All telegraphic and other messages should be written in full, with the pencil corresponding in color to the sending side, subject to the scrutiny of the umpire.

4. The employment of tugs, fishing, or other vessels, cable steamers, or colliers, not stated in the conditions of the problem, is not allowed. If such vessels are desired, they must be fitted out after the game has commenced, the Arbitrator deciding upon the exact time when they may be considered as fitted out and ready for service.

5. Torpedo boats can not be used as scouts at sea. They may be used for carrying dispatches or for scouting along shore between

Duels.

Tele-graphic Messages.

Employment of Fishing Vessels.

Destroy-ers and Torpedo Boats.

the fleet and a squadron or fleet base. Torpedo gunboats, however, may be used for carrying dispatches at sea, within their radii of action as prescribed in the Tables of Values. The use of destroyers is limited to an absence of five days from the fleet or base.

Cable 6. In cutting cables, an allowance of six hours shall be made for cutting near cable stations and in less than 100 fathoms of water.

In dragging for deep-sea cables, success shall be determined by the Arbitrator in 1,000 fathoms or less. If unsuccessful the first day, chances may be taken for the second, and so on until finally successful.

Fleet 7. Two forces meeting, with odds of 2 to 1, the inferior will be removed from the game. With odds of 3 to 2, the inferior loses one-half his force, the superior remaining as before the action. With odds of 4 to 3, the superior is crippled in defeating his adversary and must withdraw temporarily, that is, he has crippled himself for any large operations during the limit of the game in progress. The time occupied by any of these actions is decided by the Arbitrator.

Speed of Groups. 8. The maximum speed of three or more detached ships up to six, is 2 knots less than the maximum speed of the slowest class in the group.

Speed. 9. The speed of large squadrons is assumed to be 10 knots. When accompanied by convoy, the sustained sea speed may be less than 10 knots, at the discretion of the Arbitrator.

Summary 10. If at any time the Arbitrator finds that *Decisions* accurate plotting will delay him more than usual, he will exercise his discretion in decid-

ing summarily the question before him in order to announce the next move promptly. *Criticism*
11. After the game is finished complaints *After-*
may be made and criticisms offered. *wards.*

TABLE OF VALUES, STRATEGIC GAME.

TABLE I.—Showing classification, maximum speeds, fighting values, and distances recognizable of various types of ships.

	Class.	Maximum speed.	Fighting value.	Distance visible:		Distance recognizable.	
				Day.	Night.	Day.	Night.
Battle ships	A	14	20	10	1-2	4	1
Armored cruisers	B	18	8	10	1-2	4	1
Protected cruisers	C	15	5	10	1-2	4	1
Gunboats	D	12	2	9	1-2	3	1
Fast scouts	E	20	3	10	1-2	4	1
Destroyers	V	25	2	5	1-2	3	3
Torpedo boats	t	20	1	5	1-2	3	1
Torpedo gunboats	g	20	2	5	1-2	3	1

[The maximum speeds here given may vary in special problems.]

TABLE II.—Showing the coal endurance of the various types of ships at different speeds.

Class.	Coal endurance, in days.						
	10 knots.	12 knots.	14 knots.	15 knots.	18 knots.	20 knots.	25 knots.
A	22	18	10	12	7	—	—
B	30	24	15	7	—	—	—
C	15	11	9	—	—	—	—
D	15	11	—	—	—	—	—
E	32	22	18	15	7	6	2
V	—	—	—	6	—	5	—
t	—	—	—	5	—	3	—
g	—	—	—	5	—	3	—

TABLE III.—*Miscellaneous.*

Wireless signaling is at the discretion of the Arbitrator; the maximum limit of such signaling is 30 miles.

The speed of homing pigeons is 50 miles per hour; the maximum limit of range is 50 miles over water, 300 over land. When dispatched in groups 50 per cent may be allowed successful; all at the discretion of the Arbitrator.

The limit of search-light signaling is 30 miles, at the discretion of the Arbitrator.

Visibility of smoke: Of a single ship, 15 miles; of a squadron, 20 miles; of a fleet of over thirty ships, 30 miles; all at the discretion of the Arbitrator.

Night signals, Very Code, may be read up to 6 miles; Ardois Code, from 3 to 4 miles. Day signals, Army and Navy Code, 3 miles. Cannonading may be heard 10 miles.

SECTION IV.

CRITICISMS AND SUGGESTIONS.