PART III.

REVISED RULES FOR NAVAL WAR GAME.*

General Rule.

Nothing may be done contrary to what could or would be done in actual war.

Procedure.

Admirals put down in writing all general orders, etc., issued before the action. When the ships are put on the table each admiral to be seated so that his eyes are on a level with the table, and he must guess the enemy's formation as best he can in this position, and recognise the ships.

No other player may give information on any of these matters to the admirals, but in certain circumstances (when scouts are advanced, etc.) the umpire may do so at his discretion. Flag-captains will be responsible for moving the ships as directed by the admirals. They also will usually have charge of the scorer cards. One player is responsible for handing out the necessary targets to those who do the striking, also for the collection of scorers cards as required by the umpire.

Players.

A sufficient number of players will attend to the shooting. They are to aim as may have been laid down in general orders, and may fire one for each ship or group of ships, but it is better when there are many more ships than players that some should attend to the heavy guns, others to the intermediate, leaving the light armaments (fire for which is claimed not struck for) in the hands of one special player. One player should be detailed for torpedo.

These duties can be distributed or manifolded according to the number of players available.

Should an admiral be "killed" he is to change places with the second in command.

Signalling.

In the early stages uninterrupted signalling may be allowed, and the admiral kept informed as to damages received.

When closer quarters are reached the umpire will stop free signalling and subsequent messages must be written on chits, and sent through the umpire.

In order to save time there should be some recognised signal code.

A move should elapse between the making of a signal in these conditions and its reception.

The use of screens (see "moving") automatically provides for most signalling problems.

Moves.

Each move represents one minute of time. On full scale each square is 100 yards. A scale of squares should be made on a striker handle, by which all moves over the diagonals are made.

A speed of three knots is one square per move, and *pro rata*.

On the tails of the model the maximum speed in squares is indicated.

A ship may *increase* her speed by one square per move up to the maximum, and *decrease* as much as she likes subject to the rule below.

A ship wishing to *stop* travels on one complete move. For example a ship at 15 knots (five squares) must go on five squares. She can then go astern or ahead again at the normal increase rate.

Turning.—Four types of turning-circle cards are provided—for tactical diameters of 1,000, 800, 600, and 400 yards. Each model bears the circle most nearly akin to its real circle* with extreme helm. Speed loss is automatically provided for on these cards.

A ship wishing to turn with her engines may do so to the extent of turning 8 points per square, but *the time occupied in turning 8 points will be the same as with the larger circles.*

Operations.

Before fleets move a screen should be placed between them. This prevents changes of course being replied to too quickly by the enemy. The move being made, the course or courses of the fleet should be marked in chalk on the board, and the number of the move put where the move ceases.

The screen is then removed for the rival admirals to see each other's ships. It is then replaced and the next move made, etc.

Any firing is done immediately after the screen is replaced: and the next move made while the umpire is scoring.

Gun Fire.

The targets should be marked in blue pencil to indicate capped A.P., red for H.E., and left plain for steel pointed common.

They are always to be selected for the next firing while the umpire is scoring.*

A player may be allowed (subject to the loss of accuracy rule) to change later to some other target when circumstances render it reasonable, but the nature of projectile selected may not be changed. (*Important*).

Targets.†

The largest target is used for 2000 yards, the middle sized one for 3,000, the smallest for 4,000. For ranges 4,000—6,000 only half the guns bearing may be struck for. For ranges over that the target is covered with a piece of paper, and half strikes as for 4-6000.

Fire control.—When fire is shifted from one ship to another, only half the usual number of guns may be struck for the first time the new ship is fired at.

Changed bearing.—When the bearings alter rapidly (anything over 1,000 yards a minute) only half the available guns may be struck for.

Hits.—Hits to score must be on the outline of the ship, and nothing is allowed as a "twixt wind and water" hit (disabling motive power, steering, etc.) unless it *cuts the line* exactly between ship and water. Anything hitting the water just below is scored as a miss.

When fleets move on parallel courses in the same direction, *after the first fire* at that range, targets to be as though the ships were a grade

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* All particulars can be obtained from Messrs. Sampson Low, Marston & Co., Paternoster Row, London, E.C., the publishers of the game.

These rules cancel all rules previously in use, and remain in force till the next FIGHTING SHIPS is published.

* An approximation to actual circles is all that is necessary: and anything more accurate merely gives complication without any corresponding gain.

* This represents loading with the selected projectile.

† The thin paper diagrams are the "targets." They should be struck at *gently*. In order to localise hits difficult to see examine the backs of them.

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nearer than they actually are, *so long as the ship fired at is the same ship.**

RATES OF FIRE. †

Guns with initial velocities over 2,700 one strike every 3 moves.
Guns with initial velocities about 2,500 one strike every 4 moves.
Guns with initial velocities about 2,200 one strike every 5 moves.

The range limits are :—

Guns of or over 9·2 inch	up to	*about*	8,000	yards.
„ „ 8·2—7·5	„	„	6,000	„
„ „ 6	„	„	4,000	„
„ „ 4·7	„	„	3,000	„
„ „ 12 pdr.	„	„	2,000	„

As a rule no 6 inch guns are struck for, but their effects umpired. A player when sending up his target notes on it the number and calibre of secondary guns bearing, and what part of the enemy they are directed at. The umpire marks damages at his discretion.

SCORERS.

The brown printed plans of ships are the scorers. All details printed upon them should be revised by the current issue of "FIGHTING SHIPS."

* Concentration of fire by a fleet on individual ships is too often unduly easy. An admiral may be allowed to order his squadron to concentrate on a given ship for a definite time, or concentration on a definite system; but the plan of shifting from one ship to another directly it is known that a certain amount of damage has been done, should not be allowed, because it is unreasonable to suppose that signals on such matters could be made and acted upon immediately.

The umpire should require each admiral to write down for his captains, or otherwise communicate to them *before* the battle, all fire control orders; and no further directions should be allowed to be given, save such as conform to the usual signalling rules of "time to take in the signal."

† See "General Notes" further on for reasons.

When the targets have been fired at they are to be collected by a player on the side concerned and handed to the umpire. The same player is to collect all the scorers of his side so that the umpire can have them immediately they are required.

The player responsible for the firing of any gun must always mark over each turret on the scorer the number of the move when it fires again. It is essential that this be done or confusion will result.

EFFECT OF GUN FIRE.

Essentially the best guide is the umpire's own judgment and discretion. The following rules are therefore issued merely as a guide.

Penetrations will be found on early page of the current FIGHTING SHIPS and in gun tables.

Non-penetrative hits on belt.—These may conceivably do much damage, however mild their effect in experiments. A hit that does not penetrate a belt, but which goes well towards it, should be marked with an ×, and a second hit about the same spot may be scored as causing a leak, by cracking the plate with perhaps half-a-square (1½ kts.) reduction in speed if the first penetration has been of the "very nearly through" order.

Hits on gun positions.—It is probable that a hit from a heavy projectile which fails to get through will be nearly as disastrous inside as one that does, on account of flying rivets, concussion, etc., etc. For every such hit the guns concerned should lose at least one fire, as, even if discharged, it is extremely improbable that they would hit anything. *Shell* in such cases cause no harm as a rule.

Shell-bursts on gun-muzzles.—A gun actually hit by a big common shell, or by a smaller H.E. shell, would probably be distroyed, or certainly put out of action for the rest of the battle. But the chances of a fair and square hit doing this are small, and the hole made by the striker on a target is disproportionately large. Therefore, it is incorrect to put a gun out of action for such a hit, and the best way is to throw a dice, putting a gun out of action for as many fires as the number that comes up. Thus, if a three be secured, the gun will not be allowed to be struck for three fires that it would otherwise have had.*

For convenience, the muzzle is always taken to be the muzzle as indicated in the Targets.

Only *one* gun is to be so effected, and only from *big* shell of 9·2 inch and over.

Penetrative hits in turret bases.—A dice-throw for all hits not actually in the gun-house—the gun, or guns, to be out of action for as many fires as the dice throw indicates.

Penetrative hits in turrets alongside the guns.—A toss-up as to whether the guns concerned are out of action for five or ten fires.

Penetrative hits in Q.F. batteries.—When small guns are affected by a big penetration into batteries, etc., the case is probably reasonably met by putting out two guns for good—both sides, if the battery is penetrated, and one each side if it is the side of the deck below.

Penetrative hits on casemates.—Casemates, one out each side would meet either case.

Hits between casemates.—When a big hit is secured between casemates, probably the off side one will be out of action.

Hits difficult to assess.—There are many hits which, though not very serious, may affect ammunition supply, etc. The umpire can meet these by reducing the rate of fire somewhat. This, indeed, is a very good method for scoring many sorts of hits.

* Players keep on their scorers over each turret the number of the move when it can fire again. The umpire crosses out the number and substitutes such higher number as he thinks fit.

HITS AFFECTING ENGINES, BOILERS, ETC.

Hits in engines.—For ships with two sets of engines reduce speed by about *one-third;* ships with three engines, *one-quarter.*

Penetration to the boiler-rooms.—In the case of cylindrical boilers, an explosion may be assumed, and all, or nearly all, speed lost. In water-tube boilered ships only a proportion of the boilers will be affected. Speed loss must depend upon the number of boiler groups.

The amount of water that enters depends upon the efficiency of the ship's complement, and this will depend upon the number of previous bad hits received.

A usual plan in umpiring is to submerge the ship to the level of the lower deck for the third penetration of water-line, and to the main deck for a hit for each thousand tons of displacement (*see* "Effect of Flotation"). Obviously, a cast-iron rule is impossible here. In a general way care should be exercised not to score too heavily against the motive power for any hits, for battle experience does not warrant much damage below as a rule.

Hits from Q.F., H.E. in funnels.—If a 6 inch or other H.E. burst inside a funnel or funnel-base, it would probably blow out the fires concerned by the down draught created. With water-tube boilers—except, possibly, Bellevilles,—the circulation would also perhaps be affected.

The rule at present in use is as follows :—

For a fair and square hit in the funnel (*i.e.*, clear of all boats, ship's side, etc., etc., and not touching the edge of the funnel) there are chances of the loss of all power from the boilers concerned as follows :—

1 in 12 to 1 in 18

If these odd chances are not secured then the funnel is simply holed. After about five hits of any sort on it (fair and square or not) a funnel may be assumed knocked over, but this, in a modern ship, will affect the speed very little—

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not more than 1½ knots (half a square) at the outside.

Some loss of accuracy of shooting may be given when 'tween-deck hits hole the funnels, and so send smoke about the gun-decks. This is best met by putting out of action one gun each side for each funnel so hit.

Hits Affecting Flotation.

As already stated, the *third* water-line hit may submerge the ship to the lower deck, and she may be submerged to the main deck when she has received a hit for each thousand tons of displacement. *Distributed* hits are understood.

The umpire should always note, by V-shaped marks on the plan, which side hits are, as, if they are all one side, the ship hit may capsize.

Loss of speed for water-line hits should not be too great. The size of the ship must be taken into account.

Hits at the ends.—The loss at three water-line bow sections will reduce the speed 3 knots (one square).

Raking hits.—If *aft* the steering gear may be jammed in any ships launched before 1902 or thereabouts. The rate of fire of the big guns nearest the hit may be affected. The flotation that end will certainly be affected, and the turning circle should be increased.

Conning Tower Hits.

It may be taken for granted that there will be other torpedo directors than those in the conning tower. The only question at issue is the condition of the steersman after a hit. This is usually umpired as follows:—

One dice throw:

1 or 2.—No effect.

3 and 4.—No steering for 1 move.

5 and 6.—No steering for 2 moves

"No steering" means that the ship is to follow her original course with a certain amount of wobble, the umpire moving her. The loss of steering for one or two moves covers the replacing of the man at the wheel, and the replacing of the commanding officer (if he should be in the tower).

This applies to any shell (H.E.) of or over 7·5 inch, or any shot of or over 9·2 inch.

General Scoring.

Penetrations as per FIGHTING SHIPS.

Shell fire damage in unarmoured places, 12 inch destroy 4 sections; 10 inch, 3; 9·2 inch, 2; 8 or 7·5 inch, 1½; 6 inch, 1; 4·7 inch, ½ sections.

Torpedo.

Torpedoes set for 1000 yards, travel 10 squares per minute.

Torpedoes set for 2000 yards, *say*, 7 squares per minute.

Torpedoes set for 3000 yards, 5 squares per minute.

Torpedoes set for 4000 yards, 4 squares per minute.

The range for which set must of course be decided on before the action.

Methods of firing:—

1. A player firing a torpedo notes the number and letter of the square he fires from, and also of the square he aims at. For convenience he will fire only at the early or latter end of a move—each move being, as it were, divided into two parts.

The number of the square fired at should be handed to the umpire or some player other than the one who fired the torpedo. Should any ship (friend or foe) be on the square named when the torpedo arrives, it is torpedoed.

Players are to make a point of honour to claim any ship (friend or foe) that passes in the track of the torpedo at any given part of the move, and which would be hit.

In order to ascertain this, it is convenient to prepare sticks marked in "square" distances. In cases of doubt toss up.

2. While the screen is up, anyone firing a torpedo draws a pencil line on the table from his ship towards the point aimed at; and the question of a hit, and exactly where the ship is hit is a matter of looking along the line where the torpedo has travelled.*

3. The simplest method of all is a dice throw 1 in 6 for a hit regardless of anything else†

4. The firer notes on a piece of paper:

(*a*) Course of enemy.

(*b*) Range.

(*c*) Enemy's estimated speed.

If he has estimated these correctly, a hit is allowed.

5. Both sides to mark their courses on sectional paper, indicating the hostile ships as nearly as they can calculate from observation of the board. To fire torpedoes they lay a piece of tracing paper on their chart and on it rule the course of the torpedo, with the half moves ticked off.

To claim, they hand the tracing to the umpire who lays it on the hostile chart, and sees at a glance exactly what has happened. ‡

Submarines.

1. Each "2000" yards blue square is to be lettered A, B, C, D, etc.

2. Each of the 400 little squares in the big square to be numbered 1-400 on each.

3. Each submarine player provides himself with a sheet of paper divided into squares, similarly lettered and numbered.

4. When he is *on the surface or awash* he moves on the big board with the other players, indicating his position with a *small pin stuck* in the board. *He may take any reasonable means not to attract the enemy's attention to this pin; but he may not conceal it.*

5. When submerged he retires from the table, sits *with his back to it*. The umpire locates his exact position for him on his own small squares, and thereafter he marks his course with a pin from that. *He may not draw any pencil lines on his squares.* For vision he is provided with a small fragment of looking-glass, not exceeding half an inch in diameter. From what he can see in this he must make his move, guessing distance of enemy and friend from foe as best he can. He is allowed to move half his move before the enemy moves and halt after the enemy has moved. His submerged speed will be about two squares per move, that is to say his half move will be *one* square. No loss for turning need be inflicted, as to allow for this his speed is always slightly below the possible. By this means unnecessary complication is avoided.

6. As he moves on numbered squares, the umpire, by looking at the big board, can always keep in mind the true relative positions of submarine and big ship. The submarine player on the other hand has to proceed by guess-work, and is extremely hampered, since his glass does not allow him to see the numbers on the big squares which the ships move on. At any time that he considers himself within torpedo range of the enemy he may name a square to the umpire in writing, and should a ship be upon that square when the torpedo is in operation a torpedo is allowed as having hit.

7. Having fired, he may not reload inside half an hour, and he must also do this on the surface

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* This is one of the best methods: but should only be attempted by players thoroughly familiar with the game—or undue delays are likely to occur.

† This, though crude, does not work badly, and is recommended for all games in which acquiring a knowledge of guns and armour is the special object of the game.

‡ This is the best possible method, and is used when torpedo is the special object, but see note to method 2 which applies still more to this.

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or at the bottom. In no case may a submerged submarine lie by—he must be under way or he rises to the surface. Boats with launching apparatus instead of tubes are not allowed more than one torpedo the half hour.

8. A big ship is not allowed a fire at submerged submarines, nor any chances of detection unless within one square of the submarine's course. Should a submarine submerged ever get at any time on the same square as a destroyer it is to be considered sunk or captured. In the case of picket boats even chances of the same thing.

9. A submarine on the surface is to be regarded as defenceless. Diving time varies, but in no case is there any such thing to be allowed as popping up and down again at once. No submarine in existence can yet do this.

Ships *v.* Forts.*

Forts use special strikers without heads. When shrapnel is fired, hits, to be effective, must be *on* the "shrapnel line" and immediately above the gun.

When the gun dot is hit at its outer edge, fire will be lost at *one* move—for a second hit *three* fires will be lost, and a third hit *five* fires. After that every further hit should be for *eight* fires, and the gun may only resume firing at half rates.

When the *exact centre* of the gun spot is hit, which is, of course, pure chance, ten fires are to be lost, after which the gun may resume firing at half rates. The chances of a gun being disabled by an actual hit on the muzzle are very small; a second centre hit may be allowed to do this.

* Special land blocks divided into squares for elevations, coasts and moving operations can be obtained. They are coloured and divided into squares of varying size to indicate the differences of ground for moving over. Infantry, &c., move one square per move: cavalry three squares. Model dockyards similarly divided are also obtainable.

A target should be reserved as a fort-scorer, and on this the P.F. positions should be marked, and placed at the umpire's disposal. By holding this, with the target to be scored from over it, to the light, he can ascertain whether a knock-out hit has been given. This will give the chances very fairly.

When it is considered that P.F. positions would be known to the enemy, they should be located at the ends of the shrapnel line, or the fort line, so that the enemy can direct fire upon the P.F. positions if they see fit.

Loss of P.F. positions should always entail use of a ship striker instead of a fort striker.

This change of striker should also always be ordered by the umpire when a fort has obviously received a demoralising fire.

The rule that the fort always has first fire at the ships, and a reply only allowed on the next move, should be enforced. Not only has a fort with modern guns a better range than a squadron, but it is certainly better fitted to pick up the enemy than ships are.

Night Operations.

It is always difficult to arrange these satisfactorily. There are two methods:—

*Method 1.** Moves are made in the dark or in reduced light, and sighting depends on actually seeing the enemy.

For searchlights, electric torches are employed, and the umpire allows them to be used while he counts three.

Special players in the light away from the board are detailed to do the firing, and these are supplied with destroyer targets, &c. At the end of each move, any ordered to do so by the players of the ships they represent can fire.

For torpedoes an ordinary water squirt is used. This indicates the course of the torpedo quite clearly when the lights are turned up for inspection. (The players, of course, are moved from the board before this).

* This method is cumbersome, but it has the merit of introducing some very real problems in miniature.

Method 2. Each player furnishes the umpire with his night orders, course, objectives, &c., &c., and the result is umpired.

Strategical Operations.

These should never be too large: it is well that small wars, or portions of wars, should always be played.

Admiralty charts are to be used.

Area of Operations.

In addition, each Admiralty should furnish itself with a chart or tracing of each of the naval harbours allowed it, and these should be divided into 2000 yards squares as in FIGHTING SHIPS. On these, all mine defences must be marked, any forts that are allowed, &c., &c., so that should any hostile demonstrations be attempted, the umpire has the necessary details to refer to. The number of ships that each harbour can accommodate should be noted; also any stores which, for the purposes of the "War," are limited in quantity.

The arrangement of all these details will be a matter of time, but the experience will be instructive.

Serving out Ships, &c.

Preliminaries having been arranged, each side is given:—

(1). Its ship models.
(2). One scorer for each of its ship engaged.
(3). Targets for the *enemy's* ships.

The models should be kept in separate boxes, each squadron by itself. Scorers should be similarly grouped in envelopes, together with the necessary stores, &c., &c.

A cabin should be assigned to Red home bases and ports in communication, and another cabin to Blue. When any ship or ships go to sea, the player responsible will take the models, scorers, &c. &c., and a chart into another cabin, where he will remain.

Operations begin.

He is to mark his course in 6 hour runs upon the Chart, as directed by the umpire.* While in wireless distance he may communicate with his Admiralty by notes through the umpires. After that he can only communicate by going to some harbour where there is a telegraph, or by approaching a wireless station or coastguard.

Detached cruisers:

Should he detach any scouts; these if they get out of wireless distance will be taken over by an auxiliary player or, should none be available, by the umpire.

Log:

He must keep a rough log of his movements and observations (see below) for inspection by umpire when required, and for forwarding to his Admiralty when opportunity offers (through umpire). All moves are dated from "War Imminent." The exact hour is fixed by the umpire. The date is known as the first day, and all time is reckoned in days from that, without regard to months or years.

Sighting Distances.

Fine day—up to 20 miles or so.

Night—from 5 miles to 1000 yards according to weather.

Signalling Distances.

By wireless or searchlight, *about* 60 miles (present allowance).

By masthead semaphore, *about* 12 miles, or less, according to weather.

By flags, *about* 5 miles, or less, according to weather.

* For convenience of the umpire, the course should also be taken on tracing paper, each hour run ticked, and each 6 hours marked clearly.

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Battle Range.

Anything inside 10,000 by day; at night according to weather at umpire's discretion.

Procedure.

The umpire will visit each Admiralty for each 6 hours period, and then each "at sea" player in rotation. As he visits each, he will order another 6 hours. The duplicate traced courses will enable him, should ships be near each other, to ascertain the exact distances that they are apart, and whether they sight each other or not. His decision on these matters is final. At the end of each "6 hours" period, should any belligerents pass within sight of neutral coasts, or after a reasonable delay should they have gone where neutral merchant-ships would be likely to see them, he informs the players appointed to attend to neutral interests, &c. This player will then visit each "Admiralty," and give such version as he pleases of what he has been told, so covering such information as may be gleaned from the Press.

Trade.

If commerce defence enters into the scheme a special player must mark the courses of all merchant ships on a special chart in 6 hour runs. The umpire can, by noting the courses of raiding cruisers on their own charts at once estimate captures by comparison. To capture a ship, including chasing, an average of six hours per ship is reasonable.

Coal Endurance—Steaming Rules.

The following coal consumptions are usually allowed in strategical games. The figures have been arrived at after striking a mean from actual results, and are sufficiently accurate for all purposes.

Consumption in tons per *6 hours*.

	Big fast cruisers, full speed. Tons.	Small cruisers and average battleships, full speed. Tons.
Belleville	120	75
Niclausse	128	84
Dürr	132	88
Babcock	136	92
Cylindrical	140	96
Thornycroft-Schulz ...	144	102
Yarrow	148	106

For $\frac{2}{3}$ speed *half* this consumption.
„ $\frac{1}{3}$ „ *quarter* „

The consumption of the average destroyer is placed as follows, per hour:—

Full speed.	$\frac{2}{3}$ speed.	$\frac{1}{3}$ speed.
16 tons.	8 tons.	3 tons.

The full-speed consumption is about the actual. This works out that a destroyer can run for about 6 hours only at full speed.

Torpedo boats in proportion.

Submarines can endure from 3 to 6 hours submerged; the above-water radii vary very much. From 8 to 12 hours for a submarine, and up to about 16 for a submersible is the usual allowance: it is pretty fair. A petrol boat should not be allowed to increase her radius by a reduced speed on top, but lying by she of course consumes nothing.

No ship may steam at top speed consecutively for more than 6 hours without the speed being reduced about 10 per cent., and chances of breakdown.

The efficiency of every ship should be reduced 10 per cent. at all speeds, and no speed above $\frac{2}{3}$ allowed *when the coal consumed passed the amount normally carried*. The allowance is made for the difficulties in getting at excess coal, and for coal low in the bunkers.

When endurance is not a matter of prime importance in the special object for which the game is played the following simplification may be employed.

An imaginary amount of coal called a "unit" is introduced. *Every* ship burns 1 unit per 6 hours at 12 kts., 2 at 15 kts., 3 at 18 kts. and *pro rata*—without regard to whether she is battleship, cruiser or destroyer. With a little calculation this unit system can be adjusted to fit actual consumptions.

It is desirable to enlist an engineer officer each side who will be responsible for everything connected with the steaming of the fleet to which he is attached. Endurance is a matter of the utmost importance, and in this way much useful information will be acquired, and no impossible steaming feats attempted. No time spent upon the endurance problem is wasted.

General Items.

Such matters as the range of wireless, its interruption, signal stations, the maintenance of communications, cables, mine laying, countermining, etc., etc., should be settled by general consent beforehand. The discussion of these questions is always instructive, and often leads to the formation of clear ideas on matters which before had been only very vaguely considered.

Scale.

For strategical purposes, and generally in the moves preceding and following an action in a "War," it will probably be necessary to reduce the scale of the squares. When this is done (except perhaps when half scale is used), it is very undesirable to use the proper models, as they give false ideas of ranges and distances.

The recognised scales of reduction are:—

A. 2 minute moves $\frac{1}{2}$ scale = 10 squares per mile.
B. 5 „ „ $\frac{1}{5}$ „ = 4 „ „
C. 10 „ „ $\frac{1}{10}$ „ = 2 „ „
D. 20 „ „ $\frac{1}{20}$ „ = 1 „ „

For scales B, C, and D, no models are employed. Instead, pieces of cardboard, occupying the space *occupied by the fleet on the scale* employed are put down. On these, the ships are indicated by triangular pencil marks to show direction, and approximately of the relative size. ($\frac{2}{3}$ of a cable is the average battleship and small cruiser length, $\frac{5}{8}$ cable, big cruisers, $\frac{1}{3}$ cable, destroyers). Each ship-mark should be numbered, so that when desired by the enemy her correct model can be shown, and the ship thus guessed at, or the models may be exhibited somewhere on the table in their proper order.

It is important that when reduced scales are employed, the space occupied by ships should be fairly accurate. The following tables enable this to be secured without trouble:—

On full scale one square is 100 yards: one big blue square 1 knot.
On A scale one square is 200 yards: one big blue square 2 knots.
On B scale one square is 500 yards: one big blue square 5 knots.
On C scale one square is 1000 yards: one big blue square 10 knots.
On D scale one square is 2000 yards: one big blue square 20 knots.

The length of cables in *inches* is:—

	Two cables.	One cable.	Half cable.
Full scale	5″	$2\frac{1}{2}$″	$1\frac{1}{4}$″
A „	$2\frac{1}{2}$″	$1\frac{1}{4}$″	$\frac{5}{8}$″
B „	1″	$\frac{1}{2}$″	$\frac{1}{4}$″
C „	$\frac{1}{2}$″	$\frac{1}{4}$″	$\frac{1}{8}$″
D „	$\frac{1}{4}$″	$\frac{1}{8}$″	$\frac{1}{16}$″

Usual ranges in *inches* are:—

	10,000	8000	6000	4000	3000	2000
Full scale	125″	100″	75″	50″	$37\frac{1}{2}$″	25″
A „	$62\frac{1}{2}$″	50″	$37\frac{1}{2}$″	25″	$18\frac{3}{4}$″	$12\frac{1}{2}$″
B „	$25\frac{1}{2}$″	20″	15″	10″	$7\frac{1}{2}$″	5″
C „	$12\frac{1}{2}$″	10″	$7\frac{1}{2}$″	5″	$3\frac{3}{4}$″	$2\frac{1}{2}$″
D „	$6\frac{1}{4}$″	5″	$3\frac{3}{4}$″	$2\frac{1}{2}$″	$1\frac{7}{8}$″	$1\frac{1}{4}$″

REVISED RULES FOR NAVAL WAR GAME.

The *approximate* lengths in *inches* occupied by ships at two cables apart, may be put down as follows:

Line ahead or abreast.	Scale: A	B	C	D
2 ships	3″	$1\frac{1}{4}$″	$\frac{1}{8}$″	$\frac{5}{16}$″
3 ,,	5″	$2\frac{1}{4}$″	$1\frac{1}{4}$″	$\frac{9}{16}$″
4 ,,	$8\frac{1}{8}$″	$3\frac{1}{4}$″	$1\frac{5}{8}$″	$\frac{13}{16}$″
5 ,,	$10\frac{5}{8}$″	$4\frac{1}{4}$″	$2\frac{1}{8}$″	$1\frac{1}{16}$″
6 ,,	$13\frac{1}{8}$″	$5\frac{1}{4}$″	$2\frac{5}{8}$″	$1\frac{5}{16}$″
7 ,,	$15\frac{5}{8}$″	$6\frac{1}{4}$″	$3\frac{1}{8}$″	$1\frac{9}{16}$″
8 ,,	$18\frac{1}{8}$″	$7\frac{1}{4}$″	$3\frac{5}{8}$″	$1\frac{13}{16}$″
9 ,,	$20\frac{5}{8}$″	$8\frac{1}{4}$″	$4\frac{1}{8}$″	$2\frac{1}{16}$″
10 ,,	$23\frac{1}{8}$″	$9\frac{1}{4}$″	$4\frac{5}{8}$″	$2\frac{5}{16}$″

Of these scales, D, with its twenty minutes moves, and 20 miles to each big blue square, is only required when space is very limited. C is often needed even on a big table, but as soon as possible, B should be reverted to.

It is very important, when any of the reduced scales are employed, to manage so that unsighted or unwatched ships are not seen by other players.

To avoid this, the simplest method is to have all players outside the room, the umpire calling them in in turn. Any ships not in sight of the player's vessels should be hidden from him by removal, or by paper over them. This last is not very satisfactory: it is always better to remove altogether. If the positions of the temporarily removed vessels are marked in pencil on the board, or noted on a piece of paper by the umpire, no difficulty in re-placing will be experienced.

General Note on Gun Fire.

Gun fire is arranged for upon a convention which aims at embodying the following salient features:—

a. Assuming good gunnery, sights, range-finders, etc., etc., the best possible percentage of hits will decrease considerably as the range increases.

b. Guns themselves vary greatly and supposing a new and an old 12 inch to have the same rates of fire but very different velocities, it is obvious that one gun should secure many more hits than the other.

Consequently the gun-fire system is modelled upon the principle that the maximum strikes allowed represents the maximum hits obtainable in a given time at a given range with a given gun.

The misses which will be obtained in addition by the use of the "striker" represent human error, while the smaller target renders discriminating hits at long ranges much more difficult.

To the occasional difficulties of long range shooting must be added the difference between relatively unchanging and rapidly changing bearings.

Again, a ship which maintains a steady fire on one hostile ship is likely to make better shooting (other things being equal) than if she changes her target with every round or two fired.

Neither of these, nor of several other points that need not be particularised can be overlooked, if any approximation to the real thing is to be secured. It is, however, obvious that were all these features exactly embodied into rules the resultant would be so complicated that confusion would inevitably result, to say nothing of the enormous expenditure of time that would be necessitated. Consequently a simple convention has been adopted, which, while pretending to no minute accuracy will upon examination be found to afford a very fair relative approximation.* It may be added that this system is the result of five years observation of the old system and several alternative systems that have been proposed and experimented with over long periods under all conditions. Practically it embodies something of most of the various alternatives proposed; especially those by the late Rear-Admiral H. J. May of the British Navy, and Captain Chamberlain of the U.S. Coast Artillery.

In "Hints on playing the Jane Naval War Game,"* some other systems were given which had advantages in certain special cases, but various considerations have led me to abolish all systems save the one given in the rules; and players are advised to adhere to this strictly as given.

Suggestions for improvements or alterations will at all times gladly be received, but it is requested that these shall be tried carefully over an extended period before submission, especially with reference to the following essential points:—

(*a*). Speed in playing.
(*b*). Ease of umpiring.
(*c*). Simplicity.

It may be added that all systems of points are worthless for the special purposes of the game, as these invariably degenerate into mere mathematical exercises, and of necessity ignore the "lucky shot" which must ever be a salient feature in all naval fighting. Further, they are useless for teaching guns and armour, for which the game was specially designed.

FRED T. JANE.

* It will be found in practice that the strikers give a substitute for "moral effect" that is to say, in nine cases out of ten, after a ship has been badly hit, her player will not shoot so well as before the hits were received. This has frequently been noticed, and is to be attributed to the fact that excessive anxiety and necessity to hit makes hitting more difficult than when less effort is required or made.

* This book is now out of print.