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RULES

FOR THE

CONDUCT OF THE WAR GAMES.

1902.

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RULES FOR THE WAR GAMES.

SECTION I.

DUEL GAME.

The Duel Game represents the action between two hostile battle ships. The scale of the game is 1 inch equals 100 yards.

The appliances necessary for playing the game are:

- (1) The game paper.
- (2) The ship's stencils.
- (3) The scale track curves.
- (4) The gun-fire wands (or gun-fire table).
- (5) The torpedo card.
- (6) The die.
- (7) The score card.

The game is played upon the game paper, which is stiff manila paper cut in sheets about 3 by 4 feet.

The ship stencils are rectangles $1\frac{1}{4}$ by 3 inches, of celluloid or other transparent material, with the outline of a ship cut out at the center of the rectangle. This outline represents to scale (1 inch equals 100 yards) a ship about 400 feet long. The center of the ship coincides with the center of the rectangle and the keel line is parallel to the length of the rectangle. Upon the rectangle is marked the 2 and 4 point lines on each bow and quarter of the ship and the keel line of the ship. These stencils are placed upon the board during the

*Object,
Scale.*

*Appli-
ances.*

*Game
Paper.*

*Ship
Stencils.*

progress of the game to indicate the simultaneous positions of the vessels, to obtain their relative bearings at the end of each move, and by marking in the outline of the ship with a pencil, assist in determining the effects of torpedo fire, as will be explained later.

Scale The scale track curves are constructed from data obtained from the U. S. S. *Kearsarge*.

Track Curves. They represent the track made by such a ship turning with a hard-over helm. Upon them are marked the times in seconds from the instant of putting over the helm and the number of points turned. They are constructed for initial speeds of 12 and 14.4 knots. These curves show that a ship in turning through 5 points suffers a reduction in speed equal to one-fourth of her initial speed and thereafter moves on the curve at a constant speed equal to three-fourths her original speed, so a corresponding allowance must be made for this reduction in speed when a ship rights her helm and proceeds on a straight course after turning through an angle of 5 or more points. A ship proceeding at a reduced speed regains her original speed at the rate of 1 knot every thirty seconds, and in slowing down loses speed at the same rate. Bearing this rule in mind, the plotting of the ships while changing speed is easily done.

Special curves for "shifting helm" are also provided.

Gun-Fire Wands. The gun-fire wands are based upon the same assumptions made in the Tactical Game and the further assumption that one 12-inch gun equals three 8-inch guns. Guns smaller than the 8-inch are not considered. Instead of the wand a gun-fire table may be used in which the gun-

fire values are arranged according to range and multiples of the value of an 8-inch turret, the full broadside value being eight times that of an 8-inch turret, and the value of a 12-inch turret being three times that of an 8-inch turret.

Torpedo Card. The torpedo card is a quadrant of celluloid or other transparent material struck with a radius equal to the effective range of the torpedo. On one edge is marked the run of the torpedo in seconds. The card is marked by circular arcs into zones of chance. It is used as follows: When a player fires a torpedo he plots the line upon which he desires the torpedo to run; with the edge of the torpedo card the time of the torpedo's crossing the enemy's track is ascertained; the position of the enemy at the time the torpedo crosses his course is then plotted and the outline of the enemy's ship is drawn in by means of the ship stencil; if the line of the torpedo does not cross this outline the torpedo misses; if it does cross the outline it shows that if the torpedo runs on the course desired it will strike the enemy. The chances of the torpedo running true in the direction desired is shown by the zones of chance, and the proper chance is ascertained by placing the torpedo card with the edge marked "keel line of target" upon the keel line of the outline of the enemy's ship and the center of the quadrant upon the intersection of the line of the torpedo and the keel line of the enemy. The firing point of the torpedo then falls in the proper zone of chance. The zones are marked 1, 2, 3, 4, and 5, meaning chances of $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, and $\frac{5}{6}$, respectively, any one of which chances may be obtained by a single throw of one die.

Die

The die is an ordinary six-sided die marked upon its faces by pips from 1 to 6, inclusive.

Score Card.

The score card is for the purpose of recording the score and ascertaining when the different guns are loaded and ready for firing. There is a column for each pair of guns. The columns for the 8-inch guns have the numbers 1, 2, 3, 4, repeated in succession; the columns for the 12-inch guns have the numbers 1, 2, 3, 4, 5, 6, repeated in a similar way. When any pair of guns are fired during a move a pencil line is drawn down the column for that pair of guns to the point where the number which appears in the column opposite the move reappears for the first time. The end of this pencil line shows the move when the pair of guns are reloaded and ready for firing.

GENERAL ASSUMPTIONS.

Broadside and End-on target. The broadside target is twice as good as the end-on target. The lines of division between broadside and end-on target are the bow and quarter lines on each side.

Batteries. The battery consists of 8-inch and 12-inch guns mounted in pairs in turrets either like the *Kearsarge's* or the *Indiana's* battery. The train of 12-inch turrets and superposed turrets of 8-inch turrets, like those on the *Indiana*, is 12 points on each side of the keel. The train of 8-inch turrets, like those on the *Indiana*, is 14 points on one side of the keel, from right ahead (or right astern) to 2 points on the quarter (or bow).

Rate of Fire. The rate of fire of 12-inch guns is once every three minutes, that of 8-inch guns is once every two minutes.

Ramming. In ramming, if collision takes place while the vessels are on opposite courses, or if stem

strike stem, the result is a draw. To deliver a successful ramming blow the ram must strike the side or stern of the enemy.

Each ship has four torpedo tubes with arcs of train from bow to quarter. All torpedoes are fitted with the gyroscopic steering gear adjusted before the game. The tactical diameter of the torpedo is 1,380 feet.

In case there be a difference in the initial speeds of the ships the red ship represents the faster ship.

THE CONDUCT OF THE GAME.

Players. The game is played by two players representing the commanders of the opposing ships.

Umpire. An umpire may be chosen by the two players. The duties of such an umpire is to superintend the game and to decide upon points upon which the players may differ. His decisions upon these points must be accepted as final by the players.

Method of Play. To begin the game each player writes down a move representing thirty seconds of time. The ships are placed 2,000 yards or more apart at the beginning of the game, and the initial position of each ship is marked 0. When both players have written down their first move each player plots his first move by means of the scale-track curves, marking the position of his ship at the end of the first move, \odot , but *not plotting* the path passed over by his ship to reach this position. (The path of the ship is not plotted because such a path would give to the opposing player more information of the movements of his adversary than he should have.)

The positions of the ships at the end of the first move having been plotted, each player

writes down his second move. Then the ship stencils are placed upon the plotted positions of the first move, each stencil being placed upon the proper heading and the paths of the ships being drawn in, if necessary, to mine the proper heading of the ship. Each player then scores the gun fire for his own ship for the first move.

The second move is then plotted in the manner explained for the first move, the positions of the ships at the end of the second move being marked ②. The third move is then written down, the gun fire for the second move scored, and so on until one of the ships has been sunk or the number of moves agreed upon before the beginning of the game has been played.

Gun Fire. All guns and torpedo tubes are assumed to be loaded at the beginning of the game. A ship having received a number of points equal to one-half her total fighting endurance loses one-half her offensive power.

Torpedo Fire. Each player must write down when he wishes to open fire and when he wishes to cease firing, also the time and direction of a torpedo he wishes to fire, thus, "S. F. T., 15 N. E." means that the player wishes to fire the starboard forward torpedo at fifteen seconds from the beginning of the move in a direction N. E. (mag.).

The effect of torpedo fire is determined as is explained in the description of the torpedo card.

It requires five minutes to reload a torpedo tube.

SECTION II.

THE FLEET TACTICAL GAME.

The Fleet Tactical Game has been devised to represent the conflict between two hostile fleets, and thus serves as a method of ascertaining the best manner of carrying on such an action.

The appliances for carrying on the game are:

- (1) The board.
- (2) The ships.
- (3) The turning card.
- (4) The score wand.
- (5) The score card.
- (6) The record paper.
- (7) The rings.

The Board.

The board represents the surface of a portion of the ocean on a scale of 10 inches equal 1 sea mile, or 1 inch equals 200 yards. It is divided by lines into squares 5 inches (1,000 yards) on a side. On the boards issued to the service, each 5-inch square is further divided by lines into squares 1 inch (200 yards) on a side. On the college board, the 1-inch squares are not marked by lines, but at their corners and at the intersections of their diagonals small holes are drilled in the board normal to its surface.

The Ships.

The ships represented are about 400 feet long. Battle ships—blue or red hulls, bright metal wings; armored cruisers—solid colors, blue or red for both hulls and wings; protected cruisers—white hulls with blue or red wings. Each

ship bears on its wing a number representing its order in the original line of battle. Where a difference in fleet speeds is supposed to exist the *red ships constitute the faster fleet.*

The Turning Cards. The turning cards are constructed from data obtained from the U. S. S. *Kearsarge*, the scale being the same as that of the board.

The straight edge of each card represents on this scale the space passed over on a straight course by such a ship as the *Kearsarge* during one move (two and one-half minutes), moving uniformly at the speed marked on the card. The curved edge of the card is the locus of all positions that such a ship may occupy at the end of two and one-half minutes, the ship starting at the corner marked "stbd. helm and port helm," her original course being in the direction of the straight edge of the card and her engines developing power sufficient to give her on a straight course the speed marked on the card. The number of points turned from the original course, up to 16, is marked on the curved edge of the card. Cards for speeds of 12 knots and 14.4 knots are furnished, but, if found desirable, cards for other speeds may be constructed from suitable data.

The Score Wand.

The score wand, constructed to the scale of the board, represents the destructive effect of gun fire of a battle ship during two and one-half minutes. It is based upon the probability of hitting the target and on the following assumptions:

(1) The broadside battery is twice as powerful as the end-on battery; the dividing line between the two kinds of battery being taken as the bow and quarter line on each side.

(2) The broadside target is twice as good as the end-on target, the line of division being the same as that of the battery.

(3) A battle ship can endure direct fire from the broadside of an enemy of equal force at 2,500 yards for fifty minutes.

(4) The fighting endurance of every ship is divided into a number of equal parts called points. A battle ship is considered to have a fighting endurance of 1,000 points, an armored cruiser 800 points, and a protected cruiser 500 points. A ship having received a number of points equal to her fighting endurance is considered as having sunk, struck, or otherwise been rendered totally incapable of inflicting injury upon her opponents. A ship having received a number of points equal to one-half of her total fighting endurance is assumed to have her offensive powers reduced one-half.

The battery power of armored and protected cruisers is considered to be one-half that of a battle ship, so that, when these vessels are engaged, the wand values, being battle-ship values, must be divided by two.

The wand is limited to a length representing a range of 6,000 yards, as beyond that range the probable effect of gun fire is too small to be considered.

The colors at the end of the wand are used to designate the different combinations of battery and target, the band nearer the end referring to target, the other to battery, red signifying broadside and white meaning end-on.

In scoring gun fire between two ships the proper combination of battery and target is

ascertained by inspection of the relative positions of the two ships, the corresponding side of the wand is found, the colored end is placed against the mast of the target ship and the number of points is read off from the space wherein the mast of the firing ship falls. Each figure on the wand applies to the entire space in which it is stamped, the spaces being separated from one another by lines and each figure being stamped approximately in the center of the space to which it applies.

The Score Card.

The score card is for the purpose of recording graphically the gun fire scored against each ship. On it there are a number of parallel lines, one for each ship engaged, divided into inches and tenths of inches, each tenth of an inch representing 10 points.

The Record Paper.

The record paper furnishes a means of preserving a record of the positions and strength of the opposing fleets at the beginning of each move for the purpose of subsequent study and discussion. Each small square of the record paper represents a large square of the board. The injury inflicted upon each ship during a move should be placed abreast that ship on the sketch of the move. When a ship has had her offensive power reduced one-half a circle should be placed around that ship in the sketch of the move in which such reduction takes place and in the sketches of subsequent moves. When a ship is destroyed such destruction is indicated by a cross drawn through the ship.

The Rings.

The rings are small metal rings placed upon the masts of such ships as have received a number of points equal to four-tenths of their total endurance and serve as a reminder to the person measuring the gun fire that the wand values must be divided by 2.

CONDUCT OF GAME.

For the conduct of the Fleet Tactical Game *Detail of Players.*
the following are necessary:

Two fleet commanders, who command the opposing fleets.

One umpire, who conducts the game and decides disputed points.

One recorder, who keeps the fire and sketch records.

Two assistants, who make the moves and measure the gun-fire score.

When found necessary, on account of scarcity of players, the recorder may act as umpire and the fleet commanders may perform the duties of the assistants. Two players may play the game, each player moving his own ships, measuring the gun fire of his own fleet against that of his opponent, and recording the fire received by his ships.

Placing of the Fleets.

To open the game the opposing fleets are placed upon the board sufficiently far apart to be outside of gun-fire range, usually 8,000 yards apart. Each fleet is placed in such formation as its fleet commander may desire, the ships being placed at "distance" (400 yards) in numerical sequence.

Flagships of Fleet Commanders and Second in Command.

Each fleet commander shall designate which ships are to bear his flag and that of the second in command, and the ships so designated will be distinguished by bits of colored ribbon, tape, or paper placed upon their masts.

General Instructions by each Fleet Commander.

When both fleets have been placed to the satisfaction of their respective commanders, each fleet commander will write out and submit to the umpire his "general instructions." These "general instructions" are a summary of the special instructions, battle orders, and

plans which he is supposed to have issued to his fleet, and with which the captains of the vessels of his fleet are supposed to be familiar before the battle begins. In general, they comprise the general plan of action and instructions for the captains of the ships in certain contingencies in absence of signals to the contrary.

Fleet Speeds.

Each fleet commander will designate his fleet speed to conform with that of one of the turning cards furnished or constructed.

The umpire then calls for the first move, when each fleet commander will write out and submit to the umpire what he desires to have done in that move (representing two and one-half minutes).

Signaling. If a fleet be in column with the flagship of the fleet commander leading, it may change direction of the head of the column without signal.

In all other cases, except those specially provided for in the "general instructions," the fleets will be maneuvered by signal.

Each signal must be flying at least one move (two and one-half minutes) before it may be hauled down, as it is believed that at least that length of time must elapse before it can be understood and answered by the fleet to which it is made. It follows that no signal can be hoisted and executed in the same move. If, therefore, a fleet commander at the beginning of the first move wishes to go "vessels 4 points right" he hoists the signal to that effect at the beginning of that move; the first move, however, is consumed in getting the signal answered, the fleet standing on during the first move in the direction and at the speed it had at the beginning of the move; at the beginning

of the second move the signal is supposed to have been answered and the vessels to be in readiness to execute it. The fleet commander, therefore, may haul it down at the beginning of the second move or he may delay its execution by leaving it hoisted for such further time as he may see fit. The moves submitted in the case cited would read: First move, "Hoist vessels 4 points right;" second move, "Execute vessels 4 points right;" or in case the fleet commander wished to delay the execution of the signal the second move would read, "Ahead."

Any signal still flying may be annulled and a new signal be hoisted at the same time that the annulling signal is hoisted, all signals being subject to the general rule that *signals must fly two and one-half minutes before they can be executed.*

The following abbreviations are useful in writing signals: Abbreviations.

A—ahead.	V—vessels.
L—left.	H—hoist.
C—column.	X—execute.
R—right.	

Thus, H V 4 R means "Hoist signal 'Vessels 4 points right.'"

When the first move of each fleet commander has been submitted to the umpire, he hands them to the assistants, who move the fleet accordingly, using the turning cards. The recorder sketches the new position. The assistants then measure the gun fire, and it is recorded by the recorder on the score card and noted upon the sketch record. The umpire then calls for the second moves and the operations described are repeated.

Measuring Gun Fire.

In measuring gun fire, each ship will generally be considered as having fired at only one of her opponents during the move for which the gun fire is being measured. A ship's fire, however, may be divided between two of her opponents provided both do not lie in the same end-on quadrant of her battery, each of her opponents receiving the fire of her end-on battery. Each ship is considered to possess a battery so arranged that her forward end-on battery is equal to her after end-on battery and her broadside battery is equal to the sum of the two end-on batteries. Thus it will be seen that a ship can fire her forward battery at one ship and her after battery at another ship, but if she fires her broadside battery at one ship she has no other gun to fire at other opponents during that move.

A ship fires during a move with the force that she possesses at the beginning of the move so that ships are "rung," and destroyed ships are removed from the board, at the end of the move in which they received the requisite number of points, but not until the gun fire for the move has been measured and recorded.

Gun fire shall not be scored upon a ship over an intervening ship whether the intervening ship be friendly or hostile.

Concentration of fire may be ordered by a fleet commander in his general instructions or by signal from time to time. In the absence of such specific orders, gun fire will be distributed in what appears to be the most natural and advantageous manner.

Every ship turning through more than 8 points during any one move loses one-half of her gun fire score for that move. This is because

it is believed that the rapid swinging will reduce the accuracy of her gun fire to that extent.

Speed.

The speed marked upon the turning cards is the maximum fleet speed of the fleet for which it is used. Each vessel of the fleet, however, is supposed to possess a reserve speed of 20 per cent of the speed of the fleet to which it belongs. While a fleet as a whole can not maintain a speed greater than its fleet speed, the individual ships of which it is composed may utilize their reserve speed for short periods in order to close up, to avoid collision, or to gain their positions in certain evolutions, such as "Front into line from column."

Changes of speed are based upon the approximate general rule that ships gain or lose speed at the rate of 1 knot each half minute.

Following this rule, the average speed of ships during a move is the speed they are making in the middle of the move. Thus a fleet moving at fleet speed in obeying a signal to slow to half speed makes one move at three-fourths speed and thereafter moves at one-half speed. The reverse takes place to regain fleet speed. To obey a signal to stop from fleet speed, a fleet makes one move at three-fourths speed, one move at one-fourth speed, and thereafter is stopped. The reverse takes place to regain fleet speed. Similarly to change from stop to half speed or from half speed to stop involves one move at one-fourth speed.

Torpedo Fire.

Each ship carries four torpedo tubes, two on each side. All torpedoes are supposed to be fitted with gyroscopic steering gear capable of being set so as to make the torpedo run in any desired direction.

Torpedo fire will be subject to the rules laid down for the Duel Game so far as is practicable.

The Fleet Tactical Game is usually played in open water with free maneuvering room for each fleet. It can, however, be played with shore lines marked upon the board to scale, and forts, torpedo boats, destroyers, and submarines may enter in this case. In such case extra players will be required to represent the commanders of such fortifications and vessels.

*Fire of
Forts.*

The fire of forts is introduced by considering the fire of the forts as equivalent to the broadside fire of so many battle ships, a gun on shore being considered equivalent to four guns afloat. In case of mined channels, the position of the mines will be made known to the umpire, but will not be made known to the fleet commander of the hostile fleet. In case the hostile fleet passes over a mine field, the umpire will determine the amount of damage it suffers.

If a fort receive 300 points during a move, its fire for the succeeding move will be reduced one-half; if it receive 500 points during a move, it will be considered as silenced during the succeeding move.

*Subma-
rines.*

The use of submarines is limited to the defense, but the fact of their possession is known to the offense. Their maximum speed is 7.2 knots.

Whenever a submarine runs awash to within 400 yards of the target without discovery, her chances of hitting may be taken as 1 in 3.

If a submarine be discovered running awash, but trimmed for diving within 1,000 yards of its target, and dives and fires without again rising, her chances of hitting may be taken as 1 in 6.

One torpedo only is allowed to a submarine for a single game.

MÊLÉE.

If fleets come so close together that a *mêlée* is imminent, in the opinion of the umpire, the game may be stopped or it may be transferred to the scale of the Duel Game and be fought out under the rules of the *mêlée*, a player to act as the captain being required for each ship engaged.

In the *mêlée* each move represents one-half minute and signals can not be answered in less than five moves.

If the vessels bid fair to come together so close as to prevent tactical maneuvers the umpire declares "Close action," and vessels will be maneuvered by their captains irrespective of fleet tactics. No signals can be understood as long as such close action continues, in less than five minutes, at the discretion of the umpire.

Subject to the foregoing limitations each fleet commander retains the control of his fleet and may signal "Close action" if he see fit so to do.

The fleet commander of either side may give in advance a plan of attack, informing his captains of his general scheme of concentration of effort and of any other particulars that he may think desirable.

A vessel successfully ramming another will *Ramming*, be motionless for two minutes.

The gun fire and torpedo fire are subject to *Gun Fire* the rules of the duel game and are under the *and* control of the individual captains in so far as *Torpedo* such control is not modified by the "general *Fire.* instructions" and signals of the fleet commander.

*Close
Action.*

*Moves and
Signals.*

*General
Instruc-
tions.*

General It must be distinctly borne in mind that the *Rule of the Object* of this war game, as of all war games, is to represent truthfully on a reduced scale *Game.* everything that may be done with actual forces, so that the foregoing rules must not be considered rigid rules that can never be violated. They are to be regarded as guides, resulting from long experience with the game, but they should never be construed so literally as to allow that which is evidently impossible with actual forces or to bar that which is manifestly practicable with ships upon the water.

SECTION III.

THE STRATEGIC GAME.

The Strategic Game represents a campaign *Object.* between two or more opposing naval forces.

Charts of the theater of operations are necessary, one for the umpire and one for the commander of each detached force. *Appliances and Players.*

PREPARATION.

Several days before the game is to be played, a statement of the problem is given to two players, who are to represent the commanders in chief of the opposing forces. These statements give the supposed conditions existing upon a certain date, the distribution of the forces, so far as is known to each commander in chief, the instructions from the home government under which each commander in chief is to act, and other information bearing upon the problem. As in war there is always more or less uncertainty about the enemy's movements and intentions, the information given the two commanders in chief is not the same; each is given definite information concerning his own forces and such information of his enemy's movements and intentions as he would probably possess in time of war.

With these statements in their possession, the commanders in chief draw up in writing *General Plans and Orders.* their plans of campaign. Each commander

in chief selects a number of assistant players to command the forces he intends to send upon detached duty, and each commander of a detached force will be furnished with written orders and a copy of the plan of campaign of his commander in chief. *Great care should be exercised in writing these plans and orders, so as to make them as clear and definite as possible.*

THE CONDUCT OF THE GAME.

Assignment of Rooms. On the day of the game the players and the umpire and his assistants assemble. A room is assigned to each commander in chief and to the commander of each detached force, and still another room is assigned to the umpire.

Each of these rooms should be provided with a chart of the theater of operations, a pair of dividers, a copy of the rules of the game, paper, pencils, and several sheets of tracing paper.

The umpire is provided with the plan and orders of each side. The umpire then calls in each side separately, and each commander in chief explains to the umpire his plan and orders.

Umpire and Assistants. The umpire has three assistants, one to plot the positions of the forces for each move upon the umpire's chart, which assistant is called the recorder, and two other assistants who act as messengers between the umpire and each side.

When all is in readiness, the players retire to their respective rooms.

Method of Play. The umpire then announces the first move, giving its length in hours, the day and hour of its beginning, the day and hour of its end, and the state of the weather during the move.

Each player then plots the positions of his force at the beginning and end of the move and the track passed over by his force during the move.

This information is transferred to a sheet of tracing paper and brought by the messengers to the recorder, who transfers it to the umpire's chart.

The umpire then determines by inspection whether any of the forces sight each other or not. In case vessels sight each other, the umpire sends to the forces by a messenger, in writing, such information as he deems the forces concerned would obtain through such a meeting. Each force is then at liberty to modify the remainder of its move and will inform the umpire accordingly.

When all the positions for the first move have been plotted and adjusted, the umpire announces the second move and so on.

All information must go through the umpire and his decision upon any question is absolute.

The assistants are the sole means of communication between the players and the umpire. These assistants must be careful to refrain from criticism or comment during the game. They should determine the accuracy and correctness of all information that they convey to or from the umpire, and be able to explain such information, but must be careful in thus explaining any information not to add thereto.

RULES FOR THE STRATEGIC GAME.

1. The length of time represented by a move is at the discretion of the umpire. *Moves.*

The umpire 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 may be reduced to fifteen minutes, at the option of the umpire, until a decision regarding them is made.

Duels. 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 umpire, by the relative number of points at which each vessel is valued.

Tele-graphic Messages. 3. In case a vessel wishes to transmit a tele-graphic 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 umpire.

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.

Employment of Fishing Vessels. 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 umpire deciding upon the exact time when they may be considered as fitted out and ready for service.

Destroyers and Torpedo boats. 5. Torpedo boats shall not be used as scouts at sea. They may be used for carrying dispatches or for scouting alongshore between 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 Cutting. 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 umpire 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 Actions. 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 umpire.

Sustained Sea Speed. 8. When vessels move, independently or otherwise, to a given point or rendezvous, the maximum speed of each class is 2 knots less than the maximum speed of that class in the tables.

Vessels moving independently may maintain the maximum speed, as given in the tables, for

a period of 24 hours, but during the next 24 hours can not move faster than 4 knots less than the maximum speed as given in the tables. After this normal conditions again exist.

Speed. 9. The speed of squadrons containing battle-ships is 12 knots. When accompanied by convoy, the sustained sea speed shall be 10 knots.

Summary Decisions. 10. If at any time the umpire finds that accurate plotting will delay him more than usual, he will exercise his discretion in deciding summarily the question before him in order to announce the next move promptly.

Criticism Afterwards 11. After the game is finished complaints may be made and criticisms offered.

TABLE OF VALUES, STRATEGIC GAME.

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

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

	Class.	Maximum speed (knots).	Fighting value (points).	Day.		Night.	
				Distance visible (sea miles).	Distance recognizable (sea miles).	Day.	Night.
Battle ships	A	14	20	10	1	4	$\frac{1}{2}$
Armored cruisers	B	18	8	10	1	4	$\frac{1}{2}$
Protected cruisers	C	15	5	10	1	4	$\frac{1}{2}$
Gunboats	D	12	2	9	1	3	$\frac{1}{2}$
Fast scouts	E	20	3	10	1	4	$\frac{1}{2}$
Destroyers	V	25	2	5	1	3	$\frac{1}{2}$
Torpedo boats	t	20	1	5	1	3	$\frac{1}{2}$
Torpedo gunboats	g	20	2	5	1	3	$\frac{1}{2}$

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	22	18	7	6	2
E	32			15	6	5	3
V				6	5	3	
t				5		3	
g						3	

TABLE III.—Miscellaneous.

Wireless signaling is at the discretion of the umpire; the maximum limit of such signaling is 50 miles, unless otherwise stated in the problem.

Homing pigeons do not fly during the night. Their speed during daytime is 50 miles an hour; their maximum range is 50 miles over water and 300 miles over land.

When dispatched in groups 50 per cent may be allowed successful; all at the discretion of the umpire.

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

Visibility of smoke: By day, of a single ship, 15 miles; of a squadron up to eight ships, 20 miles; of more than eight ships, 30 miles. At night, of a single ship, 1 mile; of a squadron up to eight ships, 2 miles; of more than eight ships, 3 miles; of a large convoy, 4 miles.

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

SECTION IV.

CRITICISMS AND SUGGESTIONS.

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