

DREADNOUGHT

Surface Combat in the Battleship Era, 1906-45

RULES OF PLAY

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[1.0] INTRODUCTION

Dreadnought is a two-Player simulation of surface naval warfare in the period 1906 to 1944 with the primary emphasis on the role of the all big-gun battleship (**Dreadnought**) in fleet actions. Historical and non-historical battles and naval campaigns are presented. Essential elements of surface naval warfare are recreated, including gunnery, torpedoes, ranging, damage control, formation handling and fleet coordination.

[2.0] GENERAL COURSE OF PLAY

In **Dreadnought**, the Player is cast in the role of an admiral commanding a fleet of ships. Each game of **Dreadnought** may consist of one or more Scenarios, each consisting of a series of Game-Turns during which the Player maneuvers his ships attempting to damage or sink his opponent's ships while limiting the damage to his own with the overall objective of achieving a victory.

[3.0] GAME EQUIPMENT

[3.1] THE GAME MAP

The map consists of six (10" x 10.75") sheets, each delineated by a hexagonal numbered grid. They are designed so that they fit together, allowing the map to grow in any direction, creating, in effect, an endless map.

[3.2] THE PLAYING PIECES

The playing pieces are divided generally into two predominant color groups. These represent all of the various battleships (dreadnoughts) ever built, and their refits, divided into national groupings. Other pieces represent groups of cruisers and destroyers. The playing pieces are known as ships or units. They are distinguished by identification number, name and playing values.

[3.21] Sample Dreadnought Marker

| | | | |
|------------------|----------|-----|--------------------|
| Attack Strength | 61 | 20 | Range Allowance |
| Defense Strength | 20 | 7 | Movement Allowance |
| Nationality | GE | 741 | ID Code |
| Name | Bismarck | | |

[3.22] Sample Light Unit Marker

| | | | |
|------------------|--------|-----|--------------------|
| Attack Strength | 16 | 12 | Range Allowance |
| Defense Strength | 6 | 8 | Movement Allowance |
| Heavy Cruisers | 2 CA's | C33 | ID Code |

[3.23] Other Markers

| | | | | | |
|------------------|------------------------|----------------|---------------------------|---------------|------------|
| 3 2 2 CL's | 5 8 LST | Light Cruisers | 3 5 5 DD's | 6 9 D72 | Destroyers |
| 1/2 Attk G | Attack Strength Halved | | Movement Allowance Halved | S | 1/2 Speed |

| | | | |
|-----------------------------|---|------------------------------|-----------------------------|
| 1/2 Attk GS 1/2 Speed | Attack & Movement Halved | Attack Halved No Movement | 1/2 Attk G2S No Speed |
| No Attk 2G2S No Speed | No Attack No Movement — "Wrecked" | No Attack Movement Halved | No Attk S2G 1/2 Speed |
| No Attk 2G | No Attack | No Movement | 2S No Speed |
| TF 1 | Task Force Marker | Torpedo Marker | 1:1 2 |

[3.24] Definition of Terms

Attack Strength is the attacking power of a ship's guns quantified in terms of Attack Strength Points. This strength may be modified for range, and is used to determine the number of Damage Points which the ship can achieve.

Defense Strength is the quantification of a ship's ability to resist shellfire. The number of Damage Points achieved against a ship is divided by its Defense Strength to determine the odds column on the Combat Results Table.

Range Allowance is the maximum distance in hexes at which a ship's guns can have a measurable effect upon Enemy ships.

Movement Allowance is the basic movement ability of a ship quantified in terms of Movement Points. Movement Points are expended in forward motion at the rate of one Point per hex; radical turns require the expenditure of additional Movement Points.

[3.3] CHARTS AND TABLES

A separate sheet of Charts and Tables is provided, which includes the Damage Point Table, the Combat Results Table, the Damage Control Table, and the Range Effects Table. All of these tables have to do with the resolution of combat; detailed explanations of their use can be found in rules section 5.0.

[3.4] GAME SCALE

Each Game-Turn represents 15 minutes of real time. Each hex represents 1800 meters from side to parallel side. Each Movement Point represents 4 knots of speed.

[3.5] GAME EQUIPMENT INVENTORY

A complete game of **Dreadnought** should include the following parts:

Six map sections (each 10" x 10.75")

One Rules Folder

Two sheets of Charts and Tables

One Set of Die-Cut Counters (400 pieces)

Two Dice

One SiMove Pad

If any of these parts are missing or damaged, please write:

Customer Service,
Simpubs Ltd.,
Oakfield House, 60 Oakfield Road,
Altrincham, Cheshire, WA15 8EW.

[4.0] SEQUENCE OF PLAY

Dreadnought is played by Scenario. During a Scenario the actual Combat and Movement of the ships takes place in a series of Game-Turns according to a rigid Sequence of Play, which is repeated Game-Turn after Game-Turn until a conclusion is reached and the Scenario terminated.

[4.1] GAME-TURN SEQUENCE OUTLINE

1. **Visibility Determination Phase:** The outer limit of visibility is established.
2. **Fire Plot Phase:** Both Players mutually and simultaneously plot the fire of their own ships to attack enemy ships. Torpedo attacks are plotted.
3. **Fire Execution Phase:** Both Players simultaneously execute the attacks which they have plotted.
4. **Movement Plot Phase:** Both Players mutually and simultaneously plot the movement of their ship units.
5. **Movement Execution Phase:** Both Players simultaneously execute the plotted movement of their ship units. Torpedo movement and any resultant attacks are executed concurrently.
6. **Damage Control Phase:** Both Players mutually and simultaneously attempt to reduce damage incurred on their ship units.

[4.2] SIMULTANEITY

Opposing Fire and Movement is considered to occur simultaneously. Both Players will simultaneously plot their fire and movement during the appropriate Phases. The execution of fire and movement may be physically accomplished sequentially in any order the Players wish.

[5.0] COMBAT

GENERAL RULE:

Combat is the generic term used to describe the concept and method which simulates one ship firing on and damaging another ship. In other words, combat simulates ship-to-ship gunnery (torpedoes are covered separately). Every ship has a firepower rating, or Attack Strength, which is a numerical expression of the number of shells a ship can fire per unit of time, the accuracy of the ship's gunnery control system, and the destructiveness of the shells fired, presuming they hit another ship. Conversely, each ship has a Defense Strength, which numerically measures the ability of that ship to resist shellfire and expresses the ship's armor protection, compartmentation and general layout (magazines, boilers, engine rooms, turret imposition, etc.).

Every ship has a Range Allowance, which is the maximum number of hexes through which it can fire at an Enemy ship. Its Attack Strength is calculated on the basis of its maximum range, or twelve hexes, whichever is less. When a ship fires at much less than its maximum range its Attack Strength increases (see Range Effects). Conversely, when a ship fires at greater than twelve hexes, its Attack Strength decreases.

Combat takes place during the Mutual Fire Phase, according to the following procedures.

PROCEDURE:

Both Players allocate the Attack Strength of each of their ships against individual Enemy ships during the Fire Plot Phase. This allocation should

be mutual and simultaneous and requires a Player to note on the SiMove Pad which of his ships are firing at which Enemy ships (see Plotting Fire). After both Players have finished allocating their fire they proceed to resolve each individual attack. The order in which they resolve attacks is immaterial since all results are applied at the conclusion of the Fire Execution Phase. Resolution is executed as follows:

1. Assume a Friendly ship is firing at an Enemy ship. The Friendly Player states the Attack Strength of his firing ship. He then modifies this Attack Strength according to the range between his firing ship and the Enemy target ship. He then rolls the dice and cross-references the result with the modified Attack Strength as given on the Damage Point Table, which yields the number of Damage Points that his firing ship achieved.
2. This number of Damage Points is then divided by the numerical Defense Strength of the target ship to yield a ratio (called the Combat Ratio), which is rounded down to the nearest whole number (17 to 10 is rounded down to one to one, 21 to 10 equals two to one, etc.).
3. The dice are then rolled again and the result compared with the Combat Ratio as given on the Combat Results Table to yield the actual damage inflicted on the target ship.
4. Markers representing this damage are then placed upside down on the target ship. When all the attacks in the Fire Execution Phase have been executed, the markers are turned face-up, signifying that the damage now applies to the ships.

This procedure is repeated for each and every firing ship.

CASES:

[5.1] PLOTTING FIRE

For a Player to plot fire from his ship to an Enemy ship, he writes down on the SiMove Pad the ID number of his ship, and the hex number in which the target ship is located. If there is more than one Enemy ship in the target hex, he must identify which Enemy ship it is (use its ID nr.). Example: 514 — on 327(2713)

Ship nr. 514 is firing at Enemy ship nr. 327 in hex 2713. [The intent of the plotting procedure is to force Players to distribute the fire of their ships before they know what the Enemy is firing at or how effective any one of their individual attacks have been. When the forces engaged are small or if both Players agree, this written simultaneous plot can be dispensed with and both Players can simply verbally allocate the fire of their ships, so long as all fire is allocated before any attacks are resolved.]

[5.2] INHIBITIONS AND RESTRICTIONS ON FIRING

[5.21] Firing is voluntary and no ship is required to fire. However, there is no reason why a ship would withhold fire assuming it were in range of any Enemy ship and its Attack Strength, after all modifications, is capable of inflicting damage.

[5.22] A ship may fire only once per Game-Turn and may only fire at one Enemy ship. In other words, a ship's Attack Strength may not be divided against several targets in the same Turn.

[5.23] A ship may not fire at Enemy targets beyond its range or in excess of visibility.

[5.3] MULTIPLE SHIPS FIRING ON THE SAME TARGET

[5.31] Several Friendly ships may fire at the same individual Enemy target ship. Each attack is resolved separately with any damage being cumulative. However, in the case of multiple attacks, the firing ships are penalized as follows: All firing ships, save one, have their Attack Strengths halved (dropping any fractions) prior to modification. Only one ship is allowed to fire without this penalty; its designation, which must be noted on the Fire Plot, is chosen by the Firing Player.

[5.32] A ship may only fire at a target which it has been plotted to fire at. A Player may not change his fire allocations after they have been made.

[5.4] DAMAGE AND DAMAGE CONTROL

Several things can happen to a ship when it suffers damage. It can lose half or all of its Attack Strength; it can lose half or all of its Movement Allowance; and it can blow up (be removed from the game, having sunk).

[5.41] Explanation of Damage Results

(See Combat Results Table, 5.9)

Damage of 1G means the ship's Attack Strength is halved (drop fractions).

Damage of 2G means the ship's Attack Strength is zero (can't fire).

Damage of 1S means the ship's Movement Allowance is halved (drop fractions).

Damage of 2S means the ship loses all Movement Allowance (can't move). (Exception: See "creep" optional rule.)

When an E results, immediately roll the dice again. If a seven or eleven come up, the ship sinks; otherwise it suffers 2G, 1S damage.

[5.42] Cumulative and Progressive Damage

Damage is cumulative. If a ship has an existing 1G condition and suffers another 1G damage result, its condition progresses to 2G. Damage beyond 2G or 2S is superfluous and ignored (except for blow ups) so that a ship which has a 2G condition and suffers another 1G or 2G result remains in a 2G condition. G- and S-type damages are unique to one another and are not convertible. Innumerable G damages have no effect on the ship's S condition and vice versa.

[5.43] Damage Control

During the Damage Control Phase, each Player attempts to cure damage inflicted on his ships according to the Damage Control Table.

He then rolls the die (use one die only) once for G damage and once again for S damage, for each ship. If the die roll falls within the series shown on the table, he reduces damage by one step.

Example: Player has a ship in a 2G, 1S condition. He rolls a 2, reducing his G damage to 1G and then rolls a 4 which has no effect on his S damage. A ship which reaches a 2G, 2S damage state cannot be damage-controlled. It is permanently out of action. It may not fire, and may not move (once it has come to rest).

[5.44] There is a numerical limit to the number of times a ship can reduce its damage state. That limit is expressed by the printed Defense Strength. For example, during the course of a Scenario a ship with a Defense Strength of ten would be limited to successfully removing ten steps of damage. Once a ship reaches its damage control limit, it may no longer attempt to control damage. This process requires keeping a record on scratch

paper of the number of times a ship has reduced damage.

[5.5] RANGE EFFECTS

A ship's Attack Strength is calculated on the basis of its effectiveness at 5 to 12 hexes. When the firing range drops, the Attack Strength increases according to the Range Effects Table.

Example: Ship has an Attack Strength of 17 and a range of 19. Firing at a range of 2 hexes, its Strength would be 51; at 4 hexes its Strength would be 34; at 7 hexes, 17; at 13 hexes, 8.

Calculate firing range by counting the shortest path in hexes from the firing ship (exclusive) to the target ship (inclusive).

[5.6] EFFECT OF FIRE ON SHIP'S FIRE

One of the effects of ship-to-ship naval combat is that it is easier to shoot at an Enemy ship when you are not being shot at. Therefore, when a ship is being fired at in the same Phase that it is firing, the die roll result is reduced by two, when calculating the number of Damage Points as a result of the firing ship's attack on the Damage Point Table. For example, ship A fires at ship B, while ship B fires at ship A. Ship A has an Attack Strength of 36. While rolling on the 36 column of the Damage Point Table, suppose we find that the die result is an 8. This is reduced by two, to 6. This results in 10 Damage Points.

[5.7] VISIBILITY

[5.71] No ship can fire at a ship which it cannot see. The Scenario instructions will always state what the minimum visibility is. Thereafter, on every Game-Turn, the Players roll the die and add the number of the die roll to the minimum visibility number. The result is the visibility during that Game-Turn. For example, the Scenario defines the basic visibility during that Game-Turn as 6. On a given Game-Turn, the Players roll a die. The die roll is a 2. That means on that Game-Turn the visibility is 8 hexes. The following Game-Turn they roll the die again. This time the die roll is a 4. That means on that Game-Turn the visibility is 10 hexes.

[5.72] Ships do not mask other ships from fire. That is, a ship does not interfere in any way with the line of fire of another ship. Ship A can fire at ship B even though the line of fire passes through a hex containing ship C.

[5.8] DAMAGE POINT TABLE

(See separate sheet.)

[5.9] COMBAT RESULTS TABLE

(See separate sheet.)

[6.0] MOVEMENT

GENERAL RULE:

Movement is first plotted and then executed so that, in effect, both Players are moving their units simultaneously. To plot movement, each Player simply writes down on the SiMove Plot Chart the course and speed of each of his ships. Execution then involves moving these ships according to the written plot. When a ship moves, it expends one Movement Point from its Movement Allowance for each hex that it enters. It also expends two or more Movement Points when it makes a radical turn within a hex (see Facing, 7.3). The plotting of movement, and the execution of movement are restricted by several rules which simulate both physical realities and fleet handling doctrine. So

long as he observes the restrictions on movement, a Player is free to move his ships as he sees fit.

| H. UNIT | 1. FIRE | 2. MOVE |
|---------|-----------|--------------|
| J. 203 | 1. on D52 | 2. NE 3/SE 3 |
| K. 221 | 1. on L51 | 2. " |
| L. 211 | 1. on D53 | 2. NE 3 |
| M. 212 | 1. on G51 | 2. SE 4 |
| N. 201 | 1. on D51 | 2. SE 6 |

PROCEDURE:

There is a compass rose printed on each map section. This indicates the six possible directions a ship can move in when it exits one hex to enter another adjacent hex. Assume that a Player has a ship in hex 1108 (facing North) and that he desires this ship to enter hex 1207. This would necessitate the ship to move in direction (or **course**) NE, with a Movement Point expenditure of one Point. This would be plotted as (NE-1). Further, assume that the Player wished the ship to move from hex 1108 to hex 1506. This would involve plotting a course NE, expending four Movement Points (NE-4). Assume that a Player wished a ship located in hex 1108 to move to hex 1405. This would involve two successive course and speed notations since hex 1405 does not lie on a straight path from hex 1108. (The ship would move N-1, NE-3); both "legs" of its path must be plotted. Movement Plotting occurs during the Movement Plot Phase. Plotting the movement of a Player's entire fleet involves plotting the movement of all the individual ships composing that fleet. If there are a lot of ships, this could be a lot of writing. Thus, the Formation Rules discuss the ways in which the entire movement of a formation (group of ships) can be briefly summarized and plotted.

Whether plotting the movement of an individual ship or entire formations, the plot must indicate direction and speed (Movement Points expended).

Movement Execution occurs during the Movement Execution Phase. Execution is the act of physically carrying out the plot of a ship's movement. That is, taking the unit counter representing the ship in hand displacing it hex by hex across the map from the hex it originates the Game-Turn in, to the hex that it ends the Game-Turn in. In so doing, a Player must follow the written plot for the ship.

[6.1] RESTRICTIONS ON MOVEMENT

[6.11] No ship may expend more Movement Points than there are in its Movement Allowance in a single Game-Turn.

[6.12] If a flagship or independently moving ship changes its course during the Movement Phase, its total path will resemble a dogleg (that is, it will be composed of two segments). A turn may not be made in the last hex it enters that Movement Phase. The final "leg" of movement must be larger than or equal to the preceding segment, so that its final position and facing at the termination of its move reflects the predominant overall direction in which it had moved during the Game-Turn. Each "leg" of its path must be plotted separately. Example: N-2, NE-4. A subordinate ship may always follow the flagship, regardless which "leg" of its movement turns out to be longer (see 6.22.).

[6.13] A ship may not enter a hex containing an Enemy ship. If, at the conclusion of movement,

ships of opposing sides are attempting to enter the same hex, the following resolution is used: Both Players roll the die. The Player with the lower die roll must displace his ships one hex, so that the collision does not take place. This displacement hex should be as close as possible to the ship's original course.

Ships of opposing sides may freely move through the same hex during the course of movement.

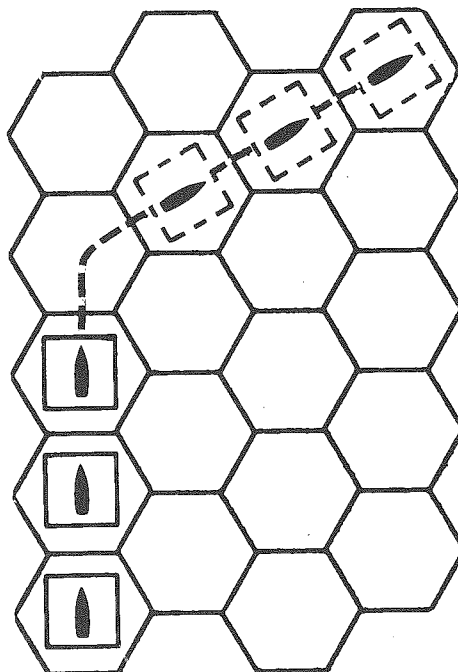
[6.2] FORMATIONS

Players are allowed to maneuver their ships in formations. All ships in a formation must be adjacent to one or two other ships in the formation. Each formation has a designated leader ship or flagship. The other ships in a formation are known as subordinate ships. Prior to the start of play, each Player may designate his formations and flagships. Thereafter he plots the movement of his units by plotting the movement of his flagships. In executing movement he will then guide the movement of subordinate ships according to the movement of the flagships.

[6.21] A formation may use the **column** or the **line abreast** formation, which differ in the form of guidance that the flagship exerts over subordinate units. To show which mode he has picked, the Player simply notes a "C" or an "L" subscript next to the Movement Plot of his flagship(s).

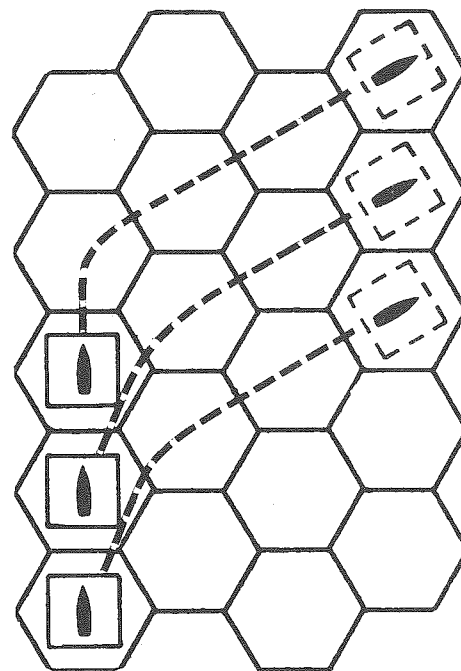
[6.22] Column

Moving in column means the ships are "following the leader." That is, each ship in the formation is lined up, one behind the other, with the flagship in front. The flagship moves and the subordinate ships follow, duplicating the flagship's course exactly, through the hexfield, just as if the flagship, in moving had cut a hypothetical path through the ocean.



[6.23] Line Abreast (see next column)

Moving in line abreast, subordinate units "mirror" the movement of the flagship: They move on parallel courses.



The diagrams demonstrate the difference between column and line abreast. You will note in each case that the movement of the flagship is identical, but that the subordinate units move according to whether the formation is in column or line abreast.

[6.24] A formation which begins the Movement Phase in column may change to a line abreast formation in the same Movement Phase if all of the ships in formation are in a straight line (one directly behind the other). A formation which begins the Movement Phase in a line abreast may also change to column formation for the second "leg" of its movement. That is, ships moving in a line abreast may turn with their flagship, and complete their movement in column, behind the flagship. Each "leg" of movement must have a letter identifying the formation type to be used on that leg. Example: 2SE-L, 3S-C (see 6.12).

[6.25] Given a column of sufficient length, it is probable that some maneuvers will result in the formation completing the Game-Turn with the rear units in the column not having "made the turn." The column then will be bent one (or more) times. All ships in the column must follow the flagship on the following Turn, completing all movement in the proper order. No formation may use the line abreast mode unless it begins that "leg" of movement oriented on the same axis (in a straight line).

[6.26] Formation flagships are designated at the start of play. The Players are not required to keep their original flagships. They may, at the beginning of any Movement Phase, change flagships in a formation citing a new flagship in the plot.

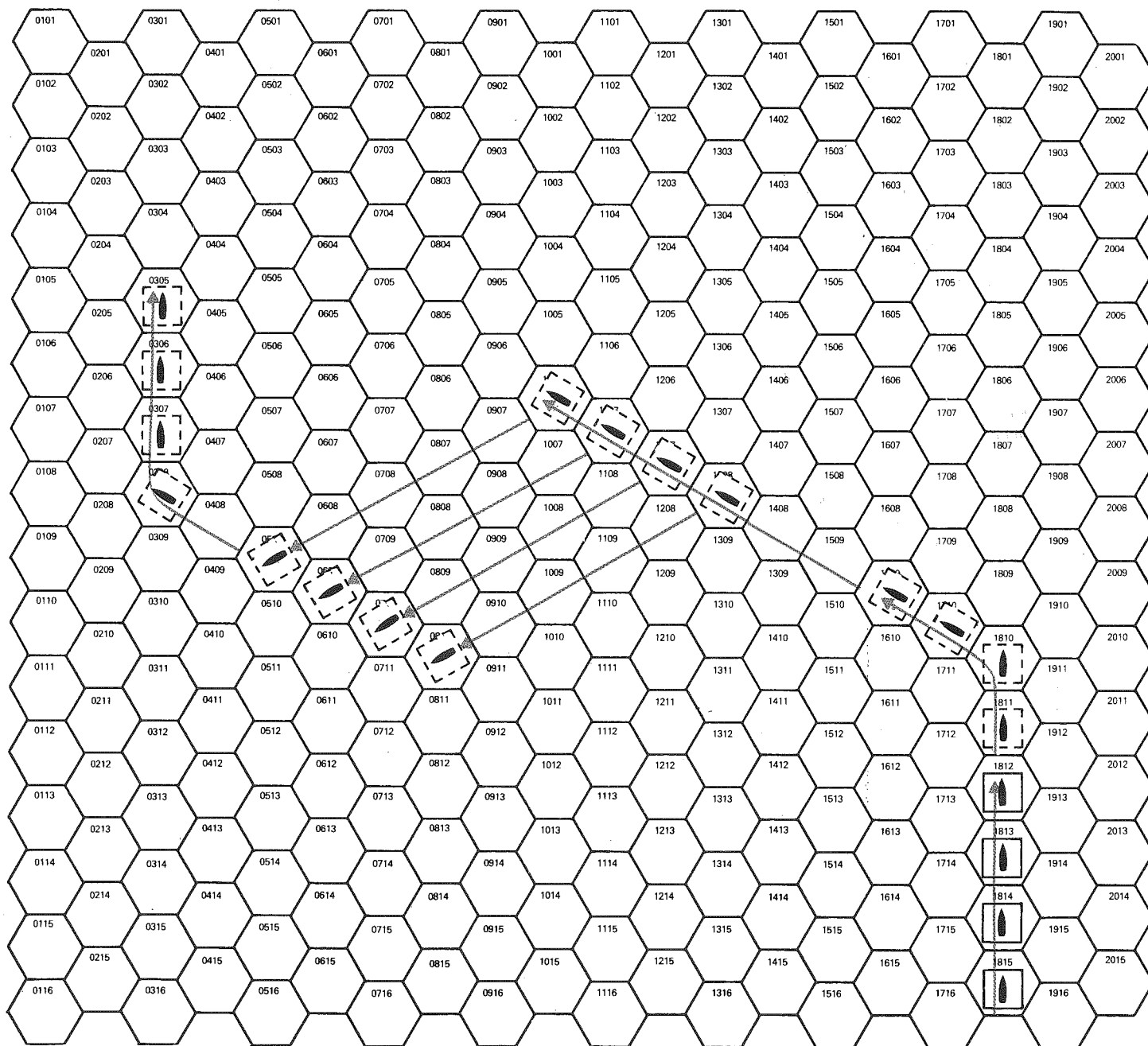
[6.27] A large formation may be divided on any Game-Turn into any number of smaller formations, provided each of the formations meet the requirements and provided a separate plot is written for each of the new formations. In most cases, the make-up of the new formations will be obvious from the Movement Plot; in those cases where it is not obvious, the Player should note next to his plot the composition of the formations. If several small formations maneuver so that they end a Game-Turn combined into a larger formation, they may be treated as one large formation on the following Game-Turn.

[6.28] Players are not required to use formations; they may, on any Game-Turn, plot individual ship movements for some ships while using formation plots for their other ships. The proportion can vary from Turn to Turn at the Player's option. Formations can break up and operate as

individual ships, rejoining later or joining with other ships in new formations.

[6.29] The formation rules are nothing more than a convenience to the Player. They allow him to operate large numbers of ships without recourse to burdensome paperwork. Historically, the large

fleets of dreadnoughts were subdivided into squadrons and divisions for the very purpose of allowing complicated maneuvers to take place. The historical Scenarios will give the Players the actual divisions ("formations") as they existed. They may be used or ignored.



Game-Turn 1: Formation enters the map at hex 1815 and proceeds North at 4 MP, in column mode. Plot reads "4N-C."

Game-Turn 2: Formation moves North, then Northwest at 4 MP, in column mode. Plot reads "2N, 2NW-C." Note that the trailing ships in the column, 3 & 4, did not "make the turn."

Game-Turn 3: Formation continues Northwest, increasing speed to 6 MP, still in column mode. Plot reads "6NW-C." Note how ships 3 & 4 "make the turn" on this Game-Turn.

Game-Turn 4: The formation turns southwest, decelerates to 5 MP and changes to line abreast. The Plot reads "SSW-L."

Game-Turn 5: Formation turns Northwest and then North at 5 MP returning to column mode. Plot reads "2NW, 2N-C."

[6.3] STACKING

[6.31] At the beginning and end of every turn a Player is allowed to have up to four ships in the same hex so long as all four ships are faced in the same direction. In all cases, the top ship on the stack is considered to be the lead ship in the stack with the second ship from the top being the second ship in the stack, etc.

[6.32] During the execution of movement a Player may move more than four ships through a hex at a given moment, but they may not end the Phase overstacked.

[6.33] Screen units may neither stack with battleship units nor with other screen units, except that during the course of movement execution they may move through hexes containing Friendly units.

[6.4] ACCELERATION AND DECELERATION DURING MOVEMENT

No ship may accelerate by more than 100% of its initial speed during a Game-Turn: That is, a ship which is moving during Game-Turn One at a rate of 3 Movement Points per Turn may not speed up to 7 Movement Points per Turn on the second Turn; it can only speed up to a maximum of 6. A ship may only decelerate by 50% (rounding

fractions up) during the course of a Game-Turn. That is, a ship which is moving at a rate of 6 Movement Points per Turn on Game-Turn One must move no less than 3 Movement Points per Turn on Game-Turn Two. On Game-Turn Three it could decelerate to 1 Movement Point per Turn and on Game-Turn Four it could go dead in the water. This deceleration rate holds true even for ships which have lost all capability to make steam, i.e., have suffered two speed hits. This means they must continue to move for at least one, possibly two Turns after they have lost their capability to make steam.

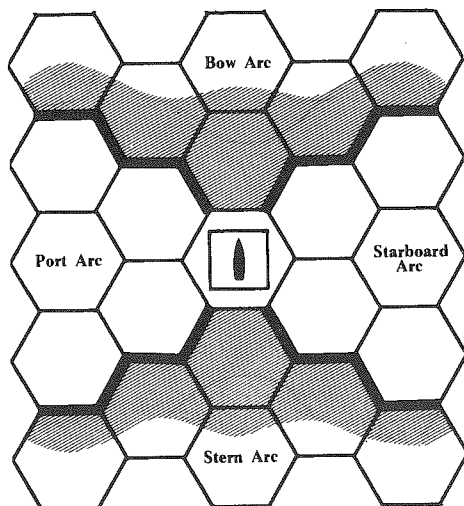
[7.0] FACING

GENERAL RULE:

A ship must always be faced (or pointed) in a definite direction corresponding to one of the six directions (N, NE, SW, S, SE, NW) printed on the compass rose. Every ship counter has a facing indicator printed on it, which points toward the hexside that the ship would cross if it maintained its direction of movement. When a ship changes course it also changes its facing. Ships move only in the direction of the indicator. When a ship changes its course of Movement it is said to turn. In doing so it changes its facing. Assume that a ship is in hex 1108 facing North. In order to proceed directly to hex 1207 it would first have to turn to a Northeast facing. When it does so it rotates one hexside from North to Northeast. Any ship may freely rotate one hexside within one hex at no additional Movement Point cost. This is called normal turning. If a ship was in hex 1108 facing North it could not proceed directly to hex 1208 without making a turn of two hexsides. When a ship turns two or more hexsides in a single hex it is said to be making a radical turn. Making a radical turn causes a ship to expend additional Movement Points over and above its cost for entering the hex.

[7.1] FACING EFFECTS ON COMBAT

The facing diagram below illustrates how the area surrounding a ship is divided into arcs of fire. The Attack Strength of a ship is calculated on broadside fire, the **maximum** number of guns it can bring to bear on a target. When a ship fires on (attacks) a ship which lies either in its bow arc or in its stern arc of fire, subtract one from the dice roll when calculating the number of Damage Points inflicted.



[7.2] FACING EFFECT ON MOVEMENT

A ship can only move into the hex in the direction its faces. If it is to change course it must change facing. A ship moving independently, or a flagship, may only change its facing twice during a Movement Phase; once at the start of its movement, before expending any Movement Points, and once again at a later point in its path of movement. Ships in column may always exactly duplicate the movement of their flagship, regardless of when in the course of their movement they are required to turn, or which "leg" of their movement is the longest.

No ship may change facing in the last hex it enters (until the next Game-Turn).

[7.3] RADICAL TURNING COSTS

[7.31] When a ship turns two hexsides within a hex, the cost to that ship unit is two Movement Points.

[7.32] When a ship unit turns three hexes (equivalent to a complete aboutface), it costs three Movement Points.

[8.0] TORPEDO COMBAT [Screening Forces]

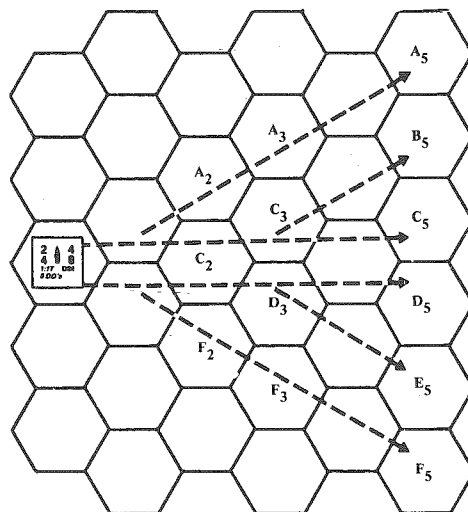
GENERAL RULE:

Warships other than battleships are represented by screen units. These are cruisers and destroyers. A cruiser screen unit represents two cruisers; a destroyer screen unit represents five destroyers. They possess a printed Attack Strength, Defense Strength, Range and Movement Allowance similar to a battleship unit. They may maneuver and fight in similar fashion. They may not, however, stack with any other unit. Additionally, some screen units identified with "1:1T or 2:1T" possess the ability to attack with torpedoes. A torpedo attack is a special procedure.

PROCEDURE:

During the Fire Plot Phase of the Game-Turn, the Attacking Player notes on his plot sheet, the ID number of his attacking screen unit and the exact track that he wishes the torpedoes to proceed in by picking one of the letter codes on the Torpedo Track Chart and indicating either the starboard or port arc of fire. At the beginning of the Movement Execution Phase, the Attacking Player takes a Torpedo Marker and places it in the same hex as the attacking screen unit. He then proceeds to execute the movement of this Torpedo Marker just as though it were a ship unit following the exact track he has plotted. The torpedo has a Movement Allowance of two, three or five Movement Points (see 8.6) and it expends these Movement Points simultaneously with the first two, three or five Movement Points expended by the ships. That is, torpedoes expend their first Movement Point at the same instant that ships expend their first Movement Point, and so on. If the Torpedo Marker, in the course of movement, enters a hex at the same instant (while expending the same Movement Point) as a ship unit, or if a Torpedo Marker and a ship cross the same hexside (in opposite directions) at the same instant, then the Torpedo Marker is considered to have hit the ship, and attacks the ship at 1:1 or 2:1 on the Combat Results Table (the odds are specified on the firing screen unit's counter). This attack takes place immediately, though any results are delayed until the ship unit completes its Movement Plot.

TORPEDO TRACK CHART



[8.1] MULTIPLE EFFECT

[8.11] The Torpedo Marker really represents a spread of several torpedoes and attacks any and all ship units which it "hits." Thus, if the Marker "hits" a stack of ship units, it would attack each ship unit in turn, each attack being a separate event.

[8.12] Torpedo Markers are not automatically removed as a result of hitting ships.

[8.13] Torpedoes attack Friendly and Enemy ships alike.

[8.2] RESTRICTIONS AND PERSISTENCE

[8.21] A screen unit may make only one torpedo attack per Game-Turn.

[8.22] A screen unit may make a maximum of two torpedo attacks per Scenario (necessitating a scratch paper record).

[8.23] The Torpedo Marker persists until it has completed moving. It is then removed. For example, a torpedo with a Movement Allowance of three would be in existence for the first three Movement Points of the Movement Phase; it then would be removed prior to the execution of the fourth Movement Point.

[8.3] EFFECT OF FACING

[8.31] A screen unit may only launch torpedoes through its starboard (righthand) or port (lefthand) arc of fire, and the fire plot should indicate which arc is being used.

[8.32] If the torpedo hits a ship unit so that the facing of the ship and the torpedo are parallel or directly opposite, then the ship is considered to be combing the torpedo wakes. The dice roll in the resulting torpedo attack is reduced by three.

[8.4] BATTLESHIP SECONDARY BATTERIES

Every battleship unit is considered to have secondary batteries of 4" to 6" guns. The firepower of these guns is not reflected as a separate printed strength on the ship counter. Part of their effect is calculated into the range attenuation effects.

[8.41] A battleship may attack a screen unit within five hexes range at 1:1 on the CRT. This is plotted using an SB notation on the plot.

[8.42] This secondary battery attack is in addition to whatever the battleship attacks using its printed Attack Strength and is the only situation in which a battleship can engage two targets on the same Game-Turn.

[8.5] EFFECT OF DAMAGE ON TORPEDO ATTACK EXECUTION

[8.51] A screen unit which has a 2W damage state may not execute a torpedo attack. A screen unit which has no W damage state or a 1W damage state may execute a torpedo attack.

[8.52] The execution of a torpedo attack takes place during the Movement Phase of the Game-Turn. Any damage acquired on the previous Fire Execution Phase would apply to rule 8.51.

[8.6] TORPEDO RANGE

During the years 1906-20, the range of all torpedoes is 2 hexes; during 1921-40, 3 hexes; during 1941-45, 5 hexes.

[9.0] HOW TO SET UP AND PLAY THE GAME

GENERAL RULE:

A Scenario follows this general outline:

1. An initial Movement Plot and Execution while opposing Task Force Markers sweep through the map area (Campaign Scenarios only).
2. Contact between the Task Forces occurs, followed by placement of the actual ship counters.
3. An extended indefinite number of Game-Turns while the ships move and fight, inflict damage, are wrecked and sunk, etc.
4. Finally, the movements of the opposing ship units cause them to separate to a distance that exceeds the visibility range for three consecutive Game-Turns, at which point the scenario is declared over, all movement and action ceases, the ships are removed from the map area and the winner of the Scenario is determined.

The historical Scenarios all have a set maximum number of Game-Turns which is the longest number of Turns the Scenario can last. They arbitrarily end on the final Turn if not before. The Campaign Scenarios persist indefinitely until the Players, by their movement and actions, bring about a conclusion.

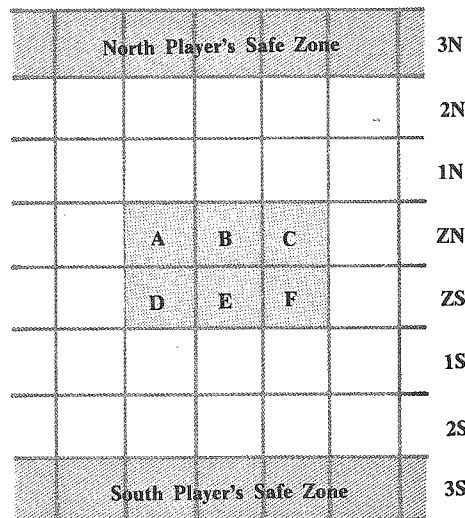
[9.1] THE MAP

There are six map sections labeled A through F. Each section represents an area 16 nautical miles by 17.2 nautical miles. Each section has a compass rose. The map is assembled initially by butting the six sections together in the configuration shown; each section is oriented on the same N-S axis.

[9.11] The ship units will be introduced into the map area either by initial placement or by entering from one of the edges. Play will progress, units will move and probably at some point ships will move to the outer perimeter of the map area and beyond. At this point the perimeter of the map may be shifted by taking a map section which is not in use and rebutting it adjacent to the perimeter. Thus the six map sections are used to form an endless geomorphic map so that ships need never run off the map.

The map sections as they are initially placed define what is known as the initial Map Area. The Players should visualize this initial map area as being in the center of a larger disputed zone as shown in the accompanying diagram.

[9.12] In the Campaign Scenarios, there is an outer boundary beyond which a given Player's force may not proceed, so that a Friendly force could escape an Enemy force by moving in a given compass direction through several butted and rebutted map sections into a safe zone.



[9.13] The initial map area as set up lies halfway between the North and South Players' safe zones. Map sections A, B and C lie on tier Zero North; D, E and F on Zero South. Players must make record each time a map section enters a new tier. The units of the South Player may not enter a map section in tier Three-North; similarly, the units of the North Player may not enter a map section in tier Three-South. The area in which both Players' units may move is called the disputed zone. The disputed zone is considered to extend indefinitely to the east and west.

[9.14] If play flows out of the initial map area in a northerly direction into a rebutted map and proceeds north again into another rebutted map section, this second rebutted map section is the last section that any of the South Player's units can enter and move through. His units never exit a map section in a northerly direction if that section lies so that it is on a tier two sections north of the initial map area. The opposite holds true for the North Player's units when proceeding in a southerly direction and flowing off the initial map area. Thus, the North Player may force a conclusion to the Scenario by moving his units in a northerly direction, flowing off the initial map area and through tiers One-North and Two-North. If the Southern units pursue seeking to maintain visibility, they will eventually reach the northern edge of tier Two-North. Since they may not cross this edge to the north while the North units can, the North units must inevitably be able to open the range past the visibility limit for three consecutive Turns and thus conclude the Scenario.

[9.15] Whenever a Player moves his ships into his safe zone, he is deemed to have committed them to return to some hypothetical port. These ships may never return to the disputed zone. They may continue to be fired at and damaged by Enemy ships (and return fire in turn) so long as they remain in range of Enemy ships who presumably have followed to the limit of the disputed zone. **Whichever Player first moves a ship into his safe zone is by definition the Player who causes the end of the Scenario regardless of when the Scenario actually terminates.** If neither Player moves a ship into his safe zone prior to the conclusion of the Scenario, then neither is considered to have caused the end of the Scenario.

[9.2] INITIAL COMPOSITION AND PLACEMENT OF OPPOSING FORCES

After setting up the map, the Players select a Scenario to play. Then they seat themselves on opposite sides of the map and compose their respective Task Forces and initial movement plots.

[9.21] Composition of Task Forces

Every Scenario will provide each Player with his fleet either by specifically listing the units (the Historical Scenarios), or providing a system for the Player to pick his units from an available pool (the Campaign Scenarios). In either case, the Player will establish one or more Task Forces from his given fleet. A Task Force will be composed of one or more ship units, and the Player will allocate all of the ship units in his fleet to one or more Task Forces as he sees fit (or as the Scenario instructions direct). On a piece of scratch paper, he will diagram the composition of each Task Force and its cruising formation (which is presumed not to change until Enemy units are sighted) including the axis of the formation which will give the relative direction of movement.

Then he will place the actual die-cut ship unit counters to the side of the map.

[9.22] Initial Movement Plot

The Historical Scenarios direct specific initial deployment, facing and speed, so that the opposing fleets must meet and an action ensue. The other Scenarios give each Player freedom to introduce his units onto the map area from his side of the map as he sees fit. One Player must sit on the north side of the map and the other Player on the south side of the map (thereby establishing a North Player and a South Player). The North Player must always introduce his units onto the hexes forming the north edge of map sections A-B-C while the South Player must always introduce his units onto the hexes forming the south edge of map sections D-E-F. Each Player will now plot the movement of each of his Task Forces. This plot will note the Task Force number, speed (Movement Points expended per Game-Turn), and course. Each Player must introduce at least one Task Forces onto the map on Game-Turn One, specifying the hex in which the Task Force enters the map. If he has more than one Task Force, he may stagger the arrival of his Task Forces, specifying what Game-Turns and entry hexes they will arrive on (9.28). In every case, each Task Force must have a course plotted which will take it through every section of the map area and specifically through the lettered hex in the center of each map section, and finally exit the Task Force from the map area on the Player's respective side. (The north Player's Task Force will exit on the north side, etc.)

[9.23] Use of Task Force Markers

In making the initial (pre-contact) movements on the map, each Player will physically display and move only the Task Force Marker representing the appropriate Task Force as composed in rule 9.21.

[9.24] Initial Movement Execution and Initial Game-Turn

Play now commences with Game-Turn One. Each Player brings his Task Force Marker onto the map and moves in accordance with its plot, hex by hex through the map. This movement must take the shortest path between the lettered hexes. Every Scenario will have a minimum visibility range stated (see 11.7) and on each Game-Turn the Players should establish the maximum visibility for

that Game-Turn (see 5.71). Movement will be executed simultaneously Game-Turn by Game-Turn until the opposing Task Force Markers move within sight of one another, that is, move within the visibility range of one another. As soon as that happens movement of the opposing Task Force Markers immediately stops as contact has been achieved.

[9.25] Replacement of Task Force Markers With Ship Units

When contact between task Force Markers has been made, both Players immediately refer to their Task Force composition diagram (9.22). With reference to the axis of advance of their Task Force and the relative bearing of the sighted Enemy Task Force Marker, they establish which units in their Task Force would be closest to the Enemy Task Force Marker. They then proceed to take the actual ship units composing the Task Force and place them on the map according to the Task Force composition diagram, placing the Friendly ship unit(s) closest to the Enemy Task Force Marker in the hex containing the Friendly Task Force Marker, and basing the placement of the remaining Friendly ships on that ship's position. In placing the ships, the Players will face them in the direction that the Task Force Marker was proceeding when contact was established. When all the ships of the opposing Task Forces have been placed, the Task Force Markers are removed from the map.

[9.26] Purpose of Initial Placement

The purpose of the initial placement and movement procedures is to bring the opposing forces into sighting contact in a somewhat random fashion, so that neither Player will know at the beginning of a Scenario exactly where or how he will meet the Enemy force. Thus, the Task Force Marker does not necessarily represent the center units of a Task Force. In almost all cases, it will finally come to represent a ship or ships which are on the fringe of the Task Force formation nearest the nearest Enemy ships (assuming the Task Force is composed of several ships on different hexes).

In every Scenario in which opposing Task Forces are committed there must be contact made. If by chance the Task Forces fail to meet as a result of the circumstances dictated by visibility or vagaries in their initial Movement Plots, then Players compose new Movement Plots (instead of exiting) and continue this process until some contact is made. Thus there is no advantage to a Player in contriving obscure initial plots or an unusually slow speed since he would merely be putting off the inevitable and causing needless delay.

[9.27] Rule of Reason

When contact is made and the Players seek to determine the relative bearing and position of their opposing ships they must be guided by common sense. If the Task Force formation is such that two or more ships in the formation could each be considered to be nearest the Enemy Task Force, then a die can be rolled to establish which unit is considered to be nearest.

[9.28] Multiple Task Forces and Delayed Entry

If a Player has more than one TF he may delay the entry of TF2, TF3, etc., until some later Game-Turn. (TF1 by definition is the first Task Force and must always enter the initial Map Area on Game-Turn One.) These delayed Task Forces must have a Movement Plot written for them specifying an arrival in the initial map area no later than Game-Turn Six. In the interim between

the First Game-Turn and the Turn in which they are scheduled to arrive, they are arbitrarily located on the center hex of an imaginary map section butted against the map section they are plotted to enter. If ships move into this map section from off the initial map area, it is butted down and the delayed TF Marker placed in the center hex (lettered hex). When a delayed Task Force finally enters the map, its Marker is placed on the plotted entry hex. If this placement causes it to appear within the visibility range of some Enemy ship or TF Marker, then an unused map section is immediately butted against the map section that the delayed TF is entering into; the delayed TF Marker is retroactively moved back to the limit of visibility and the Owning Player proceeds to replace the TF Marker with actual ships composing the Task Force as in (9.25). A Player may never alter the plot of a delayed Task Force with reference to its entry onto the initial map area. Once a Task Force has entered the initial map area it must execute its initial Movement Plot until it achieves visibility contact with an Enemy ship or TF Marker. When a delayed TF enters the map and earlier opposing Task Forces have achieved contact, then the Player is free to write a new plot Turn by Turn for the delayed Task Force. He may not change the cruising formation as set out in (9.21).

[9.3] PLAY AFTER CONTACT AND SHIP PLACEMENT

Once contact has been made and the actual ship units placed on the map, play immediately begins with full rigor. Each Player now knows the location of opposing units, and he may now move and fight as he sees fit in accordance with the rules as outlined in sections 4.0 through 8.0.

[9.31] Once contact is made the Player is no longer bound by the initial Task Force Movement Plot (except for delayed Task Forces, 9.28, with regard to the hex and Turn of entry).

[9.32] The instant of contact marks the end of the Game-Turn in which it occurs, even if the Task Force Markers concerned have not completed their full movement. Once the ship units are deployed a new Game-Turn begins with the Fire Plot Phase (visibility carries over for one Turn).

[9.33] For purposes of rule 6.4, ships are considered to have an initial speed equal to the speed of the Task Force on the Turn in which contact is achieved.

[9.4] CONCLUDING A SCENARIO

[9.41] No Player is ever required to cause an end to a Scenario. Players can maneuver within the boundary limits of the hypothetical ocean area indefinitely pounding away at each other until one side or both sides are totally wrecked or destroyed. However, it is assumed that a Player will be guided by rational objectives and that he will persist in maintaining an action only as long as it is to his possible benefit in terms of Victory Conditions; that is, if he perceives that a continued battle is to his disadvantage, he will maneuver to break off visibility contact.

[9.42] While running for his safe zone (see 9.12) is the only sure means by which a Player can eventually assure himself of breaking off contact and thus ending a Scenario, the vagaries of simultaneous movement plus the varying visibility Turn by Turn may combine to cause three consecutive Turns with no sighting between opposing forces and thus end a Scenario. So long as at least one Friendly unit lies within visibility

range of at least one Enemy unit, contact is not broken and all units remain on the map even though they may not fire at one another. Each Player may plot and move with full knowledge of the Enemy forces positions even though it is presumed that the actual units themselves are not within visibility range of one another. Even after contact is broken the units remain on the map for another two Turns with the Players able to maneuver to reestablish contact (if they so desire). The Scenario is concluded and the units removed from the map only after three consecutive Turns with no sighting.

[9.43] A Scenario may be concluded by mutual agreement of the Players at any time. Most Scenarios will end by this mechanism when it becomes obvious that one Player or the other has succeeded in breaking contact and is obviously going to maintain the break, or if mutual exhaustion sets in with both sides so badly damaged that neither can inflict further injury on the other.

[9.5] VICTORY DETERMINATION AND THE VALUE OF SHIPS

Victory in any one Scenario or in a Campaign Game is determined by Victory Points. A Player is awarded Victory Points for damaging or sinking Enemy ships and then additional Points for winning a Scenario. In some Historical Scenarios specific Victory Conditions are mentioned regarding specific objectives. In the Campaign Scenarios there are gradations of victory that a Player can win ranging from a Marginal to a Decisive Victory.

[9.51] Every ship unit has a value in Victory Points. This value is defined for each ship as the numerical total of its Attack Strength, Defense Strength and Movement Allowance. Thus the HMS Iron Duke has a Victory Point Value of 29 Victory Points (18+6+5).

[9.52] Whenever a Friendly ship reduces damage by one step the Enemy Player is awarded one Victory Point. (Players should review section 5.4). If at the end of a Scenario, a Friendly ship is in a damaged state and this ship has exceeded its numerical Damage Control limit (see 5.44) or if it is wrecked (2S, 2G) then the Enemy Player receives Victory Points according to the following schedule:

- 1 Damage State = 20% Ship Value
- 2 Damage States = 40% Ship Value
- 3 Damage States = 60% Ship Value
- 4 Damage States (2G, 2S) = 80% Ship Value

When a Friendly ship sinks, the Enemy Player receives 100% of the ship's value.

In computing partial Ship Value award, fractional Points are dropped.

[9.53] When a Scenario ends, each Player is assumed to have an indefinite time to remove damage states from ships which have not exceeded their Damage Control limit, awarding the Enemy Player one Victory Point for each damage state so removed. For example: The Scenario ends with the Iron Duke in a 1G damage state. In prior play during the Scenario, it had removed two damage states. Since its Defense Strength is six, it can remove up to six damage states before exceeding its limit. Thus it automatically removes the final 1G state and the Enemy Player would gain a total of three Victory Points for the damage inflicted on the Iron Duke. Assume, however, that the Iron Duke was suffering a 1G, 2S at the end of the Scenario and that it had already removed four prior damage states. It now could remove only two

of the three damage states it was suffering and would suffer a permanent damage of 1 damage state. Thus, the Enemy Player would receive 11 Victory Points from the Iron Duke — 6 Points for the six damage steps removed and (5.8 rounded down) 5 Points for the 1 damage state remaining (20% of 29 Points).

[9.54] A Player can never receive more than 100% of ship value from an Enemy ship. Assume that a Player during play receives several Victory Points for damage incurred and then removed from a certain Enemy ship and then he causes the ship to sink. He would only receive 100% of that ship's value.

[9.55] In the Campaign Scenarios, a Player wins a Marginal Victory if he scores more Victory Points than his opponent. A Player wins a Substantial Victory if his Victory Point total is at least twice that of his opponent. A Player wins a Decisive Victory if his Victory Point total is at least twice that of his opponent and if he sinks or wrecks (2G,2S) all of his opponents ships, or if his opponent causes the termination of the Scenario. The winning Player is awarded bonus Victory Points as follows:

Marginal Victory: 10 Points
Substantial Victory: 20 Points
Decisive Victory: 30 Points

[10.0] HISTORICAL SCENARIOS

GENERAL RULE:

Each Historical Scenario gives each Player an exact Order of Battle and exact deployment on the map area, including facing and initial speed. The visibility base is given. A finite time limit in Game-Turns is given and exact Victory Conditions are stated. Each Scenario is a game in itself.

The map must be set up exactly as outlined in rule 9.1, every ship unit will then be deployed according to a hex number and map section letter. These Scenarios force a battle beginning with Game-Turn One, in that the opposing forces are placed close enough together that sighting between at least some opposing units is guaranteed.

[10.1] DOGGER BANK, 24 January 1915

ORDERS OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|------------------------------------|------------------|
| Lion (211), Tiger (221), | |
| Prin Royal (212) | B0207/SE/6 |
| N Zealand (203), Indomitable (193) | B0206/SE/6 |
| (L11) | B0211/SE/6 |
| (D11) | B0212/SE/6 |
| (D12), (D13), (D14), (D15), (D16) | Map A/SE/6 |
| German Player: | |
| Blucher (651), Derfflinger (711), | |
| Moltke (671), Seydlitz (681) | B1108/SE/6 |
| (L51) | B1110/SE/6 |
| (D51) | B1111/SE/6 |
| (D52) | B1210/SE/6 |
| (D53) | B1105/SE/6 |

GAME LENGTH

12 Game-Turns

BASE VISIBILITY

Nine hexes

VICTORY CONDITIONS

British must sink or wreck one of the four named German ships and score more Victory Points than the Germans or they lose.

[10.2] DENMARK STRAIT, 24 May 1941

ORDER OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|------------------------------|------------------|
| Hood (281), P of Wales (173) | C1912/NW/6 |
| (C21) | C2005/SW/6 |
| German Player: | |
| Bismark (741) | C0907/SW/6 |
| (C61) | C0908/SW/6 |

GAME LENGTH

20 Game-Turns

BASE VISIBILITY

Ten hexes

VICTORY CONDITIONS

British must sink or wreck the Bismark. The German Player must preserve the Bismark and break sighting contact by the end of the Scenario. If neither Player wins, it is a draw.

[10.3] NORTH CAPE, 26 December 1943

ORDER OF BATTLE AND DEPLOYMENT

| German Player: | hex/facing/speed |
|------------------------|------------------|
| Schnhorst (732) | D1108/SE/5 |
| British Player: | |
| D of York (172) | B0611/SE/5 |
| (C21) | B0612/SE/5 |
| (C22) | B0504/SE/5 |
| (C23) | B0504/SE/5 |
| (D31) | B0715/SE/5 |

GAME LENGTH

20 Game-Turns

BASE VISIBILITY

Six hexes

VICTORY CONDITIONS

British must sink or wreck Scharnhorst.

[10.4] SINGORA, 10 December 1941 [Hypothetical]

ORDER OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|---------------------------------|------------------|
| P of Wales (173), Repulse (252) | B1116/SW/7 |
| (D31) | B1315/SW/7 |
| Japanese Player: | |
| Kongo (861), Haruna (882) | B1108/SW/7 |
| (C71) | B0806/SW/7 |
| (D81) | B1307/SW/7 |
| (D82) | B0809/SW/7 |

GAME LENGTH

15 Game-Turns

VISIBILITY BASE

Nine hexes

VICTORY CONDITIONS

British win a Decisive Victory if they exit both battleships into tier One North (see 9.12) by Game-Turn Seven. Otherwise, victory is decided on Damage Points incurred.

[10.5] SURIGAO STRAIT, 25 October 1944

ORDER OF BATTLE AND DEPLOYMENT

| U.S. Player: | hex/facing/speed |
|------------------------------------|------------------|
| W Virginia (443), Tennessee (421) | B1108/SE/5 |
| California (422), Pnsylvania (381) | B1207/SE/5 |
| Mississippi (403), Maryland (442) | B1008/SE/5 |
| (C31) | B0709/SE/5 |
| (C32) | B1309/SE/5 |
| (L31) | B1409/SE/5 |
| (D41) | B0816/S/7 |
| (D42) | B0813/S/7 |
| (D43) | B1414/S/7 |
| (D44) | B1415/S/7 |

Japanese Player:

| | |
|-----------------------------|-----------|
| Fuso (791), Yamashiro (792) | E1101/N/5 |
| (C61) | E1102/N/5 |
| (D81) | B1116/N/5 |
| (C71) | E1116/N/5 |
| (D82) | E1015/N/5 |
| (D83) | E1215/N/5 |

GAME LENGTH

10 Game-Turns

VISIBILITY BASE

Seven hexes

SPECIAL RULES

1. Play is confined to map sections B and E only.

VICTORY CONDITIONS

Japanese receive full ship value in Victory Points for every ship they exit off the north edge of section B regardless of damage condition. Victory is based on damage accrued Victory Points, plus whatever Points the Japanese achieve by exiting ships.

[10.6] GUAM, 1935 [Hypothetical]

ORDER OF BATTLE AND DEPLOYMENT

| U.S. Player: | hex/facing/speed |
|------------------------------------|------------------|
| Tennessee (411), California (412), | |
| Colorado (431), Maryland (432) | B1108/S/5 |
| W Virginia (433), Oklahoma (351), | |
| Arizona (372), Nevada (352) | B1107/S/5 |
| (C21) | B1113/S/5 |
| (C22) | B1212/S/5 |
| (C23) | B1012/S/5 |
| (C21) | B0711/S/5 |
| (C22) | B1511/S/5 |
| (D31) | B0710/S/5 |
| (D32) | B0709/S/5 |
| (D33) | B1510/S/5 |
| (D21) | B1509/S/5 |

Japanese Player:

| | |
|------------------------------|-----------|
| Fuso (791), Yamashiro (792), | |
| Kongo (861), Haruna (882) | E1112/N/5 |
| Ise (801), Hyuga (802), | |
| Nagato (832), Mutsu (821) | E1113/N/5 |
| (C61) | E0908/N/5 |
| (C62) | E1308/N/5 |
| (L61) | E0708/N/5 |
| (L62) | E1508/N/5 |
| (D81) | E0909/N/5 |
| (D82) | E1309/N/5 |
| (D83) | E0709/N/5 |
| (D84) | E1509/N/5 |
| (D71) | E1108/N/5 |
| (D72) | E1109/N/5 |

GAME LENGTH

10 Game-Turns

BASE VISIBILITY

Ten hexes

VICTORY CONDITIONS

Victory is determined strictly by Damage Point count.

[10.7] JUTLAND, 31 May 1916

ORDER OF BATTLE AND DEPLOYMENT

British Player: hex/facing/speed

| | |
|---|------------|
| K. George (071), Ajax (073), Centurion (072), Erin (101) | C0713/SE/5 |
| Orion (061), Monarch (063), Conqueror (064), Thunderer (062) | C0612/SE/5 |
| Iron Duke (081), Superb (023), Royal Oak (142), Canada (102) | C0512/SE/5 |
| Bellerophon (022), Benbow (082), Temeraire (021), Vanguard (033) | C0411/SE/5 |
| Colossus (051), Collingwd (032), Neptune (041), S Vincent (031) | C0311/SE/5 |
| Marlbrough (084), Revenge (144), Agincourt (091), Hercules (052) | C0210/SE/5 |
| Barham (115), Valiant (112) Malaya (113) | C0111/NE/5 |
| Warspite [2S] (114) | E1802/NW/0 |
| Prin Royal (212), Tiger (221), N Zealand (203), Lion (211) | C1014/SE/5 |
| Invincible (191), Inflexible (192), Indomitable (193) | C0914/SE/5 |
| (C11) | E1803/S/5 |
| (C12) | C0611/SW/5 |
| (L21) | C0310/SW/5 |
| (L22) | C0410/SW/5 |
| (L11) | C0412/SW/5 |
| (L12) | C1215/SW/5 |
| (D11) | C1015/SW/5 |
| (D12) | C1115/SW/5 |
| (D13) | C0312/SW/5 |
| (D14) | C0913/SW/5 |
| (D15) | C0712/SW/5 |
| (D16) | C0310/SW/5 |

German Player:

| | |
|--|------------|
| Lutzow [1G] (712), Derfflinger (711), Seydlitz (681) | F0402/SE/5 |
| Moltke (671), vndrTann [2G] (661) | F0302/SE/5 |
| Konig (631), Gr Kurfst (633), Markgraf (632), Kr Wilhelm (634) | F0202/NE/5 |
| Kaiser (621), Frdrich Gr (622), Pr Luitpld (624), Kaiserin (623) | F0103/NE/5 |
| Ostfriesld (613), Helgoland (612), Thuringen (611), Oldenburg (614) | E2003/NE/5 |
| Posen (603), Rheinland (604), Nassau (602), Westfalen (601) | E1904/NE/5 |
| Deutschld (691), Pommern (693), Schliesen (694) | E1804/NE/4 |
| Hannover (692), S Holstein (695), Hesse (701) | E1705/NE/4 |
| (D51) | F0201/NE/4 |
| (D52) | F0305/S/6 |
| (D53) | F0405/S/6 |
| (D54) | F0212/N/6 |
| (D55) | F0213/N/6 |
| (L51) | F0611/N/5 |
| (L52) | F0612/N/5 |
| (L53) | E1605/NE/5 |
| (L54) | E1506/NE/5 |

GAME LENGTH

12 Game-Turns

BASE VISIBILITY

Seven hexes

SPECIAL RULE

1. British battleships may not make 180° radical turns.

VICTORY CONDITIONS

Victory is determined by Point count. German Player already has 49 Victory Points for sinking two British BC's. Note that three ships begin the Scenario with damage.

[11.0] THE CAMPAIGN GAME

GENERAL RULE:

The Campaign Scenarios are four hypothetical situations which together comprise the Campaign Game. These situations are contrived by the Players according to the following procedure: First, the Players will decide upon a time period: WWI, Interwar, WWII; then they will decide between themselves which national navy they will direct, picking from the listing given in 11.1. They will select the appropriate units given by the listing as their fleet. They will decide between themselves who is to be the North Player and who is to be the South Player. They will then secretly subdivide their fleet and assign a different group of ships to each of the four Scenarios listed in 11.2, 11.3, 11.4 and 11.5. With the forces then assigned, each Scenario will be played to a conclusion, the Victory Points awarded for each Scenario will be totalled and a Campaign Game winner established. No ship may participate in more than one Scenario in any one Campaign Game. For example, if a ship is assigned to participate in Scenario A, it may not participate in Scenario B, C or D, but must participate in Scenario A. An assigned force may be sub-divided into component Task Forces.

[11.1] NATIONAL FLEET LISTING

The following listing is broken down by country and time period. Dreadnoughts are listed by class-code; thus 420 identifies the Tennessee (421) and the California (422). The minor naval powers are only listed as of World War I. Players use these listings as the basis for choosing their respective forces. Players must confine their selections to a single time period for any given Campaign Game.

[11.11] WORLD WAR I

SCREENING FORCES

| ALPHA | | | | BRAVO | | | |
|-----------|-----|-----|-----|-----------|-----|-----|-----|
| Quantity: | | | | Quantity: | | | |
| Class | Br. | US | Fr. | Class | Ge. | Ja. | Sp. |
| C10 | 4 | 4 | 3 | C50 | 2 | 2 | 1 |
| L10 | 2 | 2 | 2 | L50 | 4 | 2 | 1 |
| L20 | 3 | 0 | 0 | L60 | 0 | 0 | 0 |
| D10 | 8 | 6 | 3 | D50 | 6 | 3 | 1 |
| D20 | 3 | 0 | 0 | D60 | 2 | 0 | 0 |
| Class | Au. | Ru. | Bz. | Class | It. | Ar. | |
| C10 | 1 | 1* | 0 | C50 | 2 | 1 | |
| L10 | 1 | 0 | 2 | L50 | 2 | 1 | |
| D10 | 0 | 4 | 0 | D50 | 1 | 1 | |

*Baltic Sea only

DREADNOUGHT CLASSES

Great Britain:

010, 020, 030, 040, 050, 060, 070, 080, 090, 100, 110, 140, 190, 200, 210, 220, 230, 260.

United States:

300, 310, 320, 330, 340, 350, 370, 390.

France:

500, 510.

Austria-Hungary:

550.

Russia; Baltic Sea:

580.

Russia; Black Sea:

590.

Brazil:

560.

Germany:

600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710.

Japan:

750, 760, 770, 780, 850, 870.

Spain:

950.

Italy:

900, 910.

Argentina:

960.

[11.12] INTER-WAR

SCREENING FORCES

| ALPHA | | | | BRAVO | | | |
|-----------|-----|----|-----|-----------|-----|-----|-----|
| Quantity: | | | | Quantity: | | | |
| Class | Br. | US | Fr. | Class | Ge. | Ja. | It. |
| C20 | 3 | 2 | 1 | C60 | 0 | 2 | 1 |
| C30 | 1 | 1 | 0 | C70 | 0 | 1 | 1 |
| L10 | 0 | 0 | 1 | L50 | 0 | 0 | 0 |
| L20 | 3 | 3 | 1 | L60 | 2 | 3 | 1 |
| L30 | 1 | 1 | 0 | L70 | 0 | 0 | 2 |
| D10 | 1 | 3 | 0 | D50 | 0 | 1 | 1 |
| D20 | 3 | 2 | 3 | D60 | 3 | 4 | 3 |
| D30 | 4 | 1 | 0 | D70 | 0 | 3 | 0 |
| D40 | 0 | 0 | 0 | D80 | 0 | 1 | 0 |

DREADNOUGHT CLASSES

Great Britain:

120, 150, 160, 240, 270.

United States:

330, 340, 360, 380, 400, 410, 430.

France:

520, 530.

Germany:

720, 730.

Japan:

790, 800, 820, 860, 880.

Italy:

920.

[11.13] WORLD WAR II

SCREENING FORCES

| ALPHA | | | | BRAVO | | | |
|-----------|-----|----|-----|-----------|-----|-----|-----|
| Quantity: | | | | Quantity: | | | |
| Class | Br. | US | Fr. | Class | Ge. | Ja. | It. |
| C20 | 4 | 4 | 1 | C60 | 0 | 2 | 1 |
| C30 | 4 | 4 | 2 | C70 | 2 | 4 | 2 |
| L20 | 3 | 3 | 1 | L60 | 0 | 3 | 3 |
| L30 | 3 | 3 | 1 | L70 | 3 | 1 | 1 |
| D20 | 3 | 3 | 2 | D60 | 4 | 4 | 4 |
| D30 | 3 | 3 | 4 | D70 | 4 | 4 | 4 |
| D40 | 4 | 4 | 0 | D80 | 0 | 4 | 0 |

DREADNOUGHT CLASSES

Great Britain:

130, 150, 160, 170, 180, 250, 280.

United States:

420, 440, 450, 460, 470, 480.

France:

520, 530, 540.

Germany:

720, 730, 740.

Japan:

790, 810, 830, 860, 880.

Italy:

920, 930.

[11.2] CAMPAIGN SCENARIO "A"

The Sea Sweep

This Scenario supposes that the North and South assigned forces meet by chance while each is on patrol or "sweep." The objective of each force is simply to sink or damage the Enemy and win the Scenario as outlined in section 9.5.

[11.3] CAMPAIGN SCENARIO "B"

The Shore Raid

This Scenario supposes that the North assigned forces are attempting to intercept and stop the South assigned forces from carrying out a bombardment of some hypothetical shore. The South assigned forces will attempt to defeat the North assigned forces while preserving enough capital-ship firepower to make a worthwhile bombardment. Victory Points will be awarded to the North Player solely on the bases of rule 9.5. Victory Points will be awarded to the South Player on the basis of rule 9.5, and, in addition, if the South Player wins the Scenario with at least a Substantial Victory (see 9.55) and he has not caused the conclusion of the Scenario by retreating to his "safe" zone (9.1), he receives additional Victory Points equivalent to the total Attack Strength Points of any of his capital ships which never fired during the course of the Scenario. These Points are Bombardment Bonus Points.

In order to receive the Bombardment Bonus Points, the South Player must win the Scenario with a Substantial Victory, or he must sink or wreck all the North Player's ships (in case the North contests the Scenario with a weak force), or he must force the North Player to concede the Bombardment Bonus Points. The North Player concedes the Bombardment Bonus Points if he moves a ship off the initial Map Area before the South Player does. (This is to prevent the North Player from running away indefinitely, while staying in sight but possibly not in range, and thereby preventing any conclusion to the scenario.) If the North Player does move a ship off the initial Map Area first, then the South Player automatically has the right to his Bombardment Bonus Points, regardless of which Player eventually wins the Scenario.

[11.4] CAMPAIGN "C"

The Convoy

This Scenario supposes that the North assigned forces are attempting to defeat the South assigned forces and then intercept a hypothetical convoy belonging to the South Player. In composing this Scenario, the South Player secretly assigns a Victory Point value (called the Interception Bonus) to this hypothetical convoy, which must range between 25 and 100 Victory Points, noting the

value on a piece of scratch paper and setting it aside until the Scenario's conclusion. Victory Points are awarded to both Players on the basis of section 9.5. In addition, the North Player receives Victory Points equivalent to the total Attack Strength of his undamaged ships, up to the Interception Bonus of the hypothetical convoy (the scratch paper is now revealed) so long as the North Player did not cause the conclusion of the Scenario by fleeing to his safe zone (9.1). Which North Player ships are undamaged is calculated after the final damage recovery outlined in section 9.53. The South Player receives additional Victory Points on the balance of the Interception Bonus; that is, whatever balance is left over after the undamaged Northern Attack Strengths are subtracted from the initial Interception Bonus. The North Player may not move a ship off the initial Map Area without penalty until the South Player does so. If he does, he loses any right to Interception Bonus Points.

[11.5] CAMPAIGN SCENARIO "D"

The Sea Sweep

This Scenario is identical to Campaign Scenario "A."

[11.6] SCENARIO ORDER AND SHIP ASSIGNMENT

The Scenarios must be played in order: A, B, C and then D. In assigning forces initially to each Scenario, the Players are not required to assign any given ship unit to any given Scenario. Nor are they required to assign any ship units at all to a given Scenario. A Player may decide not to contest a given Scenario, but if he does not contest, his opponent is assumed to win a Substantial Victory, garnering thereby the twenty Victory Points allowed in rule 9.55, plus whatever additional Victory Points he would receive for accomplishing his objective. For example, the South Player assigns three capital ships to Scenario "B." The North Player does not assign any ships, thereby conceding the Scenario. The South Player would receive twenty Points for a Substantial Victory in the Scenario, plus the total Attack Strength of his three capital ships (Bombardment Bonus).

[11.7] ESTABLISHING THE CAMPAIGN SCENARIO BASE VISIBILITY

At the beginning of every Scenario the dice are to be rolled. Whatever number is rolled is defined as the Base Visibility for that Scenario. Thus, any given Scenario will have a Base Visibility set somewhere between two and twelve hexes. This number will be constant for the entire Scenario and will be the number from which the Turn by Turn visibility is derived (see 5.7).

[11.8] PLAY BALANCE AND VICTORY CONDITIONS

It should be obvious that if, for example, one Player picks the Royal Navy (WWI) while the other chooses Italy (WWI) as their respective navies, the Italian Player will have little chance of winning the Campaign Game. Thus, those Players interested in playing an evenly balanced game should decree a fleet value limit within which each Player would be allowed to create his own fleet for purposes of playing a Campaign Game. Rule 9.51 establishes the value of each ship in Victory Points. Under the fleet value limit concept, the Player would be allowed to choose any ships from his national listing, so long as the total value did not exceed the fleet value limit. It is suggested that the following limits be observed: WWI 200 Points, INTERWAR 300 Points, WWII 400 Points. This is

purely a suggestion. The way in which the Players compose their fleets is limited only by the counter mix and their imagination.

[11.9] SAMPLE CAMPAIGN GAME

The Players decide to play a France versus Italy WWI Campaign Game. A coin flip establishes Player 1 as the French Player. Player 2 (Italy) then chooses to become the South Player. Both Players then sort out their forces. The initial map area is assembled. Then each Player proceeds to assign his ships to the respective Scenarios. For each Scenario he composes a Task Force composition chart and an initial Movement Plot, as shown.

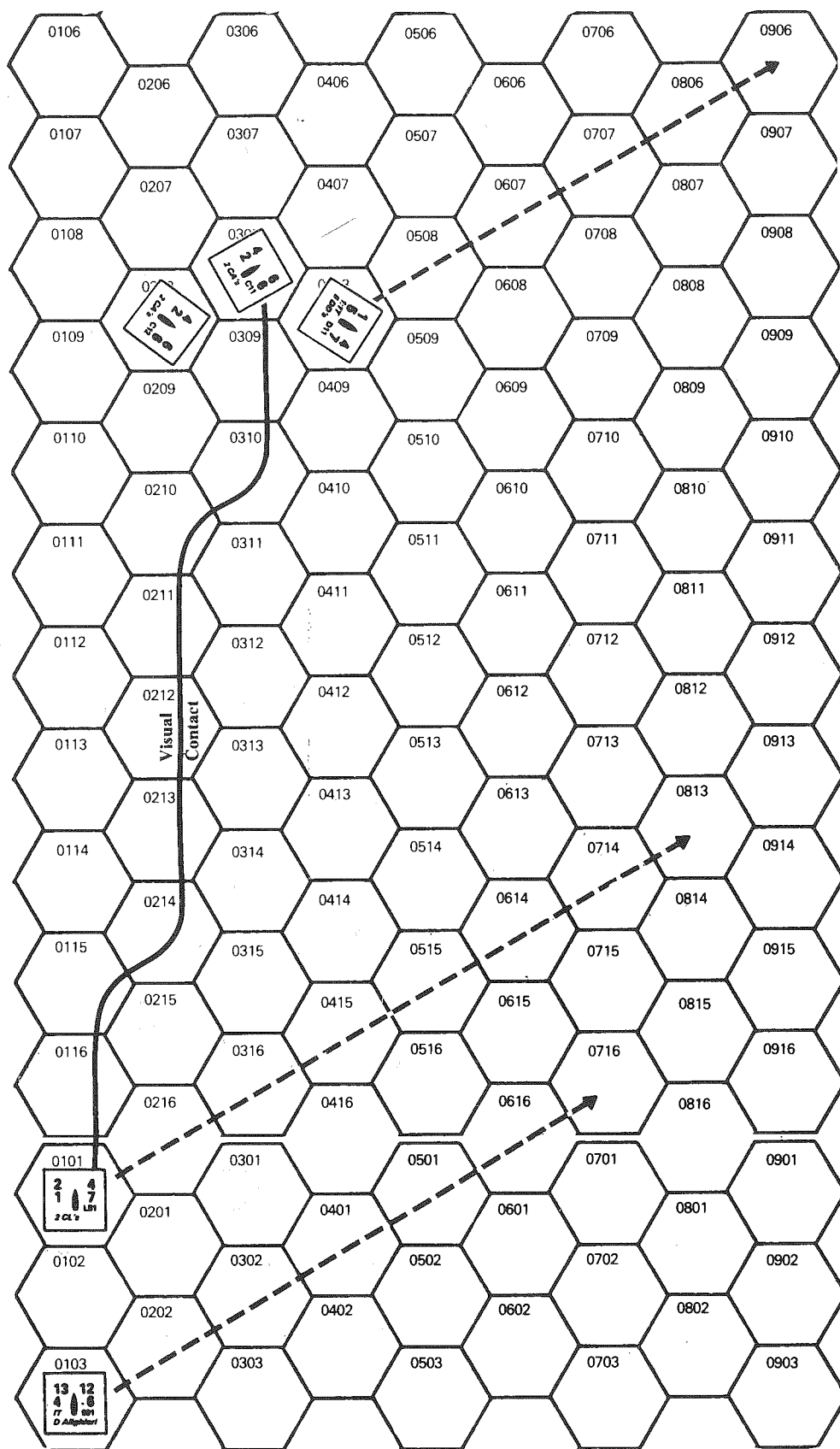
TASK FORCE COMPOSITION CHART & INITIAL MOVEMENT PLOT

| 4 FRENCH-NORTH-PLAYER | | | |
|-----------------------|------------------|-------------|--------|
| B. | 1. | 2. | 3. |
| C. | 1 SCENARIO: | | 3. |
| D. A | 1. B | 2. C | 3. D |
| E. D11 | 1. L11 | 2. L12 | 3. C13 |
| F. C11 | 1. — | 2. — | 3. |
| G. C12 | 1. 512, 513, 501 | 2. — | 3. |
| H. | 1. — | 2. 502, 503 | 3. |
| J. | 1. D12 | 2. 504, 511 | 3. |
| K. | 1. | 2. D13 | 3. |
| L. | 1. | 2. | 3. |
| M. B1101 | 1. ENTER " | 2. " | 3. " |
| N. B-C-F-E-D-A | 1. MOVE " | 2. " | 3. " |
| P. 4MP | 1. SPEED " | 2. " | 3. " |
| Q. A1101 | 1. EXIT " | 2. " | 3. " |

| 4 ITALIAN-SOUTH-PLAYER | | | |
|------------------------|-------------|------------------|--------|
| B. | 1. | 2. | 3. |
| C. | 1 SCENARIO: | | 3. |
| D. A | 1. B | 2. C | 3. D |
| E. L51 | 1. none | 2. L52 | 3. C51 |
| F. — | 1. | 2. D51 | 3. C52 |
| G. 901 | 1. | 2. — | 3. |
| H. | 1. | 2. 911, 912, 915 | 3. |
| J. | 1. | 2. 913, 914 | 3. |
| K. | 1. | 2. | 3. |
| L. | 1. | 2. | 3. |
| M. F1116 | 1. ENTER | 2. " | 3. " |
| N. B-A-D-E-C-F | 1. MOVE | 2. " | 3. " |
| P. 4MP | 1. SPEED | 2. " | 3. " |
| Q. F1116 | 1. EXIT | 2. " | 3. " |

Note: Ships in Task Forces may be in any formation, with any number of columns.

The Players are now ready to begin Scenario A. The dice are rolled with a six giving the visibility base. Play begins, the TF Markers are entered onto the map and movement is executed Turn by Turn.



At the end of Game-Turn Five it becomes apparent that TF Markers are close enough together so that a possibility of sighting exists. (The Italian TF Marker is in F0102, the French TF Marker is in C0308.) The visibility die roll is a four, which, added to the base of six, gives a visibility range of ten on Game-Turn Six. On the first Movement point of Game-Turn Six, the TF

Markers move within ten hexes of one another. **Contact** occurs. Both Players proceed to display their ships. The French Player places his D11 in hex C0408, C11 in hex C0308 and C12 in hex C0208. The Italian Player places his C51 in hex F0101 and D Alighieri in hex F0103. The Turn is declared over; the following Turn (Game-Turn Seven) begins immediately. The Italian L51 and

the French forces can see one another, but do not possess the range to fire at each other. The D. Alighieri, which possesses the range to fire, cannot see the French ships and thus cannot fire. Both Players write their Movement Plots. The French Player plots a SNEl (speed five, course NE, line abreast formation). The Italian Player, anticipating this maneuver, plots the D. Alighieri to move NE also at speed six. The Turn ends with the D. Alighieri having closed the range to eleven hexes. The following Turn visibility increases to eleven; D. Alighieri begins firing. No result. Both Players maintain the same course and speed. Pursuit continues for three more Turns, with the D. Alighieri finally scoring a hit (1S,1G) on the French C12. Then on the Twelfth Turn, the Italian, leery of closing the range to six and thus affording the French a shot at the D. Alighieri, turns SE, speed four. The French continue their retreat NE, opening the range. At this point, both Players agree to end the Scenario retiring their ship units. The final score is: French, 0 Victory Points; Italian, 22 Victory Points (2 Points for the two damage states inflicted on the French C12, plus 20 bonus Points for achieving a Substantial Victory).

Players then move to Scenario B. The Italian announces that he is not contesting the Scenario and the French win an automatic 20 Point victory. Moving to Scenario C, the Players become engaged in what is obviously the main battle of the Campaign Game. The French Player, reasoning that if the Italian Player has thrown the bulk of his battlefleet into protecting the convoy, it must be because he has given it a high Point value, decides to fight even though he is outnumbered and outgunned. The Italian, realizing that the French Player will not leave the initial Map Area, scents blood. He closes the range, and several Turns of battering take place. The French Player gets the better of this exchange, wrecking the L. DaVinci and scattering some five hits among the other Italian battleships, while taking some six hits on the J. Bart and three hits scattered among his other ships. The Italian decides to stop pressing the French fleet for fear of further bad luck. The French Player takes the opportunity to open the range for three Turns while still carefully remaining on the initial Map Area. The Scenario ends. The final accounting is: French, 72 Victory Points; Italian, 74 Points. That breaks down as follows: The French receive five Points for the damage states removed from the Italian ships, 18 Points for wrecking the L. DaVinci (80% of 26) which occurred as cumulative damage without the L. DaVinci being able to remove any hits, 10 Points for winning a Marginal Victory and 39 Points as the Interception Bonus (the J. Bart being damaged and not counting toward interception). The Italian receives five Points for damage which had been removed from the J. Bart, five Points for the 20% permanent damage which couldn't be removed, three Points for the damage removed from the other French ships (total of 13), thereby losing the Scenario marginally to the French, and finally 61 Points which was the convoy balance (100 minus the 39 awarded to the French).

Play then moves to Scenario D. The French Player, knowing he is slightly behind in the overall standings, tries a desperate move, closing the range with his one CA against the two Italian CA's. The gamble almost succeeds; he manages to wreck one of the Italian CA's, but his own CA becomes wrecked in the process. The French Player

concedes the Italian a Marginal Victory, reasoning that at some point in the future, the undamaged Italian CA will roll the proper combination of numbers to produce a sinking. Scenario score: French 9 (80% of the wrecked Italian CA); Italian, 22 (12 for the sunk French CA, plus 10 for a Marginal Victory). Final Campaign Score: French, 101; Italian 118.

[12.0] OPTIONAL RULES

[12.1] SMOKE

[12.11] A smoke screen may be created by any DD unit during the course of movement. The word "smoke" must be written next to the unit's Movement Plot. Then, during the Movement Execution Phase, the Player places any game marker upside down in each hex that the unit vacates during its movement. The upside down marker serves as a Smoke Marker and, in effect, the unit leaves a trail of Smoke Markers in its path as it moves. These Smoke Markers remain on the map until the beginning of the next Movement Phase in the following Game-Turn when they are removed. While they are on the map, they affect the ability of ships to fire.

[12.12] If the line of fire between two ships (defined as the line from the center of the hex containing

the firing ship to the center of the hex containing the target ship) intersects a hex containing a Smoke Marker, then no fire or torpedo attack between the two ships is permitted.

[12.13] A Smoke Marker only prohibits fire if it lies outside of and between the firing and target ships' hexes. It does not block fire if it lies in the same hex with either the target ship or the firing ship.

[12.14] A DD unit may make smoke on every Game-Turn. There is no limit to the number of times it can do so.

[12.15] Smoke has no effect on visibility as it applies to rule (9.4). A Player may not use smoke to break contact between opposing forces.

[12.2] RADAR AND SPOTTING PLANES

[12.21] U.S. and British ship units in action in any post-1942 Scenario are presumed to have effective Fire Control Radar which allows them to ignore the visibility restrictions (including smoke), and fire at their maximum range. If they do so in excess of the visibility range, then their Damage Point dice roll is reduced by two in addition to any other adjustments. If they are firing within the visibility range, then radar has no effect.

[12.22] All capital ships and CA screen units in use in a post-1930 Scenario are presumed to have spotting planes, which they have launched to help adjust their long range fire. This permits the ships

to fire in excess of their normal visibility restrictions to the limit of their range, except at night or through smoke. The Damage Point dice roll is reduced by three when using this rule.

[12.3] CREEP

Under the Creep Rule, any ship which has a 2S damage status, but has less than 2G damage is permitted to move one Movement Point per Game-Turn. Ships with 2G,2S damage may not use creep. They must remain motionless.

[12.4] TOWING

[12.41] Any capital ship may be towed by any capital ship or cruiser unit. In order to tow, the towing ship must stack with the towed ship and remain motionless with this ship for two Game-Turns. On the third Game-Turn following, the towing ship may begin to move a maximum of two Movement Points per Game-Turn, taking the towed ship with it. A tow may be broken instantaneously at any Game-Turn following.

[12.42] Screen units may not be towed, though a CA or CL screen unit may act as a towing unit.

[12.43] Presumably a Player will use the tow rule to implement recovery of his wrecked units. Friendly units may not tow Enemy units.

[12.5] SUN POSITION

[12.51] A rising or setting sun can serve to silhouette some ships while concealing others.

This is a list of all Dreadnoughts, with their full, unabbreviated name. The first two digits of the Identification Number for each ship identify the class to which that ship belongs. The class name is shown in **bold**. Refits of a class receive a separate class number. The third digit, which identifies the individual ship within a class, remains unchanged if a class is refit. Thus, ships numbered 151, 152, 153, 154 and 155 all belong to the Royal Sovereign Class as refit; the Ramilles as originally launched is nr. 143, and as refit is nr. 153.

BRITAIN

011 Dreadnought
020 Bellerophon Class
021 Temeraire
022 Bellerophon
023 Superb
030 St. Vincent Class
031 St. Vincent
032 Collingwood
033 Vanguard
041 Neptune
050 Colossus Class
051 Colossus
052 Hercules
060 Orion Class
061 Orion
062 Thunderer
063 Monarch
064 Conqueror
070 King George V Class
071 King George V
072 Centurion
073 Alax
074 Audacious
080 Iron Duke Class
081 Iron Duke
082 Benbow

083 Emperor of India
084 Marlborough
091 Agincourt
100 Erin Class
101 Erin
102 Canada
110 Queen Elizabeth Class
111 Queen Elizabeth
112 Valiant
113 Malaya
114 Warspite
115 Barham
120 Queen Elizabeth refit
121 Queen Elizabeth
122 Valiant
123 Malaya
124 Warspite
125 Barham
130 Queen Elizabeth refit
131 Queen Elizabeth
132 Valiant
133 Malaya
134 Warspite
150 Royal Sovereign Class
151 Royal Sovereign
142 Royal Oak
143 Ramilles
144 Revenge
145 Resolution
150 Royal Sovereign refit
151 Royal Sovereign
152 Royal Oak
153 Ramilles
154 Revenge
155 Resolution
160 Nelson Class
161 Nelson
162 Rodney
170 King George V Class
171 King George V
172 Duke of York
173 Prince of Wales
174 Anson
175 Howe

181 Vanguard
190 Invincible Class
191 Invincible
192 Inflexible
193 Indomitable
200 Indefatigable Class
201 Indefatigable
202 Australia
203 New Zealand
210 Lion Class
211 Lion
212 Princess Royal
213 Queen Mary
221 Tiger
230 Renown Class
231 Renown
232 Repulse
240 Renown refit
241 Renown
242 Repulse
250 Renown refit
251 Renown
252 Repulse
260 Courageous Class
261 Courageous
262 Glorious
271 Hood
281 Hood refit
USA
300 South Carolina Class
301 Michigan
302 South Carolina
310 Delaware Class
311 Delaware
312 North Dakota
320 Utah Class
321 Utah
322 Florida
330 Arkansas Class
331 Arkansas
332 Wyoming
340 New York Class
341 New York

342 Texas
351 Oklahoma Class
351 Oklahoma
352 Nevada
360 Oklahoma refit
361 Oklahoma
362 Nevada
370 Pennsylvania Class
371 Pennsylvania
372 Arizona
380 Pennsylvania refit
381 Pennsylvania
382 Arizona
390 New Mexico Class
391 New Mexico
392 Idaho
393 Mississippi
400 New Mexico refit
401 New Mexico
402 Idaho
403 Mississippi
410 Tennessee Class
411 Tennessee
412 California
420 Tennessee refit
421 Tennessee
422 California
430 Colorado Class
431 Colorado
432 Maryland
433 West Virginia
440 Colorado refit
441 Colorado
442 Maryland
443 West Virginia
450 Washington Class
451 North Carolina
452 Washington
460 South Dakota Class
461 South Dakota
462 Indiana
463 Massachusetts
464 Alabama

Before beginning a Scenario, the Players will roll the dice. A two means the sun is rising on the east side of the map area, a twelve means it is setting on the west. Any other result means no sun condition.

[12.52] Whenever a ship is firing away from the setting or rising sun, the dice roll on the Damage Point Table is reduced by one to reflect its reduced firepower (it has difficulty ranging into the gloom). If it is firing toward the rising or setting sun, then its Damage Point dice roll is increased by one. These affects are in addition to any other adjustments to the Damage Point dice roll. For example: The sun is determined to be setting in the west. Trace a line along the hexrow in the direction NW and one in the direction SW. If the target is on either line or between the lines, then the firing ship is firing toward the sun and its dice roll would be increased by one.

[12.53] A rising or setting sun condition exists and persists from Game-Turns Six through Eleven on any Scenario for which the situation is determined. On other Turns, either night or day (no sun condition) exists.

[12.6] THE EXTENDED CAMPAIGN

The extended campaign is an economic game requiring the Player to amass more ship value points than his opponent (every ship has a value in points equal to the total of its printed attack,

defense and movement values). Each Player is given an initial number of ship value points (his "treasury") from which he purchases an initial fleet, expending in the process, points equal to the value of the ships he activates. Thereafter, play progresses through an indeterminate number of Extended Campaign Game-Turns from two to twelve Turns, depending on a random event. During each of these Turns, the Players plan and execute a Campaign Game (11.0), in the process augmenting and depleting their treasuries accordingly.

[12.61] Setting up the Extended Campaign

The Players decide among themselves what chronological period and national identity they wish to assume. Then, on a piece of scratch paper labeled "treasury," they pay themselves between 700 and 900 Ship Value Points apiece. They then secretly choose from the national counter mix comprising their national fleet ship units totalling no more than 300 Ship Value Points. From within the proper mix, they can pick any number and type of ships so long as the limit is not exceeded. They then reveal to each other their respective initial fleets. They next secretly formulate a construction schedule detailing, Extended Campaign Game-Turn by Extended Campaign Game-Turn, exactly what ship units from the balance of their national fleet mix they will "build" on each Game-Turn. No Player may build more than 100 Points worth of ships per Turn. This schedule is not revealed

immediately, but is revealed progressively, Turn by Turn, as the Players reveal new constructions.

[12.62] Extended Campaign

Sequence of Play Outline

1. **Peace Resolution Phase:** Two dice are rolled. If the number rolled is the same as the number of the Game-Turn, then peace is established, and the game is immediately over; otherwise, the game proceeds.

2. **Campaign Game Phase:** The Players plan and execute the four Scenarios of a Campaign Game, using their respective fleets according to the rules in Case 11.0.

3. **Repair Phase:** The Players repair their permanently damaged ships.

4. **Build Phase:** The Players augment their existing fleets with ship units picked from their national fleet mix according to their construction schedules (12.1).

[12.63] The Campaign Game In

The Extended Campaign Game-Turn

The rules for the conduct of the Campaign Game remain identical to those in Case 11.0, with the following exceptions and additions.

1. Victory Points awarded for winning a Marginal, Substantial or Decisive Victory are added immediately to the Winning Player's treasury. Victory Points awarded to the South Player for the balance of the interception bonus in Scenario C are added to his treasury.

470 Iowa Class

471 Iowa

472 New Jersey

473 Missouri

474 Wisconsin

480 Alaska Class

481 Alaska

482 Guam

AUSTRIA

550 Viribus Unitis Class

551 Viribus Unitis

552 Tegetthof

553 Prinz Eugen

554 Szent Istvan

FRANCE

500 Courbet Class

501 Courbet

502 Jean Bart

503 France

504 Paris

510 Provence Class

511 Provence

512 Bretagne

513 Lorraine

520 Provence refit

521 Provence

522 Bretagne

523 Lorraine

530 Dunkerque Class

531 Dunkerque

532 Strasbourg

540 Richelieu Class

541 Richelieu

542 Jean Bart

BRAZIL

560 Minas Gerais Class

561 Minas Gerais

562 Sao Paulo

571 Rio de Janeiro

RUSSIA

580 Gangut Class

581 Gangut

582 Sevastopol

583 Petropavlosk

584 Poltava

590 Imperator Aleksandr III Class

591 Imperatza Maria

592 Ekaterina

593 Imperator Aleksandr III

594 Imperator Nikolai II

GERMANY

600 Westfalen Class

601 Westfalen

602 Nassau

603 Posen

604 Rheinland

610 Helgoland Class

611 Thuringen

612 Helgoland

613 Ostfriesland

614 Oldenburg

620 Kaiser Class

621 Kaiser

622 Friedrich der Grosse

623 Kaiserin

624 Prinzregent Luitpold

625 Konig Albert

631 Konig Class

631 Konig

632 Markgraf

633 Grosser Kurfurst

634 Kronprinz Wilhelm

640 Baden Class

641 Baden

642 Bayern

651 Blucher

661 von der Tann

670 Moltke Class

671 Moltke

672 Goeben

681 Seydlitz

690 Deutschland Class

691 Deutschland

692 Hannover

693 Pommern

694 Schleisien

695 Schleswig Holstein

701 Hessen

710 Derfflinger Class

711 Derfflinger

712 Lutzow

713 Hindenburg

720 Lutzow Class

721 Lutzow (Deutschland)

722 Scheer

723 Graf Spee

730 Gneisenau Class

731 Gneisenau

732 Scharnhorst

740 Bismarck Class

741 Bismarck

742 Tirpitz

JAPAN

751 Settsu

760 Satsuma Class

761 Satsuma

762 Aki

771 Kawachi

780 Fuso Class

781 Fuso

782 Yamashiro

790 Fuso refit

791 Fuso

792 Yamashiro

800 Ise Class

801 Ise

802 Hyuga

810 Ise refit

811 Ise

812 Hyuga

820 Nagato Class

821 Mutsu

822 Nagato

830 Nagato refit

831 Mutsu

832 Nagato

840 Yamato Class

841 Yamato

842 Musashi

850 Kongo Class

851 Kongo

852 Hiei

860 Kongo refit

861 Kongo

862 Hiei

870 Kirishima Class

871 Kirishima

872 Haruna

880 Kirishima refit

881 Kirishima

882 Haruna

ITALY

901 Dante Alighieri

910 Conte de Cavour Class

911 Conte de Cavour

912 Giulio Cesare

913 Caio Duilio

914 Andrea Doria

915 Leonardo DaVinci

920 Conte de Cavour refit

921 Conte de Cavour

922 Giulio Cesare

923 Caio Duilio

924 Andrea Doria

930 Roma Class

931 Vittoria Veneto

932 Italia

933 Roma

934 Impero

SPAIN

950 Espana Class

951 Espana

952 Jaime I

953 Alfonso XIII

ARGENTINA

960 Rivadavia Class

961 Rivadavia

962 Moreno

2. Victory Points normally awarded for damage inflicted on Enemy ships are not added to the Player's treasury. They merely form the basis for deciding which Player wins a Scenario.

3. Bombardment Bonus Points awarded to the South Player in Scenario B are not added to his treasury; they are instead deducted from the North Player's treasury.

4. At the beginning of any Campaign Game, the Players flip a coin to decide which will be the North Player.

[12.64] Repairing Ships In The Extended Campaign Game

During the course of, and at the conclusion of any Campaign Scenario, a Player must attempt to cure any repairable damage to his ships, deducting in the process one Ship Value Point for every damage state so cured. Ships which suffer permanent damage (e.g., those with 2G,2S or which are above their Damage Control limit) are not repaired immediately, but are set aside until the Repair Phase of the Extended Campaign Game-Turn at which point the Players decide whether or not to repair the damaged units. Repairs cost a Player's treasury 20% of the ship's value per damaged state repaired. A Player can repair an unlimited amount of damaged ships per Turn in any state of damage, subject only to the balance in his treasury. The Repair Phase is sequential with the North Player announcing and repairing his ships first. A Player is never required to repair a permanently damaged ship, but no permanently damaged ship may be placed in the available ship pool.

Ships which are wrecked (2G,2S) must be "under tow" at the conclusion of a Scenario or they are automatically scuttled (removed permanently from play). In either case, scuttled or towed, the Enemy Player receives 80% of ship value for a wrecked ship.

[12.65] Construction

Once established, the Players must adhere to their construction schedules. Whether they want to or not, they must place scheduled ships into their fleet, deducting the value thereof from their treasury.

[12.66] Conclusion

The Extended Campaign Game ends whenever peace is established, Turn Twelve is concluded, or whenever a Player's treasury balance is reduced to zero. At the end of the Game, the winner is the Player with the largest treasury balance. The respective fleet sizes, damaged ships, future construction, etc., do not affect Victory Conditions. When one of the three conditions for conclusion is achieved, only the number of Points a Player has in his treasury at that point is material for determining a winner. This means that a Player can refuse to build any ships whatsoever, conceding all Victory Points to his opponent, but preserving his initial treasury and hoping that the Extended Campaign will be ended on Game-Turn Two or Three by a lucky roll before his opponent can amass enough Points in the Campaign Game to compensate for the cost of building a fleet (see 12.63).

[13.0] DESIGNER'S NOTES

Any design is a compromise which requires that the designer make a choice. **Dreadnought** began with a survey of some existing naval games, both board and miniatures. These ran the gamut from **Solomons Campaign** and **USN** (which dealt with naval tactics on an abstract plane) to **Frigate** and **"CA"** (which are almost purely tactical games with no strategic considerations). **Jutland** and the whole body of naval miniature games offered simulation

on the tactical, operational and strategical level. All of these had their pluses and minuses. All of them appealed to different segments of the gaming public in different ways. One approach did not appeal to the designer and that was creating a super complex tactical system along the lines of **Jutland** or the naval miniatures. The game would have to have a tactical base, one that would allow Players to maneuver and fight, but one that would be playable (within the normal SPI context). The game was to be concerned with surface combat in the 20th Century between dreadnoughts (any 20th Century all big gun battleship); the basic unit then would represent one battleship. The map would contain an area large enough to display a battle between several of these units. The scale of the game, the unit values, and the system of play would be designed to illustrate the differing strengths and weaknesses of the various dreadnoughts with all other considerations abstracted from this basis.

Next, it was necessary to fix the role of the Player. On this scale of game he would have to be the fleet commander. What then would he do to affect the outcome of the game? This led to an analysis of the historic actions between dreadnoughts, principally those of World War I. The answer was, the fleet commander would decide, when confronted with hostile ships, to either engage in battle or run; to either close the range with the enemy, maintain the range, or open the range, maneuvering all the while to place his forces at an advantage vis a vis the enemy. It was pretty cut and dried when he was inferior; he ran. When he was superior he closed. Only when one or both commanders was confused as to the actual situation would an extended engagement ensue. The startling fact that emerged was that battles between dreadnoughts were infrequent and indecisive. The frequency problem could be handled by constructing Scenarios that must occur. The decisiveness was more difficult. That had to be inculcated into the Players' minds by a combination of limited intelligence and a viciously capricious game system which would unhinge the calculating Player.

As originally conceived, the game mechanics were a rather simple, sequential movement system coupled with, essentially, the existing gunnery combat system. The designer originally wanted such things as secondary batteries and wing turrets included as separate ship values, but the developer would have none of that, insisting that the Attack Strength of a ship represent its average broadside strength at average range period. The developer did not want rules which permitted the HMS Impossible to double its Attack Strength when firing at a target bearing 27°, because it had some sort of weird turret arrangement that allowed it to fire cross-ship between the laundry lines and the captain's potted palms. As far as the developer was concerned, the only consideration the Player should have to decide, was whether he would engage broadside-to (maximizing his firepower) or whether he would engage bow- or stern-on (thereby limiting his firepower to some degree or other). Admittedly, this led to an abstraction which distorted the capabilities of some ships, but so be it. The secondary batteries could be abstracted into range effects and torpedo attack rules, again with some distortion, but leaving the Player free to make essential decisions. Early playtesting revealed that sequential movement was too pat to be effective. One Player or the other could always calculate exactly the following Player's possibilities and be guided accordingly, and there seemed no combination of sequential movement and combat phases which didn't allow an inherent positional advantage. It was obvious that combat had to be simultaneous, since it was necessary that a Player

allocate his fire without knowing which Enemy ships were firing at which of his ships.

Next came the provision for visibility. This was originally to be a set figure per Scenario, but, again, this proved to be too pat. At this point we had a game that played, one that could simulate many of the problems and options of a fleet commander in the presence of a hostile fleet, but one that was somewhat staid in its conclusions. It was then decided to provide "historical" Scenarios of different sizes and lengths which would have directive Victory Conditions, which would tend to force the Players into obvious courses of action. These would serve two purposes: One, they would introduce Players to the mechanics of play; and two, would provide brief games for those who desired them. At best they could only be balanced artificially. Historically, there could be no truly balanced situations. That would require a hypothetical environment, such as we eventually constructed with the Campaign and Extended Campaign Games. This environment is artificial and imaginary. It suspends geographical, political and economic realities in the pursuit of creating an interesting game. The Campaign Game says, in effect, "Here we have two nations with roughly equal fleets, but some variation in composition." The Players can decide for themselves how to allocate their ships, creating four Scenarios. It would be rare that any one Scenario would present the spectacle of two evenly matched forces, yet the sum total of the four Scenarios is balanced (in terms of forces engaged) and, best of all, the Players have many opportunities to paralyze themselves with self-doubt and ignorance. The Extended Campaign Game provides that rare opportunity for a Player to do nothing at all and still win.

DESIGN CREDITS

Game Design: **John Michael Young, Irad B. Hardy**

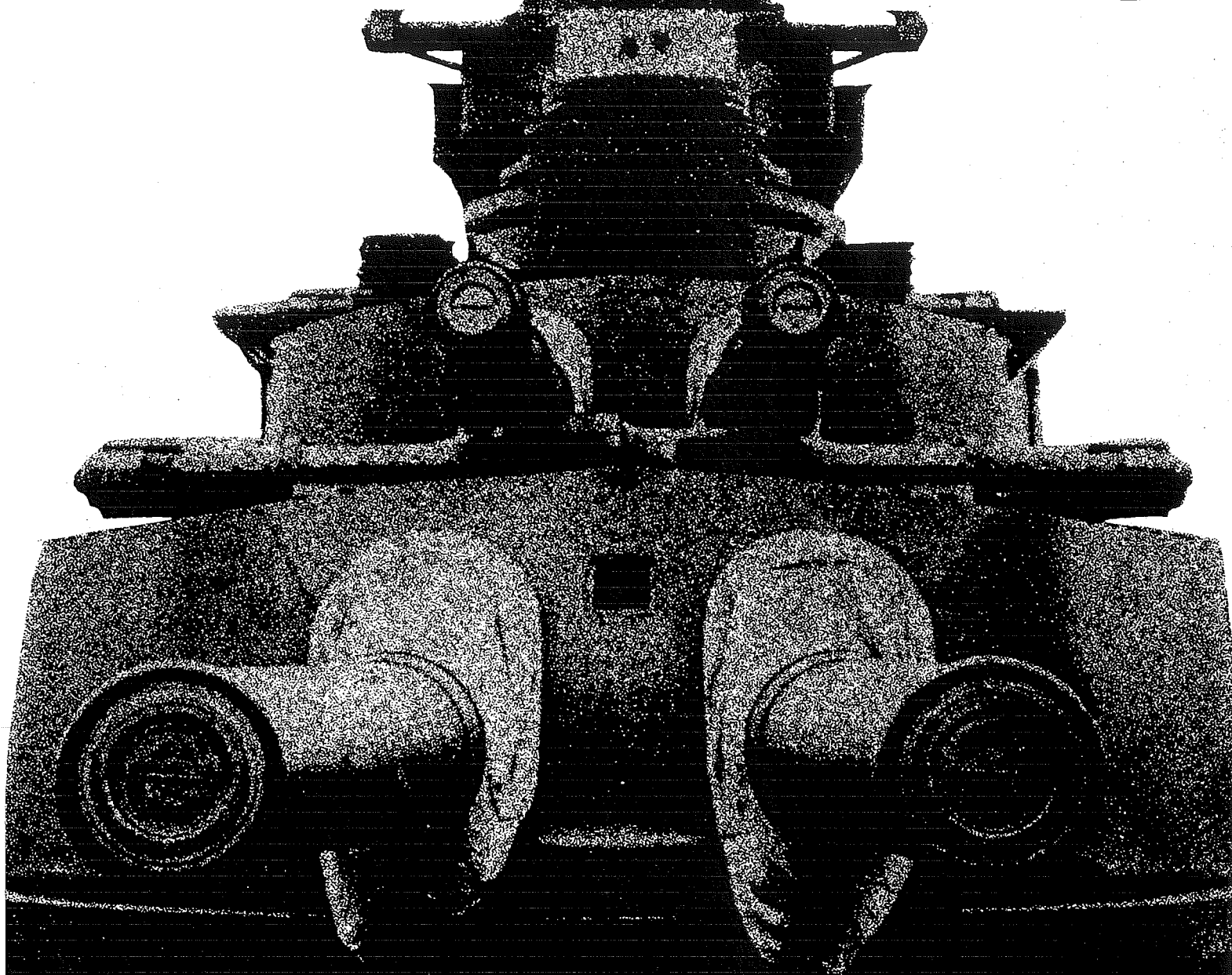
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NAVES

Conflict
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Theory and
Technique



HEADNOUGHT

Super Campaign Game plus Jutland Comparison

Comparative Evaluation: DREADNOUGHT & JUTLAND

by Steve List

The number of nationally available board wargames dealing with steam powered battleships is surprisingly limited, considering the scores of games now in print. Neglecting the abstract ones, like *Bismarck* and *Battleship*, there are only three: in order of publication, Avalon Hill's *Jutland*, SPI's "CA" and *Dreadnought*. "CA" is primarily concerned with destroyer/cruiser combat, as the name suggests, and is a poor simulation when battleships are involved; the mechanics are too limited and the simulation breaks down. Moreover, "CA" is confined to WWII and cannot be compared directly to the others. "CA" and *Jutland* were both designed by Jim Dunnigan, who claims "CA" was heavily influenced by the earlier game. *Dreadnought* is clearly a derivative of "CA", but is the work of a different design team and shows several features not found in the others.

The heyday of dreadnought battleships (and battlecruisers) was before and during WWI. In this period, eleven nations built or bought 156 dreadnoughts, and three others ordered ships which were never delivered. In all the time since, six nations completed a total of only 38 new ships, while rebuilding or refitting 39 existing ones at least once. Yet, for all their power and prestige, dreadnoughts faced each other in combat perhaps a dozen times in the two world wars, and only one of those occasions could be called a fleet action: the Battle of Jutland, May 31, 1916. The German High Seas Fleet was misnamed. It was intended to operate mainly in the limited waters of the North Sea, and actually spent most of its time in port. This was due to the proximity of the British and German bases — a move by either side could draw a prompt reaction from the other and a bloody, if inconclusive battle was always possible. As the Germans were inferior to the British by a ratio of about 2:3, the Kaiser was loathe to risk his precious ships [he kept the job of commander-in-chief for himself] in open battle, not to mention the more invidious dangers of mines and submarines. The German strategy, shaped as a result, was intended to provoke a British reaction by a part of the Grand Fleet, which would be lured into an ambush by the high Seas Fleet. By destroying a portion of the British Fleet, the German Admiral, Scheer, hoped to equalize forces to allow a more conventional battle to determine control of the North Sea.

The British, by use of radio direction-finding, and aided by a captured code book and the Germans' lax wireless security, were generally aware of impending German activity. Before Jutland, Admiral Jellicoe sortied with all available forces to meet what

he thought was a German battlecruiser raid; each side was at sea at full strength without knowing the other was as well. Each fleet was preceded by an advance battlecruiser force, and it was these which made first contact. The weaker Germans turned away to lead the British into the intended trap. In the running fight which ensued, two British battlecruisers were blown up. When they came under fire from the German main body, the British turned away and led Scheer into Jellicoe's ambush. The rest of the battle consisted of his attempts to escape and return to base. The results were a tactical victory for the Germans, who lost a battlecruiser and a pre-dreadnought to three battlecruisers and three armored cruisers by the British, but it was a strategic victory for the British, in that they successfully held their control of the seas.

The approach of the two games to this battle is completely different. *Dreadnought* is a tactical game system with scenarios; it provides a counter for every dreadnought ever built, and other ships as well. The scenarios cover actual and hypothetical battles spanning both world wars, and in this game Jutland is merely the single largest scenario. It begins with all ships in set positions, at the opening of the third phase of the battle. The battlecruiser actions are over, and Scheer is steaming full into the waiting jaws of Jellicoe. Victory is based on total points, earned by damaging ships. As the German Player is at this point far ahead, the scenario usually develops into a withdrawal as the German attempts to break contact with the faster British force without losing his point lead. It is a purely tactical scenario.

In addition to the single battle scenarios, the game provides for both a "Campaign Game" and an "Extended Campaign Game." The former consists of four consecutive scenarios played with severely limited forces, the latter a series of several Campaign Games, incorporating rules for building new ships and repairing damaged ones. Although guidelines to the actual strengths of various navies during three different time periods are given, these Campaign Games are heavily abstracted, serving mainly to allow the creation, almost at random, of a wide variety of possible battles. The main element of the game is the tactical/operational system for resolving a battle, no matter what its origin.

Jutland, on the other hand, is devoted to a single battle (though the second edition includes three "mini-games," which are just set piece scenarios, as in *Dreadnought*). Consequently, far more attention is paid to setting the scene, making this phase of the

game nearly as complex as the tactical resolution of combat.

The main physical component of this phase is the Search Sheet. It is a map of the North Sea overlaid with a hex grid, each hex being 36,000 yards across. Each player divides his ships into a number of Task Forces, and secretly plots the movement of these forces on his search sheet. Players search for each other by calling out hexes their own forces pass through, and the German may also use subs and airships for searching. When enemy TF's are in the same hex at the same time, they sight each other, and play moves to the separate tactical battle procedure. Victory conditions vary according to the level (Basic, Advanced, Tournament) of the game being played and the edition of the rules in use, but, in general, the German must win an overwhelming tactical victory to satisfy game victory conditions. Because of the free-form search procedures preceding the actual combat, the game will virtually never resemble the actual battle. This is in sharp contrast to the *Dreadnought* scenario, with its invariable starting positions and tactical victory conditions. The only drawback to this approach is that while the German plan counted on catching a small part of the British Fleet unaware and unsupported, in the game both Players know the other is out for blood.

On the tactical level, the games are even more dissimilar. *Jutland* is a board game only by courtesy, there is no board, and the rules are basically simplified miniatures procedures. Each ship, or group of light cruisers or destroyers, is represented by a cardboard counter 1 7/8" x 1/2". Play requires a flat surface at least 3 x 4 feet, according to the rules, but more is better. When two TF's meet in a Search Sheet hex, a cardboard "Battle Area Marker" is placed on the playing surface to mark the center of that hex. Ship counters are placed at set distances (as measured with a cardboard Range Finder) from the B.A.M. in directions dictated by their course at time of entry.

The Hit Record Sheet shows each ship as a number and a group of small "Hit Boxes." The number is the ship's Protection Factor, and the boxes represent its firepower. They are grouped to represent the main gun turrets, and have small arrows to denote the field of fire for each group. Roughly, a single box represents one British 12" or German 11" gun, with larger guns getting more boxes. To resolve combat, range to the target is checked with the Range Finder. The number of gunnery factors is equal to the number of Hit Boxes which can fire at the target, and this is cross-indexed with a die

roll on the Gunnery Damage Table. This gives the number of hits, and the number of Hit Boxes to be crossed off the target's Hit Record, thus reducing its firepower. When all the Hit Boxes are crossed off, further hits are counted as "torpedo hits" (as are those sustained by actual torpedo attacks). For each such hit, the ship loses a movement factor; when the total torpedo hits equals the Protection Factor, the ship sinks due to accumulated damage. In addition, if a ship receives in one turn a number of hits equal to its Protection Factor, it sinks due to the overwhelming of its damage control capacities. Finally, there are Critical Hits. When a "6" is rolled on the Gunnery Damage Table, a Critical Hit occurs and another Table is consulted. The result of this can be catastrophic (e.g., magazine explosion) or disabling (loss of movement or firepower partially or completely, temporarily or permanently). A similar concept is used with torpedo attacks.

Play procedure is otherwise simple. Ships are moved freely, with distances and turns measured by means of a Maneuver Gauge. The Germans move first, then the British. Fire is then resolved simultaneously, and each turn represents ten minutes.

Dreadnought is very definitely a board game. The playing area consists of six hex-gridded sections, 16 x 20 hexes short grain, which can be butted together as ships move off the edge of the board. Each hex is 1800 meters, each turn is fifteen minutes, and a Movement Point roughly 4 knots. Ranges are measured by counting hexes and movement is, of course, hex by hex. In this regard, *Dreadnought* is far superior in playability.

Capital ships (and groups of smaller ships) are represented by 1/2" square counters containing, among other information, Attack and Defense Strengths, plus Range and Movement Allowances. (In *Jutland*, all ships of a given type have the same range, indicated on the Range Finder). Combat is accomplished by a slightly cumbersome two-stage procedure. The Attack Strength is cross-indexed with the roll of two dice on the Damage Table to get a number of Damage Points. This number is divided by the target's Defense Strength to yield a Combat Ratio, or odds. The two dice are rolled and the Combat Results Table is consulted. Two kinds of hits are possible — a G hit reduces a ship's firepower by half, and an S hit does the same for its speed. A ship can accumulate only two hits of each kind, further hits being ignored. Hits are recorded by placing the appropriate Hit Marker counter on the ship. The only way a ship can be sunk is to roll a 12 on the CRT (a 1 in 36 chance for odds below 4-1), which allows another roll. If the additional roll is 7 or 11, the ship is sunk. Otherwise, it suffers 2G and 1S hits. This combat procedure allows the weakest possible unit, a damaged destroyer group, to destroy by gunfire any WWI vintage dreadnought and not a few WWII ships as well; all that is required is to get the right sequence of die rolls, the probability of which

is on the order of 1/10th of 1%, depending on the ships. This is exactly what happened to *HMS Tiger* in a game I played. *Jutland*, in contrast, won't allow destroyers to shoot at anything but other destroyers.

The play procedure of *Dreadnought* is split simultaneous: each Player plots his fire at the same time, and then resolves it. They then simultaneously plot movement and execute it. Thus, G hits have no effect until the following Game-Turn, while S hits take effect in the Turn they are received. Following movement is a Damage Control Phase; ships can attempt the removal of one hit of each type by means of a die roll, with some restrictions. A ship can remove a total number of hits equal to its Defense Strength only, and wrecked ships (those with two G and two S hits) cannot remove any. It is thus necessary to keep a written record of damage removal for each ship.

The main difference in the games at the tactical level is in the treatment of damage. *Jutland* involves many small increments, which individually have little effect, but which are irremediable, and which, when accumulated, will destroy the ship. *Dreadnought* inflicts major damage with each hit, but makes it hard to achieve a hit; moreover, within limits, the effects of the hits can be negated and the ship returned to full efficiency. In *Jutland* it takes a long time to wreck a ship, but it is then on the verge of sinking; in *Dreadnought*, it is comparatively easy to wreck a ship and nearly impossible to sink it, although for victory purposes, a wreck is nearly as good.

The games have few tactical features in common. In *Dreadnought*, below certain ranges, a ship's firepower can be doubled or tripled, while it is halved at long ranges. *Jutland* instead doubles, triples or halves the hits scored, depending on range. They both have rules for smoke screens, torpedo attacks, variable visibility and towing. Other rules do not have equivalents, however. *Jutland* alone has rules for night combat. Only *Dreadnought* takes into account the deleterious effects on fire control both of being shot at and of several ships firing on one target. *Dreadnought* has arbitrary restrictions on movement that *Jutland*'s Maneuver Gauge makes unnecessary.

Jutland has two major drawbacks compared to *Dreadnought*. It takes much longer to play, employing a lot of paperwork. It is also badly inaccurate insofar as scale is concerned. The length of a ship counter works out to 2500 yards; it should be about 750 yards to accommodate the ship and sufficient clearance for the next ship in line. As a result, ships in line ahead are spaced about three times as far apart as they should be. The tactical results are something like having a football team's five interior linemen spread from sideline to sideline. There are two remedies suggested in the rules: make up new Maneuver Gauges and Range Finders to fit the larger scale (which would require ten times the playing area) or stack the ships

three high. This second solution is not too satisfactory, either; it places three ships in the same location (one of the drawbacks of *Dreadnought*'s hex system), and adds another physical inconvenience to play, because the counters don't stack very well.

There are two major design differences in these games. Since *Jutland* covers only one situation, two fleets finding and fighting each other in the limited area of the North Sea, it can develop a fairly complex procedure for pre-battle maneuver, so that Players can attempt to "divide and conquer." *Dreadnought* has only a sketchy, abstract procedure for this, but one which can be applied to a wide variety of situations. Because it has to be so all-encompassing, it cannot use a combat system requiring much bookkeeping. *Jutland*, with 72 individual ships, plus cruiser and destroyer counters, is bad enough — pre-printed hit records for 235 assorted dreadnoughts, plus cruisers and destroyers, would be a nightmare. So *Dreadnought* confines itself largely to the operational level. *Jutland* has a complementary approach; pre-battle maneuver is complicated and tactical resolution is very involved, while the sheer number of ship counters, spread out and movable only by a physical measuring device, tends to make the operational aspects, the maneuvering of an entire fleet in combat, obscure and difficult to grasp.

In this respect, *Jutland* is the more accurate game. Besides the accuracy allowed by increased detail at the tactical level, the command problems inherent in handling a large fleet under conditions of poor visibility are to some extent recreated by the numbing task of just moving the units. *Dreadnought* does not employ any version of SPI's command control rules, and, since the mechanics of movement are simple and straight-forward, intricate maneuvers are quite feasible and can be considered the main point of the game. The parallel lines-ahead slugging match is pretty boring in this system, so Players tend to try to outmaneuver the enemy in order to crush a weak point. In *Jutland*, maneuvers are tedious to perform, while the slugfest can be interesting, if not enjoyable, as you watch both fleets pound each other to scrap, hopefully his going faster than yours.

The designers of *Dreadnought* felt only rare accidents, such as magazine explosions, actually sank dreadnoughts in battle; anything else left a floating hulk that could be saved, no matter how battered, weather and enemy permitting. *Jutland*'s designers felt that cumulative damage was equally important, and put it into their design. Apart from this difference of opinion, both games are equally valid representations of battleship combat on the tactical/operational level. *Dreadnought* is far more convenient to play, while *Jutland* has more to offer the naval enthusiast. Anyone interested in naval warfare should have both games in his collection. ●●

DREADNOUGHT SUPER EXTENSION

Additional Rules for the Extended Campaign Game

by Arnold Hendrick

Dreadnought was designed to provide nearly endless enjoyment in its campaign and extended campaign format. With just a touch of numerical manipulation, one can play games of almost any length and complexity. Wargamers closely involved with modern naval data will realize that the values for warships in the game are rather curious, to say the least. However, like history, wargames are just personal interpretations and opinions; but even if you question it, that doesn't reduce the pleasure of working with a well-compiled interpretation, just as one might enjoy a history book, even if its arguments seemed far-fetched.

Just the same, a number of variations can be added to *Dreadnought*, especially in the campaign or extended campaign. These don't really add realism so much as they add complexity, and therefore, more considerations for the player. Little details like weather conditions, the gradually-evolving radar technology, the frequent failure of air spotting, etc., can enliven games that may eventually become dull otherwise.

Meanwhile, a few simple modifications for some ships can take into account some of the most extreme characteristics of a few warships in this period.

The Nelson (160) Class had all turrets forward of the bridge, and therefore may not fire into the stern arc with primary armament. Secondary armament may still be used in that direction. These ships still suffer the "-1" damage dice penalty for firing into the bow arc, as not all turrets could bear forward either!

The French Dunkerque (530) and Richelieu (540) Class dreadnoughts may not fire into their stern arc, as their two quad-barrel turrets were forward of the superstructure. However, these ships do have full firepower into the bow arc; they ignore the normal penalty in this direction.

Japanese heavy cruisers during WWII carried a large number of 24" torpedo tubes, enough so that two cruisers could launch a formidable broadside. Therefore, Japanese C60 and C70 Class units are allowed 1:1 torpedo attack ability, like destroyer units. There is no torpedo range modification for the Japanese 24" torpedoes because their longer range was mainly effective in terms of increased speed, and therefore increased effectiveness at standard torpedo firing ranges (10,000 yards and under).

One British L20 and one Japanese L60 Class unit in early WWII was armed as a "torpedo cruiser" and may be allowed 1:1 torpedo attack ability if desired, at a cost of 8 points

extra for the modification. The Japanese ship may be raised to 2:1 torpedo attack ability at a cost of 12 points instead. [Historically, the British "E" Class and Japanese "Oi" Class.]

CAMPAIGNS

The following suggestions and rules are proposed to enliven your campaigns, and suggest some new ideas for campaigning with peculiar fleets, or in peculiar regions (such as the Antarctic!). Procedurally, the rules below should be included in the campaign or extended campaign process in the following ways:

Initial radar technology should be determined with the selection of initial fleets in any WWII era campaign. Radar technology should only be available to the six listed major powers. The variable construction rule can then influence the building schedules used for fleets.

The weather, visibility and air spotting rules, in that order, should be determined at the start of each battle/scenario in each campaign (or extended campaign Game-Turn). Each extended campaign Game-Turn is considered a new season, with an appropriate effect on weather.

The weather, visibility and air spotting rules make mention of various oceanic regions around the world. It is important that the location of the campaign be determined, as illustrated in the following list of potential campaign and extended campaign scenarios. In the list below total treasury value and maximum spending on the initial fleet are represented by two figures, such as 900/300, which indicates a total treasury of 900 per player, of which 300 per player may be used for the initial fleet. Unless otherwise noted, it is assumed that extended campaigns would have a maximum time limit of 12 Game-Turns.

A few campaigns suggested are multi-ocean "grand" campaigns. In these, some fleets are restricted to operations in specific oceans, with extended campaign Game-Turns played separately in each ocean. For example, a grand WWII campaign, with French and British fighting German and Austrians, might limit the French and Austrians to the Mediterranean, Germans to the Atlantic (i.e., North Sea), and the British to either as they desire. Each Game-Turn would be composed of a set of four Mediterranean scenarios, using warships assigned to that ocean (including all French and Austrians), and a set of four Atlantic scenarios, using warships assigned to that ocean (including all Germans). The British could assign a warship into either ocean as desired, and

change assignments on each subsequent Game-Turn.

WORLD WAR I VINTAGE CAMPAIGNS

British vs. Germans in the Atlantic, the classic North Sea duel. A limited 1914-16 scenario of 700/200, 10 Game-Turns, and without the use of Classes 150, 230, 260 or 640 is possible. A full-war scenario using all Classes should be 1500/600 and 17 Game-Turns.

Americans vs. Germans in the Atlantic, what if the British had lost a "Jutland" type engagements disastrously in 1916 or 1917? 900/300 is reasonable, but 900/600 with 6 Game-Turns is another possibility.

French vs. Austrians in the Mediterranean, 1914-15, a limited 450/200 scenario of 5 Game-Turns. French may use British 190 and 200 Classes, but no more than four in total. Austrians should have use of Goeben (672), a second L50 Class (Breslau and other German consorts in the area), and, for play balance, a Spanish alliance with full access to the Spanish WWI fleet. Austrian light forces should be one C50 and one L50, not C10 and L10.

French vs. Italians in the Mediterranean, 1915-16, Italians are presumably part of the Central Powers, swayed by the German Goeben (672), which has joined the Italian fleet. A limited 300/200 scenario of 4 Game-Turns is reasonable. As a late war variation, give the Italians access to Austrian capital ships and the entire Spanish fleet, drop the Goeben, and give the French access to the Russian 590 Class, which, presumably, has broken out of the Black Sea after Turkish collapse. Also give the French access to the full 190 and 200 Classes of the British.

Entente vs. Central Powers, Grand Campaign, Entente of Britain and France versus the Central Powers of Germany and Austria. Double campaign in the Atlantic (Germany, Britain) and the Mediterranean (Britain, France, Austria and any one German capital ship, along with any one German light ship, which may join the Austrian fleet in the initial deployment). 1800/800 with 17 Game-Turns. For play balance and interest, Central Powers may build units of the Italian fleet for Mediterranean service starting Turn Five, and Entente Powers may build units of the American fleet for Atlantic service starting on Turn Ten. The initial fleets may not use Classes 110, 230, 260, 640 and 150. [Note: don't expect to do very well playing the Central Powers.]

Japanese vs. Americans in the Pacific, spoils of WWI campaign, 1919-1925. 800/300 with 9 Game-Turns, allow the Japanese to build

800 and 820 Class dreadnoughts, although they may not be included in the initial fleet. Technically, the Americans should have similar access to the 410 and 430 Classes, but this can be ignored or restricted if you feel the Japanese will have a lot of trouble matching the larger American forces.

British vs. Japanese & Americans Grand Campaign, over the spoils of WWI, 1919-25. Either a modest 900/300, or a grand 1500/900 game may be played. Simultaneous campaigns in the South Pacific, Indian and Atlantic Oceans, but Americans may not operate in the Indian and Japanese may not operate in the Atlantic, while British, of course, may operate in all three. The Japanese-American alliance should use Bravo (yellow) light forces, with access to all ships in the C50, L50, L60, D50 and D60 Classes. In addition to WWI fleets, the following capital ships are also available: 150, 271, 410, 430, 800, 820. For extra color, Brazil may be allied with the British, Argentina to the Japanese-Americans, and the fleets of these minor nations only allowed in the Atlantic.

INTERWAR VINTAGE CAMPAIGNS

The interwar period represented by the fleets is really the 1930's, and three interesting scenarios are possible.

Japanese vs. Americans in the Pacific in the 1930's. An excellent 900/300, 12 Game-Turn game, more balanced than it looks, especially as American strength can offset Japanese speed once the Americans build past 700 points. Assume that Game-Turn Five is fought in the North Pacific, the rest in the South.

France vs. Italy in the Mediterranean, 1935. The war over Ethiopia becomes a real war between African colonial powers, while Britain remains neutral. 600/250 and 9 Game-Turns. Although initial fleets are limited to those available in the interwar period, both sides may build using both interwar and WWII availability, although the French Richelieu (540) Class may not be built before Game-Turn Three, as it was significantly behind the Italian Littorio Class.

Japanese vs. British in the Indian in the late 1930's. Another excellent 900/300 standard campaign. Allow the Japanese to replace the 800 Class with the 810 starting on the First Game-Turn, the 820 with the 830 on the Second. If the earlier version of the ship already exists, the Japanese player simply pays the difference in point value. If the earlier version exists, but was sunk already, no "conversion" is possible, and no points may be spent. If the earlier version does not exist (i.e., was not already "bought" for the fleet), the new version is bought at its full value. For variation, assume that Game-Turns Four and Eight are British adventures into the South Pacific, the rest are in the Indian Ocean.

WORLD WAR II VINTAGE CAMPAIGNS

Japanese vs. Americans in the Pacific, 1939-45. What if the American carriers had been sunk at Pearl Harbor, and the Japanese ones either damaged or improperly used? What if the war had started a couple of years earlier: A 1000/400 campaign, with 470 and 480 Classes entirely prohibited, while 460 Class and 482 (the Musashi) may not be in the initial fleets, but may be built. Assume that all Turns are in the South Pacific, except Turn Four, with an option for Turn Seven also being North Pacific if the Americans desire. Optionally, allow the Americans to build units of the 470 and 480 Classes starting on Game-Turn Five.

Japanese vs. British in the Indian, 1939-42. Another interesting "what if." A 900/300 10-Turn campaign may be appropriate. The 171, 172, 174, 175, and 842 may not be in the initial fleets, 181 may not be used at all.

Germans vs. British in the Atlantic & Arctic, 1939-43. The historical campaign 1200/300, 13 Turns. The 181 (Vanguard) may not be used, British may not use 170 Class in their initial fleet. For realism, the Germans may not be permitted the 740 Class in their initial fleet, but ultimately play balance may suffer. Normally action is played in the Atlantic, but on Turns 3, 7, 8, 9, 10 and 11, the Germans may elect for action in the Arctic *instead*. However, no more than four Game-Turns may be played in the Arctic in the whole campaign.

Italians vs. British in the Mediterranean, 1940-42. The historical campaign 800/450, 10 Game-Turns. British may not use 170 Class or 181 at all, Italians may not have more than two units of the 930 Class in their initial fleet (although, for less realism and more playability, allow this restriction to be dropped). No matter what you do, the Italians will have to work to win this one.

British vs. Axis in the West, 1939-45. The grand historical campaign. 1500/700, 15 Game-Turns. Mediterranean and Atlantic operations, British may operate in either, German Axis in Atlantic, Italian Axis in Mediterranean. Germans may elect to change Atlantic to Arctic operations on Turns 3, 7-11, and 13, if they desire, but no more than four Game-Turns may be so changed. No Mediterranean operations are played until Turn Three, hence the Italians are not involved in the first two Game-Turns. If, on any Game-Turn, both the Italians and the Germans win a decisive victory over a British force including dreadnoughts, and the British do not win any decisive victories against either in that same Game-Turn, the Axis fleets are presumed to link up, and Germans may operate in the Mediterranean, Italians in the Atlantic, freely. However, Italians may never operate in the Arctic. Initial fleet in this scenario may not include 170, 181 or 740 Classes. These ships may be built.

France vs. Italy in the Mediterranean, 1940-41. Presuming France retreated to

Africa and continued the war with the Allies from its colonies. A small 650/300 game of 6 or 7 Game-Turns. For balance, 542 may not be in the initial French fleet, but may be built.

France vs. Germany in the Atlantic, 1939-41. What if Britain had remained neutral at the outbreak of WWII. A short 600/300 6 Turn game, or 700/350 with Brazil (WWI fleet) allied with the French, Argentina (WWI fleet) allied with the Germans. For realism, 540 and 740 Classes may not be in initial fleets, but may be built. Finally, make two "peace" dice rolls every Turn, not one, to represent the war-ending powers of the German Blitzkrieg.

RADAR TECHNOLOGY

This rule replaces the simple 12.21 rule in favor of a more variable system for an extended campaign. Radar is only used in WWII campaigns, never WWI or Interwar. Radar technology is represented by four different levels.

Level 1: Early search radar only, inexperienced officers do not make significant use of available radar.

Level 2: Early fire control radars available, allow firing up to 3 hexes beyond normal visibility, at penalty of minus four (-4) from damage table dice roll when resolving the attack. A level 2 radar may be installed on any capital ship or heavy cruiser (C00) for 4 points per unit.

Level 3: Improved fire control radars available. Allows firing up to printed maximum range regardless of visibility, penalty is minus three (-3) from damage table dice roll. May be installed on any capital ship or heavy cruiser (C00) for 4 points per unit, existing level 2 radars may be upgraded to level 3 for 2 points per unit.

Level 4: Excellent fire control radars available. Allows firing up to the printed maximum range regardless of visibility, penalty is minus two (-2) from damage table dice roll. May be installed on any ship, regardless of size, for 5 points per unit. Existing level 2 radars may be upgraded to level 4 for 2 points per unit, existing level 3 upgraded for 1 point per unit.

Players should note on a piece of scratch paper which units have which radars.

Basic Campaign Technology Level: In a basic campaign (not an extended campaign), each player rolls one die, and the number on that die indicates his level of radar technology. A result of 5 or 6 indicates no effective radar technology. However, if either player rolled a "4," the other is automatically awarded at least a level 2 technology, even if he rolled less.

Extended Campaign Technology Development: The use of radar in extended campaigns is more complex, because it is assumed radar is being developed during the campaign. Radar technology levels should be kept secret, only being revealed when it is actually used. To facilitate this, a deck of

playing cards is used instead of dice, with players revealing the cards drawn only in-so-far as is necessary to prove the existence of radar they are using.

When initial fleets are chosen, each player should draw one card to determine his initial radar technology. A king, queen or jack of spades indicates level 2 technology, some other spade a level 1 technology, and any other suit, no radar technology.

During each build phase, in each extended campaign Game-Turn, players draw one card to determine improvements (if any) in their technology. If the drawing player's current technology level is known to be less than the enemy's, due to enemy radar use in battle already, an Ace, King or deuce (2) of any suit indicates an improvement of one level (if the player had no radar, it would indicate a level one technology). If the enemy's radar is equal or inferior or unknown, only an Ace or deuce (2) of any suit allows an improvement of one level (or receiving a level one technology, if without radar at the moment).

WEATHER

At the start of each battle, in each campaign or extended campaign, a player rolls a die to determine weather (good or bad). To use the table, the season must be known. Normally, each extended campaign Game-Turn is a new season, with the first Turn being fall (thus, 2-winter, 3-spring, 4-summer, 5-fall, 6-winter, etc.). By mutual agreement, players may start in any other season they desire. In a simple campaign, just roll a die at the start of the campaign to determine the season, 1,2-spring, 3,4-summer, 5-fall, and 6-winter.

Good weather has no special effect on the battle.

Bad weather grounds all aircraft, preventing any aircraft spotting. It also renders any level 2 radars useless. It modifies the visibility table die roll.

Bad weather also reduces the Movement Allowance of all destroyer units in that battle by two. As soon as bad weather is known, but before visibility is determined or task force markers placed on the map, players may secretly write on their force composition sheet that destroyers in the force suffering bad weather are "sent home." Destroyers sent home do not participate in the battle, and may not be transferred to some other scenario in the same season (extended campaign Game-Turn). This "send home" is only allowed to destroyers, and only if bad weather is encountered.

See the weather table for oceanic regions, seasons and weather results.

VISIBILITY

Instead of simply rolling two dice and using the total as the base (minimum) visibility, roll two dice, modify as appropriate, and consult the visibility table. The table takes into account predominant weather conditions in various regions, tactical doctrine and, most importantly, is keyed around actual initial

engagement ranges, which in good weather in daytime tended to be around 11-13 nautical miles, at night, 1-4 nautical miles. If the visibility table calls for a night battle, all normal combat and visibility rules are used, but air spotting is never available, and sun position has no effect, as there is no sun.

AIR SPOTTING

In Interwar and WWII scenarios, air spotting for naval gunnery is possible, as per

rule 12.22, but is *not* automatic (historically such spotting was extremely rare, the aircraft were more commonly used as scouts, and only rarely as 'artillery observers' in the classic sense). Instead, at the start of a battle scenario, a pair of dice are rolled, and the air spotting table consulted. The table will indicate whether none, one or both sides are allowed air spotting. Of course, in bad weather and/or night, air spotting is prohibited regardless of the table result. In

EXTENDED CAMPAIGN RADAR TECHNOLOGY CHART

If initial draw is...

...K, Q, J Spades

...A, 2 - 10 Spades

...other suit

Initial technology level is...

...level two

...level one

...level zero

To improve technology one level, when...

draw must be...

...Enemy level is not known superior

A, 2 any suit

...Enemy level known superior

A, K, 2 any suit

WEATHER CHART

| Region: | Season: | | | |
|-------------------------------|---------|--------|--------|------|
| | Winter | Spring | Summer | Fall |
| Arctic, Antarctic | 1 | 1-3 | 1-3 | 1-3 |
| Atlantic, N. Pacific, Baltic | 1-2 | 1-3 | 1-4 | 1-3 |
| S. Pacific, Indian, Caribbean | 1-4 | 1-5 | 1-5 | 1-3 |
| Mediterranean, Black | 1-4 | 1-5 | 1-5 | 1-5 |

Find the line for the region and cross-reference this with the column for the season. Then roll the die; if the result falls within the range indicated at the intersection of line and column, the weather is good. Any other result indicates bad weather.

VISIBILITY

| Region: | Dice Total (two dice): | | | | | | | | | | | | |
|---------------------------------|------------------------|----|----|----|----|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Arctic, Antartic | 4n | 1n | 2n | 2n | 3n | 7 | 7 | 8 | 6 | 8 | 9 | 10 | 9 |
| N. Pacific, Atlantic, Baltic | 1n | 1n | 4n | 2n | 6 | 7 | 7 | 9 | 8 | 9 | 11 | 10 | 9 |
| S. Pacific, Indian | 2n | 1n | 4n | 3n | 7 | 9 | 9 | 8 | 8 | 10 | 11 | 12 | 9 |
| Mediterranean, Black, Caribbean | 1n | 2n | 5n | 3n | 7 | 8 | 9 | 9 | 10 | 10 | 11 | 6 | 11 |

Number indicates the base (minimum) visibility in hexes, to which the usual single die roll is added each Turn to determine visibility that Turn. Modified die rolls less than "1" are considered "1," over "13" are considered "13." An "n" result indicates a night battle.

Die Roll Modifications (add or subtract all applicable modifications):

—2 bad weather (see Weather Table results)

+1 battle in 1914-1925 period (ignore if Arctic or Antarctic in summer)

—3 battle in 1942-1945 period (ignore if arctic or antarctic in winter)

+3 Arctic or Antarctic in summer (midnight sun effects)

—5 Arctic or Antarctic in winter (no sun)

—1 islands or other nearby land masses (may be considered a "standing modification," or Players may roll to see if this is in effect; roll one die; "1" indicates it is in effect in most oceanic regions, but in Mediterranean, Black or Caribbean, and South Pacific, a "1," "2" or "3" indicates it is in effect).

addition, the rules below may modify the table result:

In campaign scenario "B," the shore raid, south is prohibited air spotting regardless of the table result, unless it is British, American or Japanese from 1935 on, or Italian or German from 1942 on. This is because north would certainly have air protection for sensitive coastal installations, and only aircraft carrier support could overcome these measures, with the nationality-based rule representing those with sufficient carrier strength to include such in a shore raid operation.

In campaign scenario "C," the convoy situation, north may only have air spotting if south also has air spotting. South may still have air spotting, regardless of north's situation. This is because air spotting for one side only represents an air superiority situation, and it is presumed that south would avoid routing a convoy through an area where north would have air superiority. This particular rule may be waived under certain circumstances, mutually agreeable to both players, such as German-British Arctic operations in WWII, where British convoys were forced through an area of German air superiority, and for a short period, no carriers were available to balance the situation.

DAY/NIGHT OPERATIONS OPTION

When planning force operations in a campaign (or extended campaign Game-Turn), in any, each and/or all of the scenarios, a player may specify "day only" or "night only" operations. However, in the WWI (1914-25) period, "night only" operations are prohibited (however, he may chose to not specify either day or night, and leave open the possibility of a night battle).

If one Player specifies day or night, and the other specifies the same choice, or no choice, the battle automatically occurs as specified. Therefore, if a player specifies day, he ignores any "night" visibility results and continues until a night result is achieved, and vice versa if "day" is specified.

If players specify opposing choices in a Sea Sweep (A,D) scenario, the action is presumed to occur at dawn or dusk, with players each rolling a die, the high roller selecting dawn or dusk. Visibility is automatically "6" (do not use the visibility table), although the normal single die is added each turn for actual turn by turn visibility range. Furthermore, the Sun Position rule (12.5) is automatically in effect for the entire battle.

If players specify opposing (day-night) choices in scenario B, the shore raid, the south or raiding player automatically receives a substantial victory and is awarded full bombardment ability by all his capital ships. There is no battle, as the bombardment presumably occurred during the period when north refused to patrol.

If players specify opposing choices in scenario C, the convoy, the north or intercepting player automatically receives a

substantial victory, the whole convoy is considered intercepted and sunk, and there is no battle, as the interception occurred while the escort was off station.

VARIABLE SHIP CONSTRUCTION SCHEDULE

Normally, all warship construction is planned before the start of an extended campaign. Using this rule, only some construction must be so planned, the rest can be planned as you "go along."

Following the normal rules, all construction for the first five extended campaign Game-Turns must be planned before the start of the First Game-Turn. Construction for the Sixth or later Turn may also be planned if desired.

During the build phase of each extended campaign Game-Turn, additional ships not yet slated for construction may be planned. Destroyers cannot be planned for a time earlier than two Turns beyond the current one (add 2 to the current Game-Turn, and that is the earliest time when new destroyers may be planned). Light cruisers require three Turns beyond the present, heavy cruisers, four Turns, and dreadnoughts, seven Turns. (Note: these times, based on one Game-Turn equals three months, are about half the actual time required).

All construction due in a given extended campaign Game-Turn building phase, both initially planned and later planning, may still not exceed 100 points. If more than 100 is planned, then some units must be "postponed" until the next Turn, so that units actually built don't exceed 100. Units may

continue to be postponed Turn to Turn, even indefinitely. However, units still under postponed status when the game ends have their full value *deducted* from the final treasury, and therefore, do cost the points in the end. There is no financial advantage in postponement.

SHIP DESIGN

Using these rules, players are considered the chief naval officer in a mythical state, where they must design ships, rather than select them from available types. Generally, this type of variable ship design best fits an extended campaign, where the initial fleet value is doubled (with an overall increase in treasury points, as a result, for example, a typical campaign would be 1200/600), and before the initial fleet is built, the player must establish designs for all the types of warship weaponry, hulls, and light forces he wishes to use.

Procedurally, players should take turns designing new hulls, weaponry or light ship classes, with the results public, not secret. For example, one player designs a battlecruiser hull with high speed and little armor, so the other decides he needs one, and also designs one. When both players are satisfied they have all the designs they need, play proceeds to the choice of initial fleets. Optionally, players may use a "secret design" process, but this is not recommended.

It is important to understand the differences between design and actual ships. To pay points for a design allows you to build ships composed of certain elements (weapons of

AIR SPOTTING AVAILABILITY

| Time: | Region: | Modified Dice Total (two dice): | | | | | | | | | | |
|-------|---------|---------------------------------|----|----|---|----|---|----|---|----|----|----|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1929— | mpibc | • | N | • | • | B* | • | B* | • | • | S | • |
| 1934 | other | N | • | • | • | B* | • | B* | • | • | • | S |
| 1935— | mpibc | N | N | N* | • | B | • | B | • | S* | S | S |
| 1939 | other | N | • | N* | • | B | • | B | • | S* | • | S |
| 1940— | mpibc | N* | • | N | N | • | B | • | S | S | • | S* |
| 1941 | other | N* | N | N | • | • | B | • | • | S | S | S* |
| 1942— | mpibc | • | N* | N | N | N | • | S | S | S | S* | • |
| 1945 | other | N* | • | N | N | • | • | • | S | S | • | S* |

mpibc = in Mediterranean, S. Pacific, Indian, Black or Caribbean regions; other = any other oceanic region. N = North Player only allowed air spotting, S = South Player only, B = both Players. * = Player only allowed air spotting if his force includes cruisers (C and/or L type units).

Die Roll Modifications:

—1 South Player is outside friendly waters, but North Player is not.

+1 North Player is outside friendly waters, but South Player is not.

Friendly waters for British include Atlantic and Indian; Americans, the S. Pacific and (in WWII) N. Pacific & Atlantic; French, the Mediterranean; Russians, the Baltic & Black; Germans, the Atlantic & Baltic, and (in WWII) the Arctic; Italians, the Mediterranean; Japanese, the S. Pacific. All other states are considered without any friendly waters. Ignore die roll modifications for friendly waters in contests between mythical states, unless a special definition is made.

certain attack value and range, or hulls with certain defense values and speed). After the design is established, you may then build as many ships as you wish to design, paying appropriate points for each ship.

DESIGNING DREADNOUGHT HULLS

Creating a hull design allows a player a platform, with defense and movement, on which to mount weapons. The cost of a hull design, in points, is the defense value multiplied by the movement value, plus any extra points for special defense improvements. For example, a WWII hull with 11 defense and 6 movement (11-6) would cost 66 points.

Normally, for a given speed chosen, hulls are limited to a certain maximum defense value in the period used. For example, in WWI, a speed of 6 limits defense value to 9, normally. However, at so many points per defense value, this value may be increased up to a certain limit. In the case of the previous example, the normal 9 value can be increased by as many as 3 more defense values, at 10 points cost per value. Therefore, a 12-6 (defense-movement) hull would cost 102 points (12x6+30).

The chart below shows, for each period and a given speed value, the normal maximum defense value, how many values may be added on at a special cost, and what this special cost is per value.

DESIGNING DREADNOUGHT WEAPONS

A player pays a fixed point value to design a certain type of dreadnought weapon system. He selects the class he wishes to design (light, medium, medium-heavy, or heavy), pays the points to the treasury, and then determines the attack and range value of the weapons, according to the chart below. Notice that attack and range values received will vary according to the dice.

A player may design up to eight different weapons systems, two in each class. However, no light or heavy class weapons may be designed unless at least one medium or medium-heavy design already exists. Secondly, a player may not make a second design in any class until all classes have at least one design.

To use the table below, roll the die or dice and add the value shown to determine attack value, then roll again and add the value shown to determine range. "d" indicates that one die is rolled, "dd" that two are rolled.

BUILDING DREADNOUGHTS

To build a design, a player simply combines any one hull design, and any one weapons system. A player may reduce the defense value of the hull design by one, two or three if he desires, to "save" points. The attack, range and movement values in designs may never be altered. Note, however, that two different hull designs and two different weaponry designs allows four different ship classes.

In the WWI period, players may wish to limit "4" Movement Allowance hulls to just light and medium weapons, and prohibit the mounting of heavy weapons on "8" movement hulls.

The cost of the design has no effect on the cost of individual ships. Point value for a unit is still the total of the attack, defense and movement values.

DESIGNING AND BUILDING LIGHT FORCES

Players select at random whether or not they will use the Alpha (blue) or Bravo (yellow) light forces. To compensate the bravo player for poorer quality material, the entire C60 class is presumed to have 1:1 torpedo attack ability, at no extra point cost.

To design a light ship type, a player simply pays a point value equal to one ship of that type. Then, to build units, a normal point value is paid for each unit built. However, a certain continuity in light ship design is necessary: within the general category of destroyers, light cruisers or heavy cruisers, classes of higher level (higher 10's digit) may only be designed if all lower classes have been designed. Thus D40 cannot be designed until D10, 20 and 30 have been designed. C60 cannot be designed until C50 has been designed.

In WWI games, the only "designable" classes for alpha are C10, L10, L20, D10, D20. The only "designable" classes for bravo are C50, L50, L60, D50, D60.

In the Interwar period, classes C10 and C50 are considered already designed, but outmoded, and therefore no ships of these classes may be built. All other classes may be designed and built at normal cost.

In WWII, classes C10, L10, D10 and C50, L50, D50 are all considered already designed, but outmoded. All other classes may be designed and built at normal cost.

WARSHIP NAMES

One small pleasure in dreadnought design is thinking up names for your ships, as well as the mythical nation they serve. Ferocious animals, famous men and descriptive adjectives, often relating to power or strength, are the most common words used. However, often ships are named after cities, provinces and states in your nation. A political atlas of the world can do wonders in this department, as the English transliterations of other languages, especially those outside the Indo-European family, always seem to have a romantic sound, such as Shiraz, Tucuman, Rimbaba, Krivoy Rog, Atbasar, M'ila, Colomb-Bechar, Almansa, Altun Kopru, Zagora, Anshan, Yarkland, Chita, Chenkang, Mogok and thousands more.

DEFENSE VALUES

| Period: | Movement Allowance of Hull: | | | | |
|----------|-----------------------------|----------|----------|----------|-----------|
| | 4 | 5 | 6 | 7 | 8 |
| WWI | 5/+1(6) | 9/+3(8) | 9/+3(10) | 6/+4(11) | 3/+3(12) |
| Interwar | • | 10/+2(6) | 10/+2(9) | 9/+3(12) | 10/+6(12) |
| WWII | • | 12/+2(5) | 12/+2(5) | 16/+7(9) | 17/+6(10) |

The Values are presented in the following order: normal maximum defense allowance/total special defense addition possible (additional cost per special defense point added).

DREADNOUGHT WEAPONS VALUES

| Period: | Class (and Design Cost in Points): | | | |
|----------|------------------------------------|-------------|-----------------|------------|
| | light (10) | medium (17) | med.-heavy (25) | heavy (31) |
| WWI | d+4/d+6 | d+12/d+7 | d+18/d+11 | d+35/dd+6 |
| Interwar | d+17/d+10 | d+23/dd+10 | d+31/dd+14 | d+39/d+18 |
| WWII | d+25/d+14 | d+31/dd+13 | d+39/dd+14 | d+60/d+19 |

Add the numbers shown to the die roll.



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WARSAW
PACT

WAKE

by Bryan Madsen

Using JagdPanther's game MARINE!, you can recreate the Japanese invasion of Wake Island.

Wake was defended by a hodge-podge of units that included Marines, a few 5 inch naval guns, some 3 inch AA guns, and a large number of 30 and 50 cal. machine guns. Helping the Marines were armed civilians. These civilians were construction workers who were building the airstrip and were caught when the Japanese attacked.

The Marines set up first anywhere on the map, forces are: 10 Marine, 5 Security (civilians), 2 MG nests, 2 Howitzers (direct fire only) and 2 AA units.

The Japanese attackers consist of: 37 Army, 4 MG units and 5 Mortar. 3 destroyers are available for support starting on turn 3. Four airstrikes are also available on turn 5. To carry the units to shore use 17 LST units except lower the defense factor to 3. You may, as did the Japanese, have problems getting all your troops to shore if too many of your landing craft are sunk in the first wave. The game lasts 15 turns. Victory conditions are: To win the Japanese Player must destroy all but one Marine and two Security units by the end of the game. The Marine Player wins by avoiding this.

You may also want to add a "Marine ferocity rule". The Marines on Wake had taken 18 straight days of bombing after beating off the first Japanese attack. To put it bluntly, they were in a mood to dish it out after not being able to retaliate. After five turns the Marines have one attack point added in a normal attack and 3 added when attacking hand-to-hand. The Japanese will really have to work to take the island and will probably suffer casualties similar to those in the real campaign.

UNBALANCED NAVAL SCENARIOS

by Clifford L. Sayre, Jr.

Balanced scenarios provide a good way to learn rules and have a good game without favoring one side or the other. However, as both players become skillful, the use of balanced engagements tends to produce either a stalemate or mutual elimination. The rules to DREADNOUGHT, by SPI, suggest a point system to provide balance. (A vessel's points is the sum of the offensive strength, defensive strength and movement allowance.) This method works well, but tends to produce rather homogeneous results if both players opt similar types of ships. This article contains some suggestions for trying Unbalanced scenarios in DREADNOUGHT, CA or naval miniatures with the provision for compensating for the apparent unbalance. A certain amount of experimentation may be necessary to quantify the amount of compensation necessary for a particular game or type of tactical situation, but the expanded variety of possible actions is worth the experimentation.

A very simple way to provide some balance between several small ships (such as DDs and CLs) in action with a smaller number of heavy ships (such as CAs, BCs or BBs) is to hold the engagement with limited visibility. Fog, weather or night can be used as a reason to limit the range capability. Although the smaller ship's guns may not be very effective, they will have some opportunity to use their torpedoes without getting blown out of the water on what would otherwise be a suicide mission. Another method is to handicap a large ship with some initial hull and/or ammunition handling. An adverse die roll correction (to represent fire control limitations) or limiting fire to every other or every third turn (to represent handling difficulties) will tend to moderate the strength of otherwise powerful opponents.

One very effective limitation is to permit large vessels a very restricted number of turns in the game. Thus, the more powerful elements must be employed skillfully while they are available. For example, a convoy scenario

might involve a sequence of attacks by aircraft, pocket battleships, a cruiser force, etc. Any one of these forces might easily overwhelm the convoy if permitted on the board for a whole game. However, if they are permitted only four or five turns to "do their thing" and must exit the board, the situation will be much more equitable. The rationale for withdrawal could be lack of fuel or ammunition, impending air attack or the presence of larger friendly forces in the area.

The use of a campaign game can provide the basis for having unbalanced engagements with the possibility for shifting the balance of forces in another encounter. Thus, a side which commits heavy forces in the initial stages of a campaign may wind up short-handed in the latter phases. In addition, the use of a campaign game to link a succession of tactical games also tends to lessen the unrealistic tendency toward suicidal missions which often occurs in a single game near the final turns because the weaker side has nothing to lose. If both sides have to look forward to future battles (with only limited repairs or replacements) they will be much more conservative in their tactics and less prone to Kamikaze tactics.

What we have tried to illustrate is the principle of unbalanced, but compensated, scenarios. These engagements are interesting and challenging because they call for different playing tactics by the opponents. If the compensating features are chosen carefully, both sides will have a chance of winning.

PANZERARMEE AMPHIB

by Phil Kosnett

Though no amphibious operations were ever launched during the North African campaigns, (not counting Torch, which was a rather special case) the British did, from time to time, toy with the idea. They were discouraged for several reasons. There was a world wide shortage of landing craft, it would have diverted troops and supplies from the main front, and the Regina Marina (not to mention the U-Boats) could be counted on to interfere. Nevertheless, the possibility of such an invasion, launched to cut the coast road behind the PanzerArmee, was kept in mind by both sides during the campaigns. This can be illustrated in the SPI game, PANZERARMEE AFRICA.

The possibility of invasion would have depended on several factors; who held Malta; who held Tobruk (a good U-Boat base); the availability of Allied troops, supplies and landing craft; and the weather. The chart below shows the probability of invasion under varied circumstances.

| EASTERNMOST AVAILABLE AXIS PORT | REQUIRED DIE ROLL FOR INVASION |
|------------------------------------|-----------------------------------|
| El Agheila | 1-6 |
| Bengasi | 1-5 |
| Derna | 1-4 |
| Tobruk | 1-2 |
| Bardia | 1 |

If the Axis hold Malta, add three to the Allied die roll. If in November, December, or January add one. Additions are cumulative. Also, for invasion to be allowed, two supply units must be present in Alexandria. If an invasion is deemed to be possible, up to three infantry brigades and one supply unit (which must have been in Alexandria) can be landed on any clear terrain hex within fifteen hexes of the westernmost supplied Allied unit. For example, if the westernmost Allied unit is in Tobruk, the invasion could take place as far west as hex 2313. The invading units may move no further, and may not attack, on that turn. The invasion cannot be launched against an enemy occupied hex. Supply can be traced to the invasion hex as to a port, but only a maximum of two divisions can be supplied through it. Sea movement is impossible the turn of the invasion. One infantry regiment per turn may be shifted in as follow-up troops. If the invasion hex is occupied by the Germans, the units are out of supply and lose command control for that turn. In short, they are wiped out.

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ANVIL-DRAGOON

THE SECOND D-DAY

SOLDIERS Morale

by Clifford L. Sayre, Jr.

The following rule module introduces some of the aspects of morale into the play of the game. The capabilities of a successful attacking unit are enhanced and the combat strength of a losing unit is degraded. Similar rule modifications could be employed in other games as well as SOLDIERS, for which it was developed. The rules are formulated in terms of die roll modifications. There are two improved morale states and two diminished morale states plus the normal state.

Record-keeping is greatly simplified by using square pieces of colored paper slightly larger than the units. In this way, their morale state can be seen at a glance. Although the rule module appears lengthy, the application is quickly and easily learned. Most of the rule module deals with clarifications of special situations and explanations of the intent of the rules. The following colors are used: Gold, Blue, Pink, Green. Additionally, another color can be used to indicate the horses of dismounted cavalry units.

Morale Rule Module

- When a friendly unit participates in an attack which produces the disruption or elimination of an enemy unit, the unit is awarded a morale bonus.
 - First success = blue award (not effective until the next Combat Phase).
 - Second success = gold award. Units with gold award receive 1 extra movement point.
 - The gold award replaces the blue and is the highest state of morale. Additional awards have no additional effect and may not be accumulated to offset future loss.
- When a unit is disrupted as a result of combat each receives a morale penalty.
 - First disruption = pink penalty.
 - Second disruption = Green penalty and loss of one movement point.
 - Green is the lowest state of morale and future disruptions have no effect on it.
- Record keeping is by small pieces of paper and does not take effect until the next mutual fire phase.
- Awards offset penalties and vice-versa.
 - A unit which disrupts an enemy unit and is itself disrupted in the same phase is not effected for morale but is still disrupted.
 - A unit with a gold morale state which is disrupted reverts to a blue state. A unit of the green level which successfully disrupts an enemy unit is upgraded to a pink level.
- Morale is not effected by attacks resulting in no effect.
- The effects on combat of one state of morale or another are as follows:
 - Gold State = add 1 to the die roll
 - Blue State = Add 1/2 to the die roll
 - Normal = No effect on die roll
 - Pink State = Subtract 1/2 from the die roll
 - Green State = Subtract 1 from the die roll
 The effect is cumulative. If a gold unit is attacking a green one, the die roll is shifted by two. If a blue unit is attacking a pink one the roll is shifted by one. Drop fractions of die roll shifts.
- When a group of units attacks, it is assumed to have the morale of the unit with the highest state. When a stack defends, it is assumed to have the lowest morale in the stack. Attacking artillery has special considerations covered later.
- The change in movement factor applies only to the unit affected, not to other units in the stack. Machine gun and artillery units and Infantry which lose

the movement factor cannot use the options to move and fire on the same turn. Artillery is not penalized when considering time in place to prepare to fire.

- Artillery:
 - When firing at a range of 10 or less artillery accumulates bonuses.
 - Artillery firing at a range beyond 10 hexes does not receive awards, nor may any bonus it has affect an attack in which it is participating with other units.
 - An artillery unit with a morale penalty firing at any range feels the effect of that penalty, and is if applicable considered the lowest unit.
 - Artillery suffers when disrupted regardless of the range of the attacking unit.
- Units in the gold state which do not conduct an attack, even if NE, for two turns are lowered to the Blue state.
- Units in the gold state which successfully attack run a 1/6th chance of becoming overzealous. If this occurs, the unit is marked with a red marker and must, on all subsequent moves until reduced or destroyed, move toward the nearest enemy unit and attack it. It is considered to be a gold unit for this attack and if reduced becomes a blue unit. The unit gains two movement points and must expend them all or end its movement adjacent to an enemy unit. If there is an enemy artillery or machinegun unit within reach, the overzealous unit must move adjacent to it.
- Upon capturing the scenario main objective all units of the scenario player gain a morale step except gold units which run a double risk of becoming overzealous and charging something.
- If 25% of a players units are lost, all lose one step in morale.
- Green units which are further disrupted run a 3/6ths chance of destruction.
- If a player loses 40% of his units (green state units count as half destroyed in this case) all units lose a morale step.

Flight of the DREADNOUGHT

by Scott Rusch

The classic chase of the German Battlecruiser Goeben in the first days of WWI has been represented in many games including at least one specifically on the subject. The Goeben is included in the game DREADNOUGHT, you can use your own judgement in selecting a light cruiser as a consort. In the actual case this was Breslau, but the duty was rotated occasionally and a different ship could have been present. Additionally, the Goeben could have been in the company of Italian or Austrian ships.

The British almost managed to intercept the Goeben in the Aegean, but she slipped away. To reflect this, put Goeben on D1108, at a speed of NE 5. Indomitable, Inflexible, and Indefatigable should be at D2001 at SE5. Visibility is as in 11.7. Goeben must reach the North Safe Zone to win.

If Goeben had, instead, attempted to join the Austrian fleet, she would have encountered four old British cruisers (which at Jutland proved highly susceptible to Heavy caliber fire) the Defence, Black Prince, Warrior, and Duke of Edinburgh. Use D 11, L61,62,63, and 64. Their strength is tripled at range of 1, doubled at range of 2. For a more involved scenario, add the three British BCs and some Austrian ships.

If Goeben had gone for the French Convoy bringing Colonial Corps to France, all British are presumed to be chasing the wrong shadow, and Goeben and consort face the French, who may select a 500 series BB of their choice and D11, L11. The convoy is worth 50 points, and victory is as outlined in 11.4.

MERCHANT RAIDER

by Jim Bumpas

One aspect of the game DREADNOUGHT which was overlooked by the publishers was the Merchant Raider, such as von Spee's East Asia Cruiser Squadron, the Emden, or the Goeben. This situation has now been presented as a scenario for the Campaign game of DREADNOUGHT. As the British are the only people trying to keep up an active Merchant Marine, the Germans are the only ones allowed to have raiders, the British the only ones to have hunters. Raiders may be single or paired Capital ships, or Screens, but only two counters may be a Raider Group. Hunter Groups may consist of any number of ships, but the more assigned to this duty, the less available for other scenarios.

Before Play begins, the British Player announces how many dice he will roll to search the area in question. He may roll up to one die for each hunter group. A roll of six is required to find the Raider, and if more than one raider is present, only one is found by each group. If two groups find a single raider, then fight it successively, not together. The German receives one victory point for each turn that the British spent searching, including the turn the raider was located.

If there are other raider groups assigned to the scenario, the German Player also receives one victory pt. for them each turn until they are found. All encounters between raiders and hunters are played out separately. No other raider or hunter may join the action.

To begin the scenario, the German player places his ships on hex E 1101. The British player rolls a scatter pattern (one die for direction, two for distance), placing his ships on the hex designated. Enemy ships are then placed facing each other bow on, at any speed desired. The distance determined in the die roll is also the base visibility for the scenario. Next, the German player publicly rolls another scatter pattern, with distance x10 to tell both players the distance and direction to a neutral port, in which the German can hole up. Obviously it would be preferable to escape to the open sea. If the German ships escape, twenty victory points are scored, if they reach the port, ten. Victory points are scored as in rule 9.5. A Raider is assumed to have escaped to sea if he can stay outside of base visibility range of any British ship for four turns.

CAMPAIGN DREADNOUGHT

by Jim Bumpas

SPI's recent game DREADNOUGHT includes an abstract campaign game which is rather obviously patterned around the first World War. This is necessary for those who wish to try the South American Dreadnoughts or the Russians vs the Japanese, but for those wishing a more accurate simulation of the main event, the following modifications to the extended campaign game should prove worthwhile.

First, one must divide the world into the following theaters: North Sea/North Atlantic; Baltic; Mediterranean; South Atlantic; Indian; Far East; and Pacific.

The Central Powers have the use of the German and Austrian fleets, the Allies have the British, French, and Russian fleet. The American fleet can be added on turn 8 but tends to ruin the game and can be left out. The Japanese fleet patrolled the areas around their possessions and the home islands. It can be assumed that the various actions take place outside of their patrol areas. The Germans may deploy ships on merchant raider duty, and may deploy one or two capital ships and one screen unit in the Med. The Turks and the Russian black sea fleet are assumed to be keeping each other at bay.

The Italian fleet can join either side or just sit out the war. At the start of each turn, roll two dice for

the Italians. On a roll of 2-7 they join Germany, on a roll of 8 they remain neutral one more turn, on a roll of 9-12 they join the Allies. Each turn that they remain neutral, decrease the chance of them joining Germany by 1 and add this to the chance of neutrality. For example, on the second turn the chance of neutrality would be 7-8, of joining Germany 2-6.

Fleets are now deployed. The Germans can deploy in the Baltic or North Sea/North Atlantic, Austrians and Italians in the Med, French in the Med (according to the treaty they were to leave the North to the Brits), the British can deploy just about anywhere, the Russians in the Baltic (the Black sea fleet is not used). The British, by the by, can't deploy in the Baltic.

The game consists of 12 megaturns, each representing six months. Historically, the ground campaign forced the centrals to give up on turn 10. Each Scenario begins by the British deciding where to transfer their units. With the exception of the Baltic, the British can send their fleet anywhere. This will mainly be used to track down the German Merchant Raiders. Next, the French may transfer no more than 10% of their victory point value to the North Sea/North Atlantic to reinforce the British. Next a die roll determines where the major action will be in this megaturn. This replaces complicated rules to show who was at sea where and fooled whom. The roll is as follows:

2-3 Baltic, 4-5 Merchant Raider Scenarios only, 6-8 North, 9-12 Med. After this, the Germans can transfer ships up to 25% of their victory point totals from the Baltic to the North or vice versa.

When the players have determined the location of the major action this turn, they apportion their ships among the four scenarios. A Merchant Raider Scenario will take place every mega-turn even if nothing else does. Roll one die for this. The theaters are: 1-2 South Atlantic, 3 Indian Ocean, 4 Far East, 5-6 Pacific. Play then proceeds in accordance with the standard rules and the modification for Merchant Raiders presented elsewhere in this issue.

The 6th Army at KURSK

John Burns

If Hitler had not waited a week to allow Stalingrad to be relieved, Hoth's PanzerGruppe may have been able to break in, saving at least the cadre units from the Sixth Army. These forces, presumably, would have been used in halting the Russian drive, then yanked out of the line to rest and be rebuilt into their usual strength. If such a force had been available to reinforce the German forces at Kursk, the battle may have become the finally decisive one of the war rather than sharing the honor with Stalingrad, and the Battle itself may have come out somewhat differently. Use SPI's game KURSK.

The Sixth Army, with its attached Panzer Corps, can be reasonably approximated as two 10-8 Pz Divs, one 8-8 Mechanized Division and seven 4-8 Infantry Divisions. It might also be realistic to increase the German Air power by adding an air ground attack unit or two.

The Ride Into INDIA

by Bryan Madsen

Presented along with the game MARCH ON INDIA 1944 were a set of interesting rules for the employment of a Horse Cavalry Division available to the north of the campaign area. What is missing from these rules are the supply units of the Cavalry. Two such units, each 0-2-6, represent the pack horses available. These include 20 factors of supplies each, but these are reserved for use by the Cavalry Division only. Additionally, a 3-6 Horse drawn light artillery unit should have been included.

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**THE MARCH ON
INDIA, 1944**

DREADNOUGHT

by Clifford L. Sayre, Jr.

DREADNOUGHT, SPI's new tactical naval game, is an excellent companion game to CA. It is not exactly a replacement since there are some features of CA some players will prefer to retain. The concept of damage control repairing a limited amount of damage is very good. The campaign rules and scoring ideas are also useful. However, the lumping of two or more CA's, CL's or DD's into screening units (like Jutland) precludes the participation of medium and small size units as individuals. I suggest using DREADNOUGHT's movement and damage control with CA units or CA variant units such as SEEKRIEG in JagdPanther # 8.

As a tinkerer, I have found some situations not clearly covered or propose alternatives to the given rules. The visibility rule idea is great. However, instead of always adding the die roll to the base value to get the number of hexes of visibility....ADD an even die roll to the base, or SUBTRACT an odd die roll from the base number. If the base visibility for North Sea scenarios is set at ten hexes, the proposed change produces some interesting effects. As a replacement for Rule 6.13 (two ships attempting to enter the same hex), let the ship with the larger defensive value have the hex rather than roll a die. Screening units are unlikely to dispute a piece of ocean with a capital ship.

No screen unit should benefit from range effects at a range increment which includes its maximum range. For example, a screen unit with a maximum range of 3 or 4 would not double at 3-4 hex range. The unit would double (not triple) at 1-2 hex range. If a screening unit gets too close to a capital ship, it may not be able to conduct a viable attack, but the fire of the screen unit can be used to produce a -2 on the capital ship's die roll in what otherwise might be an unhindered attack.

Here are some additions to the brief rules for secondary fire (Section 8.4). If the capital ship has 1G damage, subtract 2 from the die roll on the 1:1 secondary battery attack. If the capital ship has 2G damage, subtract 4 from the die roll on the 1:1 secondary battery attack. If the capital ship is under fire, subtract 1 from the die roll in executing the 1:1 attack. The die roll corrections for under fire and 1G or 2G damage are additive. In section 8.5 substitute G for W in the discussion of the effects of damage on torpedo attacks.

The following combinations of units can be used to produce several interesting scenarios. The sides are balanced in the sense that the total point values are very close.

German: Div 1 - Goeben, Moltke, Seydlitz
Div 2 - Thuringen, Helgoland, Westfalen
Screen - C51 (or L51), 2 X DD60

British: Div A - Queen Mary, Princess Royal, Lion
Div B - Benbow, Iron Duke, Emperor of India
Screen - C11, 2 X DD20

Div 1 vs. Div B, plus screens is a contest of BC's versus BB's as is Div A versus Div 2. Div 1 versus Div A is a battlecruiser contest, whereas Div 2 versus Div B (plus screens) is a battleship engagement. The use of both divisions on each side provides for a scouting force plus line of battle. The possible scenarios are interesting because the speed and range differences make for some interesting situations. Use an A + B over C + D initial board setup. Have the British enter from A, the Germans from D and maintain initial course and speed until initial visual contact is made. Use ten hexes for base visibility and the rule for changes suggested above. Run the battle for 15 turns and determine victory by points (Section 9.5).

X 2 =

by Richard L. Mataka

Below are listed some additional rules and a Modified Sequence of Play that is needed for this Dreadnought Scenario. This Scenario will help you to get an understanding of the game system that is used in Dreadnought while at the same time creating a challenging situation to play. The Japanese units movement system is strictly mechanical and you are never sure of its path from turn to turn so you must be careful not to let your units get too close to them. The American units are moved by you the Player in an attempt to keep the Japanese units from exiting the other side of the map. The American units are hard pressed to keep the Japanese units from winning this game and only by skill can they hope to win.

Initial Forces:

Japanese: Yamato, Nagato, D-51 and D-52

American: Wisconsin, Texas, Utah, D-16, D-17 and D-18

Map Location:

| | | |
|---|---|---|
| A | B | C |
| D | E | F |

The Japanese units enter on Map C at a speed of 6 moving in a SW direction on the following hexes: D-51 2001, Yamato 2002, Nagato 2003 and D-52 2004. The American units enter anywhere on Map E at a speed of 6.

Victory Conditions:

The Japanese side wins by exiting any one unit off of either Map A or D or by destroying 3 American units. The American side wins by preventing the Japanese Victory.

Special Rules:

Modified Sequence of Play:

- 1) Damage Evaluation Phase: Turn markers right side up that received hits during the preceding phase and try to remove hits.
- 2) Combat Phase: Each side conducts attacks on units that are within range and consults charts for damage that is inflicted. Place counters for damage face down at this time to be turned up during the next Damage Evaluation Phase.
- 3) American Movement Phase: The American units are now moved in accordance with the Standard and Special Rules dealing with movement.
- 4) Japanese Unit Movement: The Japanese units are now moved in accordance with the Special Rules dealing with Movement.

Combat: Japanese:

Japanese Dreadnought units may split their attack strength in half and fire at a maximum of two units if they are within range during a turn. Each of these attacks are handled just like a normal attack. Torpedoes: If any American unit comes within the range of a Torpedo attack from a Japanese unit at any time during the game turn that Japanese unit automatically executes a Torpedo attack on the American unit that is within its range.

All Japanese units attack the American unit that is closest to them and if there are two units the same distance away then the unit with the weakest defense strength is attacked. If both have the same defense strength roll a die and high roll wins and receives the attack.

Movement: Japanese:

Japanese movement is mandatory in this game and is determined by rolling a die. Rolling a 1, 3, or 5 and the ship turns one hex counter clockwise at the end of its move. Rolling a 2, 4, or 6 and the unit in question turns clock-

wise at the end of its movement. All die rolling for the Japanese units is done before moving that unit and a die is rolled for every Japanese unit that is presently on the board. Turning is done in the last hex that is entered so that the first hex that is traversed on the next game turn will be chosen during this game turn. All Japanese units move at a constant speed of 6 unless damaged by Combat during that phase. If it so happens that a Japanese unit enters a hex with an American unit the Japanese unit will automatically fire a Torpedo at the American unit if it can and if not it just attacks normally during the Combat portion of the game turn.

Well, this is the Solitaire Scenario for Dreadnought and after getting the feel of it you can try your own ship mixture creating your own Scenarios some of which you will be able to win and others you may not. The one thing to try and remember is that you cannot make it too easy to win otherwise you will soon lose interest in it.

Once More into Third Reich

by Andrew S. McElwaine

The following is a scenario for Third Reich. It starts in Spring 1941 and ends in Spring 1943. This scenario encompasses the Nazi attack on Russia, the North African campaign, the Balkans campaign and the possible "Operation Sealion". Germany and Italy are at war with England. The U.S. enters this game in the same fashion as in the Campaign game.

BRP's are as follows:

Germany: 268

Italy: 75

Great Britain: 132

U.S.S.R.: 120

Initial Setup:

Germany: At Start:

20 3-3's, 8 4-6's, 3 9 factor fleets, 4 5-4 air, 1 3-3 prcht. restrictions: Fleets must be in either Baltic, North Sea, or Atlantic.

Force Pool:

1941: 4 4-6's, 8 3-3's, 1 9 factor fleet, 2 5-4 air, 8 replacement.

1943: 2 5-6's.

Control: Norway, Netherlands, Denmark, Belgium, Luxembourg, France, Poland.

Italy: At Start:

2 2-5's, 2 3-3's, 3 2-3's, 6 1-3's, 5 9 factor fleets, 2 5-4 air.

Force Pool:

1 2-3, 1 9 factor fleet, 1 2-3 prcht, 6 Replacement.

Limits:

At least one 1-3 in Albania.

At least two 1-3's in Libya.

All fleets in Mediterranean.

Control: Sardinia, Corsica, Albania, Sicily, Libya, Rhodes.

Britain: At Start:

4 3-4's, 3 1-3's, 3 4-5's, 7 9 factor fleets, 2 5-4 air, 2 2-3's (free French).

Force Pool:

3 3-4's, 1 4-5, 3 9 factor fleets, 6 Replacements, 2 5-4 air.

1942: 1 3-3 prcht.

Limits:

1 1-3 in Syria

1 1-3 in Gibraltar + two fleets

1 1-3 in Malta

1 3-4 and 1 4-5 in Egypt + two fleets

Control: Palestine, TransJordan, Cyprus, Egypt, Malta, Gibraltar.

U.S.S.R.: At Start:

15 1-3's, 6 2-3's, 5 3-3's, 5 3-5's, 3 9 factor fleets, 2 5-4 air.

Force Pool:

4 2-3's, 1 3-5, 1 5-4 air.

1942: 15 3-3's, 4 4-5's, 2 2-3 prcht.

Limits:

The following units must start at and not move from the stated cities until an enemy unit comes within 5 hexes of that particular city.

Moscow 1 3-5

Odesa 1 1-3

Kharkov 1 1-3

Gronzy 1 1-3

The United States functions just as it would in the 1942 scenario with the exception that the game ends earlier. The U.S. enters the war in Spring 1942.

Order of Deployment:

Italy, Britain, Russia, Germany.

Vichy France exists as a neutral and has the following units: 4 2-3's, 1 3-5, 2 9 factor fleets, 1 5-4 air.

Vichy France controls Morocco, Algeria and Tunisia. German player sets up Vichy French units. At least one 2-3 must be set up in Africa.

There is no year start sequence in 1941. The Axis player moves first. Russian winter rules are in effect. The German player must still garrison the eastern front with twenty five or more strength points. I suggest that you use the Advanced game rules about Vichy France. Axis Minor allies enter the game in Summer 1941. Russia may attack Germany in fall of 1941.

In Spring 1941 Yugoslavia overthrew their pro-Nazi government. A state of war exists between Germany and Yugoslavia in Spring 1941. The German player must not pay any BRP's for this.

Coalition Victory Conditions

| | Axis | Allies |
|-------------|------|--------|
| Stalemate | 19 | 15 |
| Marginal | 20 | 16 |
| Substantive | 21 | 17 |
| Decisive | 22 | 18 |

1975 SINAI

by George T. Havakin

The recent peace talks between Israel and Egypt will cause some slight changes in SPI's SINAI. The new Sinai Neutral Zone will consist of 0722, 0723, 0724, 0725, 0726, 0727, 0827, 0928, 1028, 1129, 1229, 1230, 1231, 1132, 1133, 1033, 0934, 0935, 0936, 0937, 1037, 1038, 1139, 1239, 1240, 1341, 1342, 1343, 1344, 1444, 1445 and 1446. The following hexes are Israeli forts and have defense strengths of four (0822, 0823, 0824, 0825, 0826, 0927 and 1027). All other hexes on the Israeli side that border the Neutral Zone have a defense factor of 1. The Egyptians have no such bonus on their side of the Neutral Zone.

Schutztruppe

Simulates the WWI German East African campaign. 2 scenarios: 1914 and 1916. Monthly turns. Large, 22x34" hex-grid map of NE Tanganyika (Kilimanjaro to the Rufiji river). Attractive, easy to read rules folder and separate play accessory charts. Some unit differentiation among the die-cut, mounted counters -- especially of Allied units.

Full or modified zocs for Allied units only; sea & rail movement; amphibious assault; supply rules; German infiltration and retreat before combat; ingenious victory conditions based upon drawing Allied units to Africa, cutting the Uganda railway, and German survival. Debilitating CRT, but units eliminated usually return after 3 months of R & R in South Africa, or somewhere (off-board). Optional hidden movement rule.

Consumer warning: Not for beginners. Game can be fairly long with a skillful German player. Usually a decision by mid-1917, though, even in the 1916 scenario.

Available for \$5.00 postpaid (US) from: Jim Bumpas, 948 Lorraine Avenue, Los Altos, California 94022.

Battle for Germany

The Destruction
of the Reich,
Dec. 1944-
May 1945



DREADNOUGHT

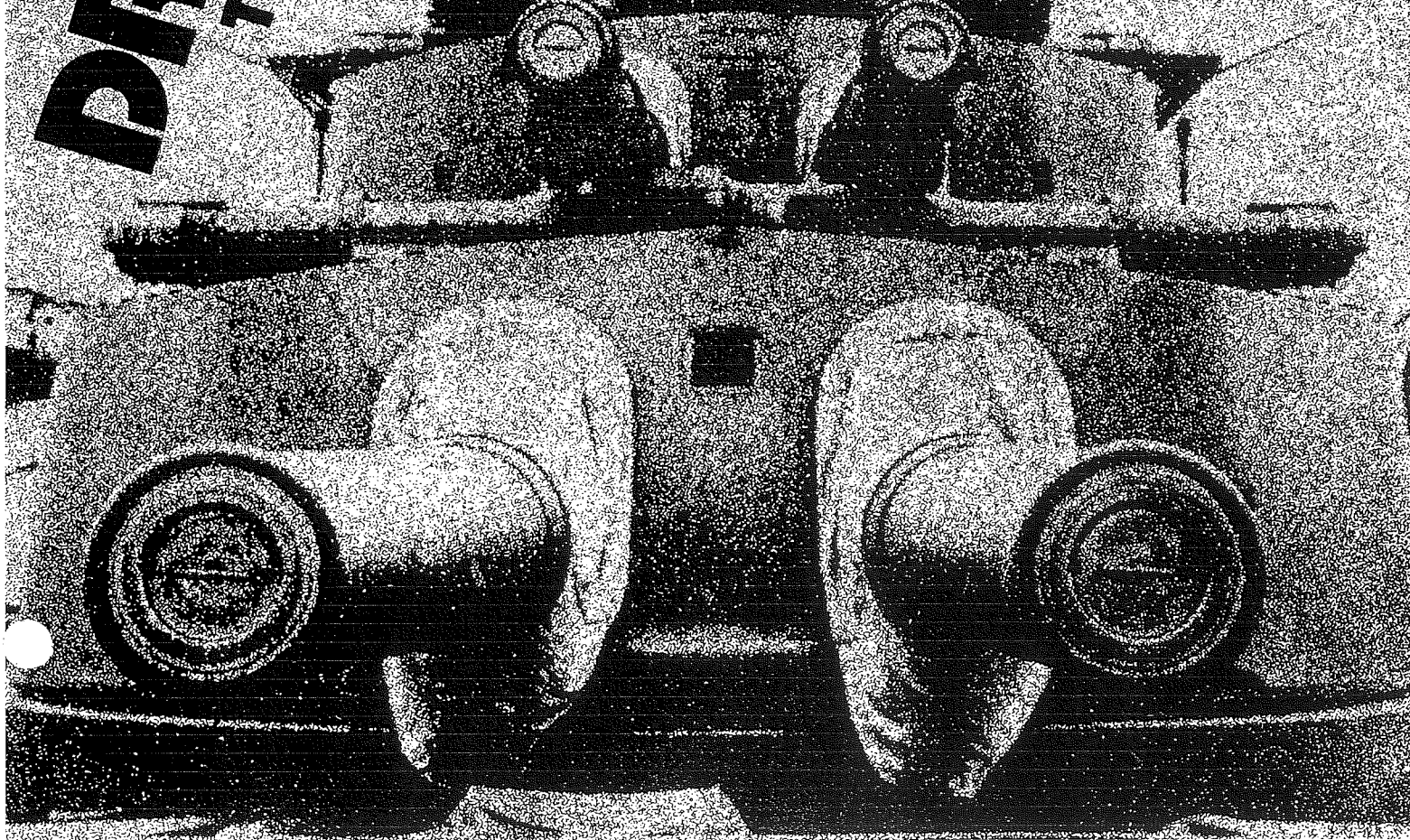
The Battleship Era, 1905-1971

The dreadnought sailed the world's seas for less than seventy years. Its heyday lasted less than two decades. Yet it still represents an ideal, the fusion of beauty and power into one weapon, deciding the course of war or peace. The battleship was the original weapon of deterrence, before that function was usurped by nuclear-tipped missiles.

It was not intended to annihilate entire populations, but to engage others of its kind in straight-forward combat. Yet these moments of battle, long awaited, proved fleeting and the dreadnought never fought its great decisive actions: the inexorable march of Twentieth Century technology rendered it obsolete.

BY DAVID C. ISBY

The main batteries of the HMS Hood



THE RISE OF THE DREADNOUGHT

The invention of explosive artillery shells (as opposed to the earlier solid shot) in 1827 mandated the appearance of armor on warships. Ships without armor were easy prey to the shell-firing gun; those with armor were almost immune. These changes gave rise to a new breed of ship, the Ironclad. Ironclads took many forms, with steam and sail propulsion, muzzle- and breach-loading weapons, with many small and a few large weapons mixed indeterminably in many fleets. Yet out of this plethora of warship types a new design began to emerge, starting in the mid-1870's and blossoming by the early 1890's. This was the Battleship. By the time the Battleship was ready to enter the Twentieth Century, the years of painful evolution were well in the past. These Battleships were the dumpy, pugnacious vessels later known as pre-Dreadnought Battleships. Such ships had defeated the Spanish Fleet off Santiago in 1898 and would fight out the actions of the Russo-Japanese War in 1904-05. The pre-Dreadnought displaced between 10,000 and 16,000 tons. Although as much as 24% of this displacement might be devoted to armor, one torpedo would usually suffice to sink such a vessel.

The pre-Dreadnought's weakness was its armament. The main battery, usually four 12" guns, was intended for long-range sniping, with the real damage supposedly being done at close range by the dozen or more secondary guns of between 5" and 8" in size. The emphasis on close-range fighting was caused by the range-finding equipment of 1900, which was so poor that the naval guns were simply sighted by enlarged versions of the contemporary non-telescopic rifle sight. Each gunner did his own aiming, which made it difficult to correct fire, for no one knew which of the shell splashes around an enemy ship were from his gun. Therefore, fire at ranges over 3,000 yards was considered difficult, and impossible over 6,000 yards. It was thought in some navies, notably the Royal Navy, that the answer was to increase the size of the Battleship's secondary guns. Thus, British secondary armament was increased from 6" in 1890-1902 to 7.5" in 1903, and the next year saw the introduction of 9.2" secondaries. The difference between main and secondary batteries was becoming smaller. The battles of the Russo-Japanese War had shown that it could become necessary to fight at over 6,000 yards range, and that only the 12" projectile could do sufficient damage to another Battleship, despite the fire control problems involved. The answer to these problems became obvious to many farsighted men simultaneously — the all big-gun Battleship. The secondary battery would be expanded to use the same big guns as the main battery, thus doubling the heavy gun firepower which, the Russo-Japanese war was to show, was all that mattered. Such an increase in armament, of course, required a larger ship (much to the chagrin of the Germans, who found it difficult to fit even their pre-Dreadnoughts through the Kiel Canal). Thus the Dreadnought was conceived.

Vittorio Cuniberti, an Italian Naval architect, was the first and foremost proponent of large Battleships armed with large numbers of heavy guns. The Americans, Japanese and British, finding these ideas supported by the results of the Russo-Japanese War, began to work on the ships which became the first Dreadnoughts. It was in Great Britain, however, that

the Dreadnought was first born. There, the idea of the all big-gun Battleship had fired the imaginations of two brilliant men, both committed to innovation and reform in their respective fields: Admiral Sir John "Jacky" Fisher, First Lord of the Admiralty, and Sir Phillip Watts, Chief of Naval Construction. During the years he led the Royal Navy, Fisher was to sweep away the cobwebs of Nineteenth Century complacency and reform the Royal Navy to make it a competent, professional force in time for the First World War.

Working with Watts, Fisher designed a ship that was in every way revolutionary. It mounted ten 12" guns, of which eight could bear on the broadside (double the power of a pre-Dreadnought), and six could be trained forward for pursuit firing (triple that of a pre-Dreadnought). To move this ship, the new turbine engine was to be used. Protection was increased — such a ship could not be allowed to fall victim to a single torpedo. In sixteen months, the fruit of Fisher's idea joined the Royal Navy. Her name was *H.M.S. Dreadnought*. In that instant, all the world's Battleships became obsolete.

With this new weapons system revolutionizing naval warfare, every navy in the world realized it needed Dreadnoughts, and quickly. The result was not one arms race, but several. Not only did the British and the Germans try to outbuild each other in Dreadnoughts, but so did the Americans and Japanese, Italians, French and Austro-Hungarians, and even the Brazilians, Argentinians, and Chileans joined the race in the years before 1914.

The success of *H.M.S. Dreadnought* resulted in the Royal Navy's building, in the years between *Dreadnought's* launch in 1905 and 1908, six similar vessels. Other nations were not far behind, and the ships built in this opening stage of the Dreadnought era, which lasted until 1914, may be termed the first generation of Dreadnoughts.

The Dreadnought, in assuming the mantle of power from the pre-Dreadnought, also assumed its enemies. Foremost amongst these was the torpedo. Throughout the age of the Dreadnought, the torpedo was the bane of the Dreadnought's existence. All that changed over the decades were the methods by which this threat was delivered. For the first decade of the Dreadnought's existence, 1905-15, it was the torpedo boat they feared. To counter this, most Dreadnoughts mounted heavy and effective torpedo nets and bristled with dozens of secondary and tertiary guns, ranging from 6" down to 2.5" in caliber. Unlike the pre-Dreadnought, whose secondary guns were intended to do the real damage, the Dreadnought's secondary guns were almost purely used against torpedo boats. The Torpedo Boat Destroyer, a class of warship invented to screen Battleships from this menace, eventually assumed the Torpedo Boat's function as well.

Not long after the first Dreadnoughts began to enter the navies of the great powers, a new variation on the Dreadnought theme appeared on the scene. This was the Dreadnought Battlecruiser. No type of ship so captured the public imagination as the dashing Battlecruisers — yet no type of ship proved so unsuccessful in action, although this was usually due to the misuse of the ships rather than their own failings.

Even more than the Dreadnought Battleship, the Dreadnought Battlecruiser was Fisher's brainchild. He saw the advantages of a ship with the armament of a Dreadnought and the speed of a cruiser. Such a vessel, Fisher postulated, would be invaluable for scouting, for running down enemy commerce raiders, for acting as a fast wing of the battle fleet to gain advantageous positions, and any other duty where speed was to be more important than protection; the speed of a battlecruiser required could only be obtained by keeping the ship light at the expense of armor. Fisher, however, maintained that the Battlecruiser was "stronger than the faster and faster than the stronger." In 1908, *H.M.S. Invincible*, the world's first Dreadnought Battlecruiser, joined the Grand Fleet, soon to be followed by two sisters and three near-sisters. The first German attempt at a Battlecruiser, *S.M.S. Blucher*, proved a total failure, but by 1910, *S.M.S. Von Der Tann* broke Britain's Battlecruiser monopoly. Only the British, Germans and Japanese (who built to a British design) actually launched Battlecruisers. Many other navies considered them "eggshells armed with hammers," unable to take the punishment inflicted by similar ships. The events of two world wars were to prove this view correct.

Just before the First World War, the British had introduced oil fuel with their *Queen Elizabeth* class (Battleships previously having been coal powered), which enabled these magnificent ships to reach speeds previously accessible to Battlecruisers. As a result, all non-German Dreadnoughts of the Second Generation, built after 1914, were oil-fired. This made possible the emergence of the "fast Battleship," which logically should have made the Battlecruiser obsolete. Despite this, Fisher felt great affection for his brainchild and so the British completed six Battlecruisers during the First World War. Five of these were very lightly armored and were designed towards Fisher's pet project of operations in the Baltic, which required shallow draft, obtainable only by sacrificing heavy armor plate. Four of the six were sunk in the Second World War, after three had been converted to aircraft carriers. Even in the First World War, however, "Fisher's Follies" proved inadequate, one of them coming off second best in a gunnery duel with a light cruiser!

The most important Naval Race was that between Britain and Germany. It assumed the same implications for Armageddon that the U.S.-Soviet "Balance of Terror" has in more recent years. The Germans, devoting most of their defense expenditures to their army, could not overtake the British head-start in warships. Never would the Germans have a ratio greater than 2 to 3 in terms of Dreadnoughts built, although they enjoyed better odds at times during the First World War.

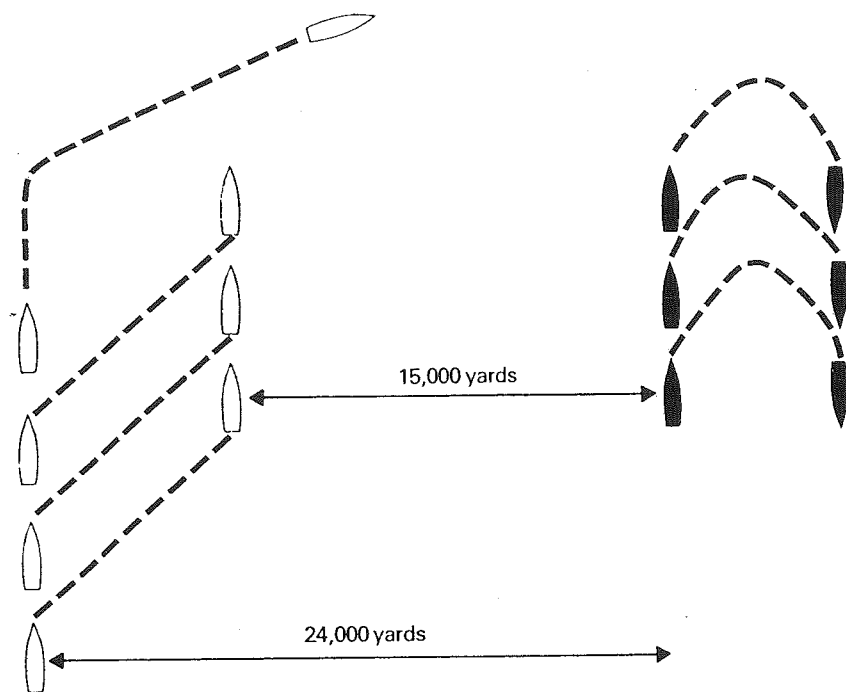
THE DREADNOUGHTS AT WAR, 1914-18

There is much more to any ship, especially one as complex as a Dreadnought, than meets the eye. There is also much more than can be gleaned from brief lists of statistics that affect its ability to function as a warship. These factors, difficult to quantify, greatly affected the Anglo-German Naval situation throughout the First World War.

The British and German fleets were built for different purposes. The German High Seas Fleet was intended as a deterrent to the British, to hopefully threaten the Royal Navy's superiority enough to deter the British from a war in

[continued on page 24]

The Tactics of the Dreadnoughts



THE LINEAR BATTLE

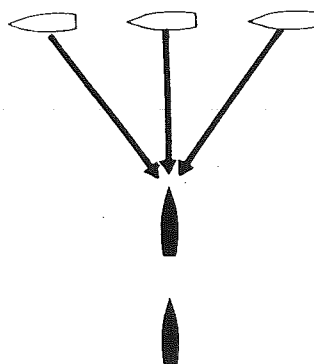
Here is the "ideal" Dreadnought action. Battles on a model similar to this were postulated by the British throughout the First World War, and by the Japanese and some Americans until well into the second World War. Here the left-hand column of ships have come parallel to the enemy out of range, but turn in to close range to 15,000 yards. This was generally considered the closest range possible without exposing the ships to torpedo attack and extremely destructive short-range gunfire. The ships closing the range ahead of the enemy line are a "fast squadron" of Battleships such as the British *Queen Elizabeth*, Japanese *Kongo* and American *Iowa* classes. These ships are trying to "cap the T" on the enemy.

The column of ships on the right is executing the *Gefechtskehrtwendung*, the simultaneous turn away from an enemy that was the specialty of the High Seas Fleet. Scheer used it twice at Jutland when confronted with superior forces. Most navies could perform a similar maneuver, but the Germans were able to do it properly due to much practice.

CAPPING THE T

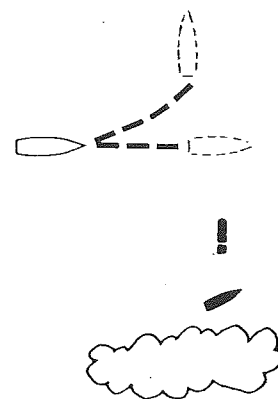
Capping the T is a naval tactic as old as firearms. It involves putting one's ship in front of the enemy, as the light colored ships have done in the diagram. This position has many advantages. The dark ships can only fire with the forward guns of the foremost ship, while the capping vessels can use all their weapons. At short range, there is little deflection on the capped ships, making them easier to hit. The "capped" ships also have their weaker bow and deck armor exposed, and shells

plunging through the decks will hole the ship's latitudinal bulkheads, damaging watertight integrity. The fact that the bow-on view presented by the target ship is narrow is of little matter. This is more than made up for by the target being "broader," since shells that would have missed by going over a ship turned broadside to the firing ship will instead hit the stern of the "capped" ship. In the Battle of Surigao Strait, the last battle between Dreadnoughts, the Japanese had their T capped in a manner similar to that shown.



COMBING

The most usual method for a warship to avoid torpedo attack was by combing. In the example, a destroyer has popped out of a smoke cloud within torpedo range (generally under 10,000 yards) of a Battleship, and fires a torpedo. If the torpedo was aimed correctly and the Battleship maintains its course, the torpedo will hit. To avoid being hit, however, the Battleship turns as tightly as possible away from the torpedo, hoping to turn inside it or at least



present it only with the stern of the Battleship as a target, which is much more difficult to hit than the whole broadside of the ship. By turning away the target ship can also lengthen the range, and possibly outrun the torpedo, which usually has a speed of only 30 to 45 knots. Jellicoe, by ordering the Grand Fleet to comb the German torpedo attack at Jutland, saved his ships from several torpedo hits. It also made it easier for him to lose the Germans.

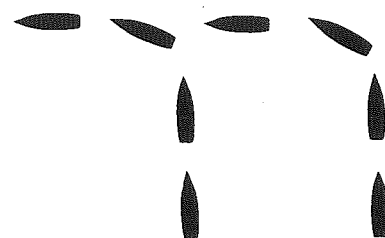
CRUISING AND BATTLE FORMATIONS

Ships do not fight in the same formation they sail in. Ships normally fight in one long line, each ship following another. There are many advantages to the line astern formation. Each ship has its broadside unimpeded by any other ship, and command problems were made easier, in that ships could "follow their leader" and more easily see the flag signals (vital before the Second World War). In the Second World War, improvements in radios and the smaller number of ships involved allowed them to act more flexibly.

Ships generally cruised in one or more parallel columns, with destroyers and cruisers screening the Dreadnoughts from submarine, torpedo boat, or air attacks. The different columns had to be well spaced, as a Dreadnought Battleship at speed had a turning circle of at least 500 yards.

Columns were separated by at least 2,000 yards and ships in a column by at least half that amount. Despite this spacing, collisions were distressingly frequent throughout the Dreadnought era. Many Dreadnoughts had the distinction of sinking friendly ships.

In the diagram, the ships are changing into battle formation from cruising formation by turning in succession. This maneuver was used by the British at Jutland, and as a result, took a long time to deploy.



[continued from page 22]

which both would suffer heavy losses, even though the British would probably prevail.

The German fleet was aimed at disrupting a British "close blockade." They imagined that in time of war, British Battleships would be sitting off German ports trying to block trade, becoming prime targets for quick sorties. The British, however, were aware of this, and in the years before 1914, Winston Churchill and Lord Battenberg, leaders of the Royal Navy, instigated a change of strategy to the "distant blockade," in which the British would close the North Sea at its northern end. The real patrolling would be done by light ships, leaving

the Dreadnoughts free to respond at short notice to German sorties. To implement this policy, Churchill prepared the naval bases of Rosyth, Cernart, and, most important, Scapa Flow to receive the British Grand Fleet of Dreadnoughts when war broke out.

The German Dreadnoughts were designed against one enemy - Great Britain. They were intended to operate only in the waters of the North Sea. The British ships were designed to operate anywhere in the world, and cruise long distances. The different conceptions of strategy were among the strongest of the many influences upon the differing British and German conceptions of Dreadnought design.

It is an old adage amongst naval architects that "you can't get something for nothing." Every Dreadnought is a compromise, a tradeoff of different elements to make the best ship possible. Within a set displacement, a ship must be "budgeted" to emphasize the differing elements of ship construction. As a result, the British found themselves emphasizing armament and speed at the expense of protection. The Germans had the opposite emphasis. Thus, we find in the First World War that British ships were generally at least a knot or two faster than their German counterparts, and carried larger guns (12" vs. 11" and 13.5" vs. 12"), while the Germans were superior in protection.

Duel of Dreadnoughts, 1915-44

The following are all the occasions in which Dreadnoughts fought each other. The winning side is shown first (although the action in the Black Sea and the Second Battle of Heligoland Bight were definitely indecisive draws). The commanding Admiral's name is shown in parentheses, with the names of the Battlecruiser commanders as well in the case of Jutland. All Dreadnoughts which participated are listed by name. Details of them may be found in the Dreadnought chart. Other types of ships are listed by abbreviation. OBB-Pre-Dreadnought Battleship, CA - Heavy Cruiser, CL - Light Cruiser, CV - Aircraft Carrier, AVS - seaplane tender, DD - Destroyer, ML - Minelayer, MC - Minecraft, especially minesweepers, PT - Motor Torpedo Boats, (FF) - Fleet flagship, (BCF)

- Flagship of Battlecruiser force at Jutland, (kia) - indicates Admiral killed in that action, (sk) - ship sunk in that action, (hd) heavily damaged, (md) - moderately damaged, (sd) - slightly damaged. SS - Submarine, (skr) - sunk, later raised.

DOGGER BANK, (24 January, 1915)

BRITISH: (Beatty): *Lion* (FF) (md), *Tiger* (sd), *Princess Royal*, *New Zealand*, *Indomitable*. 5 CL, 35 DD (1 md).

GERMANS: (Hipper): *Seydlitz* (FF) (hd), *Derfflinger* (sd), *Moltke*. 1 CA (sk), 19 DD.

ACTION IN THE BLACK SEA

(17 January, 1916)

GERMAN: (Souchon): *Goeben*.

RUSSIAN: *Imperatrica Ekaterina II*.

JUTLAND (31 May, 1916)

BRITISH: (Jellicoe, Beatty commands Battlecruisers): *Iron Duke* (FF), *Benbow*,

Bellerophon, *Temeraire*, *Vanguard*, *Superb*, *Royal Oak*, *Canada*, *Marlborough* (hd), *Revenge*, *Hercules*, *Agincourt*, *Collossis* (sd), *Collingwood*, *Neptune*, *St. Vincent*, *King George V*, *Ajax*, *Centurion*, *Erin*, *Orion*, *Monarch*, *Conqueror*, *Thunderer*, *Invincible* (sk), *Indomitable*, *Inflexible*, *Lion* (BCF) (md), *Princess Royal* (md), *Queen Mary* (sk), *Tiger* (md), *New Zealand*, *Indefatigable* (sk), *Barham*, *Warspite*, *Valiant*, *Malaya*. 8 CA (3 sk), 26 CL (4 hd, 1 md, 3 sd), 1 ML, 1 AVS, 76 DD (8 sk, 7 hd, 1 md, 3 sd).

GERMAN: (Sheer, Hipper commands Battlecruisers): *Friedrich der Grosse* (FF), *König* (md), *Grosser Kurfürst* (md), *Markgraf* (md), *Kronprinz Wilhelm*, *Kaiser* (sd), *Prinz Regent Luitpold*, *Kaiserin*, *Ostfreidland* (hd), *Thuringen*, *Helgoland*, *Oldenburg*, *Posen*, *Rhineland*, *Nassau*,

The Elements of the Dreadnought

A Dreadnought was a balance of many different elements. The ship shown in this illustration is the *H.M.S. Warspite*. *Warspite* was begun in 1912 and joined the Grand Fleet in March, 1915. She was in the thick of the action at Jutland, receiving thirteen 12" shell hits and inflicting a large number as well. She served with the Grand Fleet for the rest of the war. During the inter-war years, she served in the Atlantic and Mediterranean and was modified to the condition shown here. She helped wipe out a German destroyer flotilla at Narvik in 1940, then returned to the Mediterranean to defeat the Italians at Calabria. *Warspite* helped sink three Italian cruisers at Matapan, and also bombarded Axis positions in North Africa. While supporting the evacuation from Crete, in 1941, she suffered bomb damages and was repaired in the U.S. From there, she went to the Eastern Fleet in Ceylon until 1943. She returned to the Mediterranean for more bombardment of Sicily and Italy, where she was hit by a glider bomb and returned to Britain. After repairs, she bombarded the Normandy Beaches on D-Day, and after being repaired of damages incurred when

she struck a mine, bombarded Brest, Le Havre and Walcheren in support of the Allied Armies. In 1947, she was wrecked on the way to the scrapyard.

Warspite's career is an example of the wide variety of duties Dreadnoughts were called upon to perform in both World Wars. Her exploits are typical of many other ships.

The main battery turrets (A) contained 15" guns. They were protected by 13" of armor. A shell hit there, at Jutland, might have started a fire and the resultant cordite fash. Below the turrets are the circular barbettes with 10" of armor. Further below the barbettes are the four magazines. These were protected, before Jutland, by their own 2" of armor, but are defended against plunging fire by the armored decks (B). The main armored deck ran just above the waterline. When built, the lower armored deck was between 1" and 3" thick, while the upper armored deck had 1.3" to 1.8" of armor. The top deck had 1" of armor in places. This was increased after Jutland and between the wars, and, by 1939, the lower armored deck had 1.3" to 4" of armor, and the upper deck had 1.3" to 3" of armor. The magazines now had 6" of protection. The use of two armored decks was not a good idea. One thick deck is

more effective. If the armored deck was penetrated and the magazine hit, the ship could explode, as with *Hood* and the French at Oran. A hit in the magazine, even if it did not explode, would often result in ammunition supply being disrupted or the magazine being flooded. A hit in the engine room (C) will not only flood the ship, because it is below the waterline, but it will reduce speed, often leaving the ship without power to load and train the guns. Any hit under the waterline is dangerous, because it allows water into the ship. Such hits are protected against by the armor belt (M), 13" at its thickest amidships, thinning down to 2" at the ends. Between this belt and the top deck was the 6" of side armor. This would not have appeared on a ship with "all or nothing" protection, as it did not protect a vital area.

The ship was divided into watertight compartments by bulkheads of 2" to 6" thickness. The screws and rudder (D) under water aft are vulnerable, and a hit there would leave the ship either immobile, unable to steer, or forced to go off course. The Bridge (E) was the ship's nerve center and was protected by 6" of armor. *Warspite's* secondary armament (F) is single-purpose. It cannot be used against

German Dreadnoughts also had superior compartmentization. Their insides were divided into a larger number of compartments than the British, ensuring that one shell hit would not cause too much of the ship to flood. The British needed sizable living and refrigeration spaces for long voyages, as well as large coal bunkers for the fuel for overseas operations.

The Germans, on the other hand, had smaller amounts of coal bunkering, as they intended to operate in the North Sea. They also devoted little space to crew accommodations and refrigeration, as the crews lived in barracks ashore and slept at their battle stations at sea.

Therefore, a German Battlecruiser might have only 7% of its area below the armor deck subdivided into compartments larger than 1100 cubic yards, while a contemporary British Battlecruiser would have 44% of its area in such large compartments.

Battleships were better divided, though the Germans still retained an advantage, with a typical German Battleship having no large compartments, to its British opposite number's 23%. This was possible because German Dreadnoughts were wider than British ones, which were limited in width by narrow docks. This also limited the protection that could be placed on the vital areas of British ships.

Yet there was one failure of protection the Germans shared along with the British, and which was eventually to have dire results for both. As well as having heavier armor, the Germans had given more thought to the problems of damage control. Unlike the Royal Navy who relied on the ship's Executive Officer and regular seamen to deal with damage, each German warship had a specially trained Damage Control Officer who commanded working parties formed especially to contain and minimize damage. They were aided in this by the large pump capacity of German warships, which helped limit flooding if they were hit. The "second generation" German Dreadnought *Bayern* could pump out 5400

Westfalen, *Lutzow* (BCF), (sk), *Seydlitz* (hd), *Derfflinger* (hd), *Moltke* (md), *Von Der Tann* (md). 6 OBB (1 sk), 10 CL (3 sk, 1 hd, 4 md), 61 DD (4 sk, 1 hd, 6 sd).

SECOND BATTLE OF HELIGOLAND BIGHT (17 November, 1917)

BRITISH: (Napier): *Courageous* (FF), *Glorious*, *Repulse*. 8 CL (2 sd), 10 DD.

GERMAN: (Van Reuter): *Kaiser*, *Kaiserin*, *Hindenburg*, *Moltke*. 4 CL (1 FF) (2 sd), 10 DD, 20 M (1 sk), 1 SS.

NORWEGIAN SEA (9 April, 1940)

BRITISH: (Whitworth): *Renown* (ff). 4 DD.

GERMANS: (Von Lutjens): *Scharnhorst* (FF), *Gneisenau* (sd).

ORAN (3 July, 1940)

BRITISH: (Somerville): *Valiant* (FF), *Resolution*, *Hood*. 1 CV, 2 CL, 12 DD.

FRENCH: (Gensoul): *Dunkerque* (FF) (skr),

Strasbourg, *Bretagne* (sk), *Provence* (skr). 1 AVS, 6 DD.

CALABRIA (9 July, 1940)

BRITISH: (Cunningham): *Warspite* (FF), *Malaya*, *Royal Sovereign*. 1 CV, 5 CL, 17 DD.

ITALIAN: (Campione): *G. Cesare* (FF) (sd), *Cavour*. 6 CA (1 sd), 26 DD.

DENMARK STRAIT (24 May, 1941)

GERMANS: (Von Lutjens): *Bismarck* (FF) (sd). 1 CA.

BRITISH: (Holland): *Hood* (FF) (sk), *Prince of Wales* (sd). 2 CA.

THE SINKING OF THE BISMARCK

(27 May, 1941)

BRITISH: (Tovey): *King George V* (FF), *Rodney*. 2 CA.

GERMANS: (Von Lutjens) (kia): *Bismarck* (FF) (sk).

SECOND BATTLE OF GUADALCANAL (14/15 November, 1942)

AMERICANS: (Lee): *Washington* (FF), *South Dakota* (sd). 4 DD (2 sk, 2 sd).

JAPANESE: (Kondo): *Kirishima* (sk). 2 CA (1 FF), 2 CL, 11 DD (1 sk).

NORTH CAPE (26 December, 1943)

BRITISH: (Fraser): *Duke of York* (FF). 1 CA (sd), 3 CL, 4 DD.

GERMANS: (Bey) (kia): *Scharnhorst* (sk).

SURIGO STRAIT (25 October, 1944)

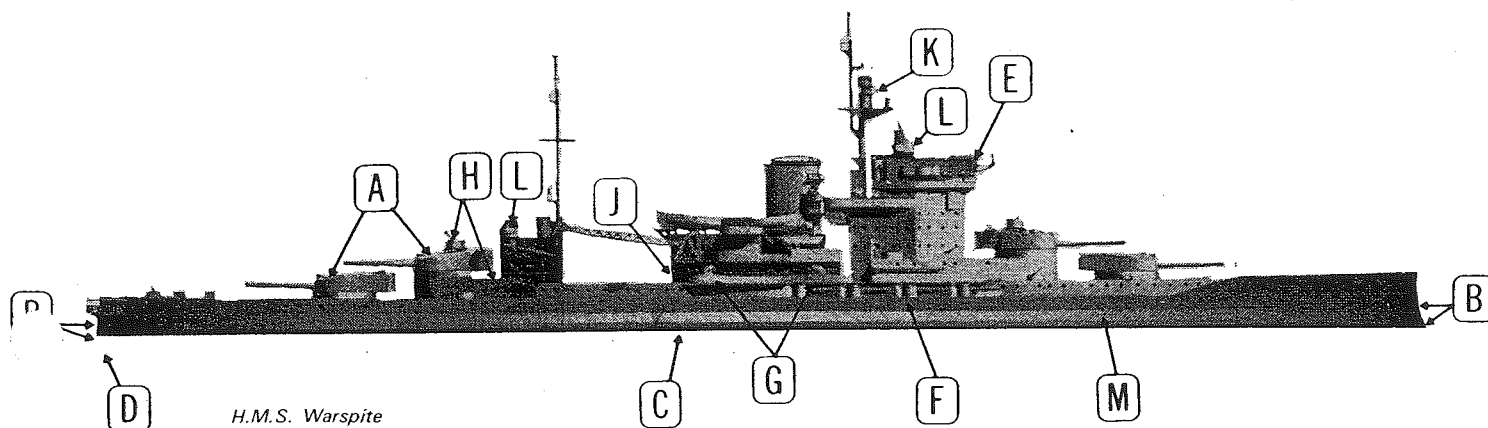
AMERICAN: (Oldendorf): *Maryland*, *West Virginia*, *Pennsylvania*, *Tennessee*, *Mississippi*, *California*. 4 CA, 4 CL, 16 DD (1 md), 39 PT.

JAPANESE: (Nishimura) (kia): *Fuso* (sk), *Yamashiro* (FF), (sk). 1 CA (hd), 4 DD (3 sk, 1 md).

aircraft. This was a fault of all second-generation ships until they were rebuilt, and of German, Italian and Japanese third-generation ships. *Warspite* does carry anti-aircraft guns, 4" mounts (G) and some 40mm automatic guns (H). This was in 1940. By 1944 she had many more than shown. Hits in the superstructure could cause fires. No Dreadnought carried armor there. Especially vulnerable to fire is the airplane and its hanger (J). Such airplanes

did little good and the hanger was eventually turned into the ship's theatre. The ship's radar (K) was carried on the mast, as was the spotting station to observe gunfire accuracy. The gun directors (L) took care of most fire control. To protect the ship against torpedoes, there were supporting bulkheads below the waterline and, by 1939, a water-filled bulge underwater to detonate torpedoes before they hit the ship's side.

Warspite was built with 8,600 tons of armor. 1,163 more were added after building. Despite all these defenses, *Warspite* was generally considered to be under-protected. She was, however, fast for her era — her four turbines produced 75,000 horsepower (80,000 after refit). Each driving a screw, *Warspite* managed 25 knots before her refit, 24 afterwards, the decrease due to the fitting of the bulge and the weight of the extra armor.



tons of water an hour, almost six times as much as its British contemporaries.

British fire control was more highly developed than the Germans. The British had centralized fire control using coincidence rangefinders. This enabled the different turrets on the ship to be coordinated better and with less interference. The Germans used stereoscope rangefinders and relied on individual turrets to do their own rangefinding, although the British were forced to resort to local control on more than one occasion themselves. The methods of "ranging in" on enemy ships differed as well. The British favored the use of single spotting rounds. The Germans used their full battery and made it difficult to sustain fire soon after the range was found, but it enabled the Germans to frequently obtain the range, straddle the target ship (drop shells on both sides and hopefully on top of it) and start doing damage before the British had the range. To an extent this reduced the advantage accorded the British by their larger weapons. [It should be noted, however, that the U.S. Navy had better range-finding equipment than either Navy.]

Both sides suffered from defective armor-piercing shells. The German shells showed poor ability to penetrate armor. The British shells penetrated armor better, but had a tendency not to explode.

The Germans had also paid more attention to night fighting than the British. The Germans used starshells for illumination and their searchlights were less likely to give away their positions than British ones.

The German structural steel was of generally better quality than the British, and able to withstand 15% greater stress. Neither navy's Dreadnoughts had adequate horizontal protection. Shells from enemy warships travel in an arc, so that when striking a target at short range they are descending at an angle of 15 degrees, and at 30 degrees at long range (increasing to 45 degrees in the Second World War). Therefore, it was obvious that the deck of a ship needs almost as much protection as its sides. Yet it was only after the Battle of Jutland and the rise of aerial bombing that the horizontal armor was strengthened.

This was the state the two navies found themselves in when the structured, progressive world of the Twentieth Century came apart in the chaos of July and August, 1914.

The first naval actions took place, surprisingly, not in the vital areas of the English Channel or the North Sea, but in the Mediterranean.

In early August, 1914, the German Battlecruiser, *Goeben*, escaped interception by two British Battlecruisers by ordering "Double schnapps for the black gang and cap the safety valve." Although three of the "black gang's" stokers died of exhaustion and boiler explosions, *Goeben* outran her erstwhile pursuers. [*Goeben* was given to the Turks, who used her on various duties in the Black Sea.]

During the First World War, the Battlecruiser found itself with few opportunities for proper tactical employment. Aside from work with the battle fleets in the North Sea, there was no place its superior speed could be of use. One of the exceptions to this was at the Battle of the Falklands. A German squadron of armored and light cruisers had sunk two British armored cruisers at the Battle of Coronel off the coast

of Chile on November 1, 1914. The British, stung to action, dispatched two Battlecruisers to the Falkland Islands. On December 8, the Germans appeared on the scene, attempting to attack the British base there. The superior armament and speed of the Battlecruisers ensured that the battle would reach its inevitable result, with the crews of two armored and two light cruisers singing *Deutschland Uber Alles* as the frigid waters closed over them. One light cruiser escaped, only to scuttle herself soon afterwards. Here the Battlecruiser found itself doing what it was designed for, using its speed to sink opponents weaker than itself, yet faster than a Battleship.

The British Battlecruisers had a similar success at the Battle of Helgoland Bight on August 28, 1914, when they aided British light forces in the sinking of three German light cruisers without losses. So far, the Battlecruiser had proven effective.

In late 1914, the German Battlecruiser squadron, under the impetuous Admiral Hipper, found itself rather bored, and so twice visited British seaside resorts, which they bombarded. When attempting to repeat this pleasant outing for a third time on January 23, 1915, they ran into the British Battlecruiser squadron under the equally impetuous Admiral David Beatty off the Dogger Bank. Hipper promptly decided discretion was the better part of valor and took off for Kiel at flank speed, with the British in hot pursuit. A running gunnery duel developed, with both sides displaying poor accuracy. At long range, *Lion*, Beatty's flagship, scored a direct hit on an after turret of the *Seydlitz*. The explosion in the turret created a cordite flash which communicated itself down the shell hoist to the magazines of that and the adjoining turret. Were it not for the bravery of a German Petty Officer, *Seydlitz* would have blown up. As it was, it limped into port. Meanwhile, *Lion* had itself been hit, and fell out of formation. *Blucher*, a heavy cruiser masquerading as a Battlecruiser, found that it could not keep up with the flight of its squadron and fell behind, soon riddled by British shells. Beatty wanted to finish off the rest of the German squadron and sink the crippled *Blucher* at his leisure. Here, however, the problems of command control came in. *Lion's* radio, unreliable under the best of circumstances, had been destroyed, and so Beatty was forced to communicate by signal flags. The North Sea is a habitually misty place, especially in January. The smoke from the ship's guns and funnels aggravated this condition so much that it is remarkable that the men on the bridge, peering through the view slits in the armor plate, saw anything at all. Beatty's signals were misinterpreted. The British Battlecruisers swung away from the rest of the German squadron and sank the already doomed *Blucher*. This, of course, let the rest of the German squadron escape.

What can be seen then from the first "real" duel of Dreadnoughts? One thing was the importance of the command system. The finest ships are useless if they cannot be used properly. Beatty found this out at Dogger Bank. It also became apparent that gunnery, at a moving target in a mist at ranges over ten miles, was a difficult undertaking. Yet the main beneficiaries of Dogger Bank were the Germans, who found out the weakness of their ships to magazine explosions following cordite flash resulting from a turret hit. All their ships were modified to prevent a recurrence of the explosion aboard the *Seydlitz*. The British,

who had not suffered any such hits, were ignorant of this flaw, which existed in their own ships as well.

One thing the Germans did not learn from Dogger Bank is how the British spoiled their outing to begin with. They had been intercepting German radio messages with the aid of a captured code book, and thus were able to negate any chance of the surprise sortie in which the Germans had put so much faith in pre-war.

One thing which surprised many people was that there was no cataclysmic naval battle in the months before or after Dogger Bank. One reason was that both the commanders of the Grand Fleet and the High Seas Fleet, Admiral Sir John Jellicoe and Admirals Von Ingerhol and later Von Scheer realized the gravity of their command. Never before had one man had the entire naval power of a great nation under his command. Yet what could be gained by hazarding a decisive battle? If the Germans won, the blockade would be raised and the crippling food shortage would have been averted, as well as opening up the possibilities of an attack on Britain directly. If the British won, however, they could do less. Germany would still be blockaded, as before, and operations directly against Germany or the Flanders coast would be blocked by light craft, mines and submarines.

The submarine had become the prime enemy of the Dreadnought by 1915. As before the war, the torpedo still worried the Dreadnought, though it was now delivered by submarine. The submarine was more difficult to defend against than the Torpedo Boat. Destroyers were necessary to screen the Dreadnoughts from submarine attack, although *Dreadnought* herself rammed and sunk a U-Boat.

The North Sea was full of both sides' submarines, making commanders on both sides fearful of ambush. Minefields were another constant hazard. Both sides lost many ships to them, including the Dreadnought *Audacious*. Slowly, but surely, the Dreadnought found its mastery of the sea challenged by these underwater weapons. They made going to sea for training a hazard, and for that reason the British Battlecruiser force had little opportunity to go to sea for gunnery practice, which was to later handicap their performance.

In the months after Dogger Bank, however, a new type of Dreadnought began to appear, first in Britain, but later in all the Dreadnought-building nations. These were the Second Generation Dreadnoughts. The first of these ships had been laid down in 1912. They all featured (eventually) turbo-electric engines, powered by fuel oil. Their armament was, in many cases, revolutionary. The British introduced the 15" gun on the splendid *Queen Elizabeth* class and their poor relations, the *Royal Sovereigns*. The Germans promptly imitated them with the two *Badens*. The Americans stayed with large numbers of smaller guns until the Japanese did the British one better and introduced the 16" gun on their huge *Nagato* class. This prompted the Americans to build 16" Battleships of their own, but these were not ready until after the war.

These ships were faster than their oil-burning predecessors, and, as such, made the Battleship obsolete. The Americans, while conservative with their guns, made a bold innovation with the protection of their Second

Generation ships, soon to be adopted world-wide. This was the "all or nothing" principle of armor placement. Quite simply, instead of spreading armor throughout the hull of a ship, the Americans concentrated it in great thickness over the ship's most vital areas, its engine room, magazines, and to a lesser degree, its propellers and rudder.

The Second Generation Dreadnoughts represent the high watermark of the Dreadnought's power. They were conceived in a world where the Dreadnought ruled the waves and had no acknowledged challenger. Many think the *Queen Elizabeths* the finest Dreadnoughts ever. Though other ships surpassed them in fighting power, they were the *ne plus ultra* of their brief moment in the sun.

In May, 1916, after another bombardment of a British town, the German High Seas Fleet decided that there was only one way to ease the blockade of Germany. That was by weakening the Grand Fleet, hopefully by destroying part of it. At the same time, the British were preparing an offensive operation against the Kattegat to draw the Germans out for just such a battle. Both sides positioned submarines in support of their operations, but the Germans got the first move. In the pre-dawn darkness of May 31, the High Seas Fleet left its bases. Waiting for them, already at sea, was the Grand Fleet, alerted by decoded radio messages. The stage was set for the greatest clash of Dreadnoughts: The Battle of Jutland.

At 1428 on May 31, 1916, light cruisers, engaged in scouting for both sides' Battlecruiser forces, clashed. On both sides, the Battlecruisers hurried towards the scene of the action. The British were partially optimistic as they were told by their Radio Intercepts that only the five German Battlecruisers were at sea, rather than the whole High Seas Fleet. At 1531, the two forces joined action. In addition to light cruisers and destroyers, the British had six Battlecruisers reinforced by four fast *Queen Elizabeth* class Battleships to meet with five German Battlecruisers. With the battle joined at some 16,000 yards range, the British were hindered by the wind blowing the smoke from the guns back into their gun directors. For the next hour, a gunnery duel raged. Both sides were taking considerable punishment. Then, one after another, three British Battlecruisers were hit on their turrets. Like *Seydlitz* at Dogger Bank, the flash communicated itself down to the magazine. Only *Lion* was saved by a heroic officer. The other two Battlecruisers blew up. But the British were undeterred. They closed the range, and the Germans were beginning to feel the 15" shells of the Battleships. At this moment, the Battleships of the High Seas Fleet appeared over the horizon. Beatty knew he could not defeat the whole German fleet. He disengaged, starting at 1640, and by 1730, the superior British speed had left the Germans pursuing out of range.

The Battlecruiser action had been the clash of rival ship design theories. The German advantages in protection enabled their Battlecruisers to sustain much punishment. Were it not for the modifications made after Dogger Bank to prevent cordite flash, German Battlecruisers would probably have blown up from turret hits as well. The superior British speed enabled them to withdraw once they were outmatched, although this withdrawal was hampered by the four *Queen Elizabeth's* turning away one after another rather than all

together, which exposed them to the fire of the full High Seas Fleet. Similarly, superior German accuracy and shell quality negated much of the British advantage in gunnery, despite their larger guns and better system of fire control. Beatty himself said, "There is something wrong with our bloody ships today, and there is something wrong with our system." He placed the emphasis on the second part, despite the fact that had the German Battlecruisers been unsupported, he might have been victorious.

Yet the hopes of a British victory were increasing as Scheer's High Seas Fleet pursued Beatty's Battlecruisers northwards, right into the path of Jellicoe's advancing Grand Fleet. If Scheer could be brought to battle by Jellicoe, the Germans would surely crumble under the superior British numbers and firepower.

By 1800, the destroyers and cruisers screening the two fleets were hotly engaged. At 1815, Jellicoe gave the order for the Grand Fleet to form a line of battle. This maneuver had not been completed two minutes later when Scheer arrived on the scene. Scheer was in trouble, but the situation was slow in unfolding. His ships were not deployed in battle formation, but it was quite a while before he could find out who his opponents were. Visibility had closed in, and the wind was now blowing the German smoke into their faces. Soon another British Battlecruiser was hit and blew up, but the real duel was between the Battleships. Jellicoe had the position of advantage and the German Battlecruisers leading Scheer's column were among the ships suffering heavily. After eighteen minutes, Scheer ordered a simultaneous turn away from the British, trying to withdraw southwards from the unequal action.

The bad visibility aided Scheer's escape, as did the cumbersome British command system. No one told Jellicoe that Scheer had turned away, and it was only eleven minutes afterward that Jellicoe saw this for himself.

At this point, however, Scheer thought better of his flight and at 1855, he turned around again. He headed straight for Jellicoe. Nothing could have pleased the British more. At 1912, the two fleets re-engaged, with the British still in position, as they had been the time before, to "cap the T" of the Germans. Scheer was only in action for six minutes when he realized his ships were being badly damaged by the British, without much chance to reply. He ordered another turn away, and to cover his withdrawal, he ordered his destroyers to make smoke and close in for a torpedo attack. Hipper's Battlecruisers were also ordered to make a suicidal close-range attack on the British.

Jellicoe was now confronted with a torpedo attack, the great fear of all Dreadnought commanders. He "combed" the torpedoes, turning away from the Germans. All the torpedoes missed, but Scheer was able to open the range. Had Jellicoe turned towards the torpedo attack, he would have suffered more hits, but had a greater chance of maintaining contact with the now-fleeing Germans. Three times during the evening, the British encountered parts of the German fleet, but the British command system was that inflexible that nothing was done.

To slow down the Germans Jellicoe ordered his cruisers and destroyers to attack with

torpedoes during the night. In a confused action, a German pre-Dreadnought, among other ships, was sunk, but the German withdrawal was not impeded, although they did scuttle a dying Battlecruiser. On the morning of June 1, Jellicoe had realized that, due to his cautious pursuit, the Germans had outrun him. Fearful of U-Boats and with his destroyers low on fuel, he returned home.

Jutland failed to produce a decisive result. Instead of another Trafalgar or Tsushima, all that resulted were a few minutes of long-range battle. Of the three main Dreadnought-to-Dreadnought actions that made up the Battle of Jutland, the two involving the Battleships lasted only twenty-eight minutes. A decisive action would have required longer and more sustained action. There were many factors mitigating against this.

The visibility in the North Sea was poor, and opposing ships slipped in and out of the mist. Both commanders feared enemy submarines and minefields. The fear of having part of their fleet cut off and overwhelmed was also a powerful deterrent against unorthodox actions. The commanders also had less than complete control over their fleets. With the radios cumbersome to use and flags limited to the range at which they could be seen, the commanders found it difficult to either receive situation reports or transmit orders. The difficulty of receiving signals from other ships frequently led to the commanders not knowing anything more of what was going on than they could see through their telescopes.

In the British case, this was compounded by an overcentralized and inflexible command system. Several times British subordinates were presented with opportunities that, if acted upon immediately, could have resulted in advantages. Yet none of these men acted. The British command system was based upon peacetime theory rather than actual combat conditions. For two years before the war, the British had experimented with a more flexible system, but it was not used at Jutland. As Beatty saw, both the system and the ships were flawed.

One element which clouded the judgments on the Battle of Jutland was the "spectre of Nelson." Too many people were looking for a decisive battle on the model of Trafalgar or Tsushima to realize that such victories were few and far between. This was due to the very nature of a Dreadnought Battleship. Unless it blew up, as the three British Battlecruisers did, or was slowly pounded to pieces, the way the German *Lutnow* was, it was very difficult to sink a Dreadnought, especially as most ships carried no more than an hour's supply of ammunition.

Both commanders were very much aware that their fleets were irreplaceable. Jellicoe was "the only man on either side who could lose the war in an afternoon." The battle had shown that the British command system was too rigid and the danger of the cordite flash too real. The British soon took steps to correct these failings. As for the results of the battle, the British had lost three Dreadnoughts to the German one, but nothing was changed. The British blockade tightened. Yet the Royal Navy was still powerless to break the deadlock on the Western Front. Jutland was important because nothing changed. It insured that the British would continue to starve Germany.

[continued on page 30]

Designing Dreadnoughts

One hobby which has gained little recognition over the years has been amateur warship designing. Such men as Woodrow Wilson, Kaiser Wilhelm, Franklin Roosevelt, and the writer have amused themselves by sketching out designs for imaginary warships. Such people were generally surprised how much better their vessels were than the genuine items, for while they were limited only by imagination, a real naval architect has many more complex problems to resolve.

A successful Dreadnought was the result of a careful and delicate balance between space, armament and protection, on a displacement large enough to carry them and absorb damage.

The dimensions and displacement of a ship are important in determining its characteristics. A ship's structural strength is inversely proportional to its length and directly proportional to its beam (or width) and the square of the depth of the hull. Generally, the bigger a Dreadnought is, the better a fighting ship it will be. There were, however, many limitations to this. Dreadnoughts could have their size limited by political limitations, as with British and French Third Generation ships. They could have their width reduced by the need to utilize existing canals and docks. This makes protection more difficult, as the ships are narrower and the vital magazines and engines cannot be placed far enough inboard. Another limiting factor was cost. Dreadnoughts were expensive to build and operate. Large ships were also unwieldy to sail and resulted in "putting all the eggs in one basket." The prime example of this was the Japanese *Yamato* class. Although these were the biggest and most heavily armed Dreadnoughts ever built, as fighting ships they were not as good as the smaller *Iowas*.

Once a ship's tonnage is established, it can be seen just how the different elements of the ship are to be balanced. For example,

the British Battlecruiser *H.M.S. Furious* had 38% of its displacement devoted to its hull, while having 17% devoted to armor, 11.5% to the engines, 15.5% to armament, 3.5% to equipment, and 14% to fuel. The German *König* had 31.4% devoted to the hull, 40.5% to armor, 8.4% to engines, 12.1% to armament, 3.6% to equipment, and 3.3% to fuel. These two ships reflect differing philosophies in ship design. The Battlecruiser has larger engines for its greater speed, and also has more tonnage devoted to its hull, for larger engines demand a proportionately larger hull to put them in, and hull length also helps increase speed. The emphasis on armament and speed shows *Furious* to be an offensively oriented ship, with lots of fuel to enable it to travel world-wide and keep up its high speed. *König*, on the other hand, is defensively oriented as is seen by the emphasis on armor. It is short-ranged, as is evidenced by the reduced emphasis on fuel, and not as fast. Yet *König* is a better balanced ship. It shows an awareness that the advantage of a few extra knots is not worth the large price in tonnage that must be paid for it, and that any Dreadnought must have sufficient protection for it to fight effectively.

The British emphasis on getting a little extra speed out of a ship at the expense of armor was not wise. Such speed is very "expensive" in tonnage. The *Iowas* were five knots faster than the *North Carolinas* only because an extra 10,000 tons had been devoted to engines, and the extra hull and armor needed to protect them. It is thought that even if *Iowa* had only 100,000 horse-power onboard instead of 200,000, it would only have meant a reduction in speed from 33 to 27 knots.

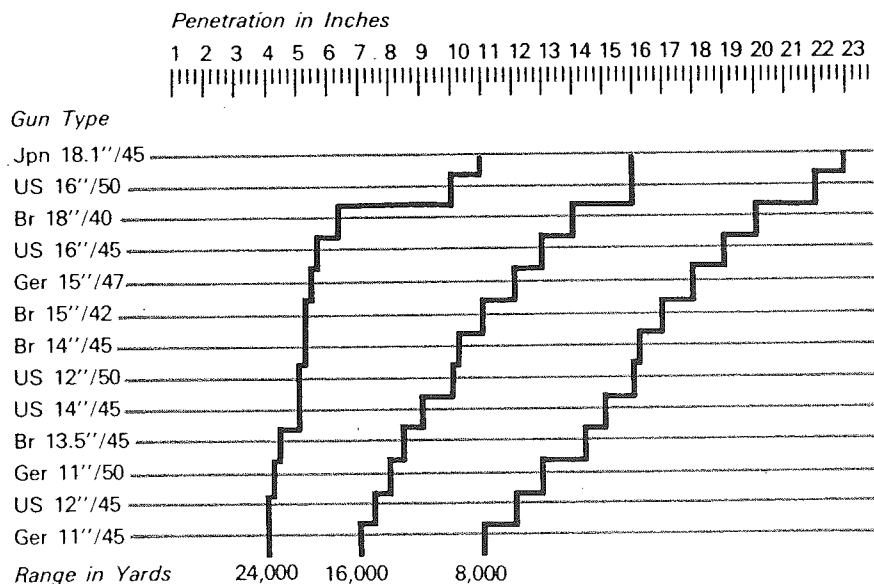
The protection of a Dreadnought generally means armor, but it includes compartmentization, bulkheads, and bulges. Armor is especially vital. The need for armor increased throughout the Dreadnought era as weapons became larger. The

effectiveness of armor increases geometrically, so four inches of armor is four times as effective as two inches of armor.

Bulges were introduced at the start of the Second Generation. They are spaces, originally empty, but later filled with water and oil, that cushion the effect of shell or torpedo hits. The use of such compartments enabled most ships armored on "all or nothing" principles to have their armor belts inboard, protecting the ship's vitals directly, rather than on the ship's skin. Sometimes a bulkhead is placed behind the bulges and the compartments used as a cushion. These are torpedo bulkheads and are used to contain damage, as are all longitudinal bulkheads. Internal subdivisions not only impose a weight penalty, but reduce living space and limit the area of the ship that can be used for engine rooms, which are, of necessity, large spaces.

Despite this, there was a limit to what protection could do. Passive defense could only reduce the effects of damage, not negate it. No Dreadnought could survive aircraft bombs and torpedoes, for they would eventually wear down even the strongest defenses, flooding compartments and saturating the capacities of the ship's damage control. The "unsinkable" Dreadnought was often considered, but never built. Protection, like speed and power, had its point of diminishing returns. The Dreadnoughts were vulnerable, despite their protection, to torpedoes, mines and bombs throughout their career, even if they were relatively invulnerable to other Dreadnoughts.

One of the less effective compromises was the hybrid. This was a ship which was half Dreadnought and half aircraft carrier. It could do neither job well, for its turrets and superstructure hindered its role as an aircraft carrier, and the reduction in armament and the inflammable gasoline and airplanes it carried made it a poor Dreadnought. The three hybrids, *Furious*, *Ise* and *Hyuga* only lasted for a few years in this state.



Penetration of Armor

One of the prime attributes of a Battleship's gun is its ability to penetrate the armor on enemy ships. Guns with a larger caliber and barrel length were better able to do this, as were guns with a higher muzzle velocity. The chart shows the penetration in inches for each gun at ranges of 8,000 to 24,000 yards. The figures are of necessity approximate. The quality of armor is important, of course. The chart assumes it is Krupp cemented, the standard form of Dreadnought armor, but some early American ships used an inferior type (Midvale Cemented) and Third Generation German vessels used a superior compound. If the shell strikes a glancing blow, its penetration power can be reduced up to 50%.

The Teeth of the Dreadnought

A Dreadnought, or any other warship, is a difficult target to hit. A ship some 16,000 yards away appears as but a speck against the horizon. This is where good fire control is mandatory. Although the exact procedure varies, depending on whether a stereoscopic or a coincidence rangefinder is used (both are similar), visual range-finding is basically a trigonometric function. The distance between the eyepieces of the rangefinder is known, as is the adjacent angle, by keeping crosshairs on the enemy ship. With this data, the range can be found. The Germans throughout the First World War and the British at the Falklands Islands relied on the individual turrets to do the range-finding, while the fire observers watched to see whether the salvo was under, over or a straddle, and so corrected fire.

In Director control, which was more normally used, the Fire Control Officer would compute the range and bearing and pass this data to the turrets. When the data had been relayed, he signaled all the guns to fire. As the shells took many seconds to reach their target, which was usually moving and changing course, it further complicated things. It was difficult to see the shell splashes to adjust fire, and the vibration of the ship's guns as well as the shock of enemy hits could throw range-finders off.

This explains the relatively low amount of hits with visual control. At Coronel, a German squadron, including the two best gunnery ships in the German Navy, firing at cruisers silhouetted by the setting sun at 12,000 to 5,000 yards range, scored 3% hits. At the Falklands, two British Battlecruisers, firing under local control at German heavy cruisers, who were trying their best to take evasive action, scored 2% hits at ranges of 12,000 to 16,000 yards in good visibility.

The Germans, firing at the attacking Battlecruisers, managed 3% hits.

At Dogger Bank, the Germans fired at the British Battlecruisers at ranges of 16,000 to 20,000 yards. They scored 1.5% hits, despite good conditions. In return, the British only scored 1% hits despite their Director control. When they finished off the dying cruiser *Blucher* at 6,000 yards range, the British accuracy increased to 7.5%. Here, the need for training became apparent. *H.M.S. Tiger*, a "green" ship, fired well over a hundred rounds without a hit.

By this time, both navies realized that their peacetime training procedures had been sadly inaccurate. Before the war, the British had scored 50% to 70% hits on a target towed at eight knots on a predetermined parallel course at 8,000 yards. Those who expected to do the same in wartime were sadly mistaken. At Jutland, where visibility was not good, except in the Battlecruiser action, and most firing was done at ranges of 15,000 yards, the British Battleships scored 3.1% hits, the German Battleships

and Battlecruisers scored 3.2% hits, but the British Battlecruisers only scored 2.2% hits. This was due to their lack of practice.

During the inter-war years, fire control systems were improved. The coincidence rangefinder became almost universal, and the Japanese took a great deal of interest in using their optics at night. Yet accuracy had not greatly improved. In a battle between a German "pocket Battleship" and three British cruisers off the River Plate in 1939, the German 11" guns scored 1.49% hits, while their 5.9" guns scored no hits. The British 8" guns scored 2.5% hits and their 6" guns had .82% hits. This was in good weather at an average range of 11,000 yards. Similarly, the French *Dunkerque* at Oran fired 40 rounds at *H.M.S. Hood* under visual direction. All missed.

A new fire control device, radar had arrived on the scene. Its first use was at Denmark Strait where the *Bismarck* scored 10% hits on *Hood* with radar-directed fire, despite ranges of 25,000 to 16,500 yards and bad visibility. Yet the primitive state of this radar (it could not detect shell splashes and thus could not be used to correct fire) did not preclude visual fire. The British fired visually when they sank the slowly moving *Bismarck* at a range of 3,000 yards. Almost 50% of the shells hit. Similarly, firing with searchlights at night, the British scored 70% hits on slowly moving Italian cruisers at Matapan.

The Americans found SG radar enabled the *Washington* to score a creditable 12% hits on *Kirishima* at 6,000 to 14,000 yards range at night. *Duke of York* used radar and starshells (pyrotechnic shells that illuminate the target like a firework — introduced by the Germans in 1916) to attain 3% hits on the *Scharnhorst*. This was at 10,000 yards range in bad weather. *U.S.S. Massachusetts* used radar to find the bearing and angle, but used visual correction, when it engaged the French *Jean Bart* acting as a floating battery off Casablanca. Despite the fact that the Americans were an untried crew, the fire and control and a stationary target resulted in 8% hits, regardless of the 24,000-29,000 yard range.

Clearly, radar was a great improvement in fire control.

Fire control is not everything. The British had superior fire control equipment in the First World War, but the Germans had consistently better shooting, due, in large, to their superior means of finding the range. Nevertheless, it remains that a Dreadnought's guns are useless unless it has fire control available. By 1943, Fire Control (FC) radar had appeared on American and British ships. This allowed the fall of shell to be spotted on radar and was used by *Duke of York* to sink the *Scharnhorst*. The Germans also used a comparable device, but the Japanese failed to come up in the radar race, relying heavily on their excellent optics, which were, until 1943, often more effective than Allied radar. Despite this, the Dreadnoughts' relatively low accuracy with its guns and its great invulnerability to shell damage helped

make it a basically "indecisive" weapon, more capable of resisting damage than inflicting it.

A much more decisive weapon was the torpedo. Not only did the torpedo do more damage than a shell, it was more accurate. The following shows the percentage of bomber-launched torpedoes that would hit each type of ship at anchor, underway, and evading:

BB, CV: 45%/30%/25%; CVL, CA: 40%/25%/20%; CVE, CL: 35%/20%/15%; DD: 30%/15%/10%. Under certain conditions these percentages varied. Every torpedo launched by the Japanese at Pearl Harbor that did not bury itself in the harbor mud hit its target.

Even ships could do good damage with torpedoes. At Jutland, the British scored 7% hits with torpedoes, fired at an average of 4,000 yards. The Germans, firing at an average of 6,000 yards, scored but .3%. At Surigao Strait, U.S. PT Boats fired 3% hits at the Japanese Battleships at 10,000 yards. The U.S. destroyers did better, some 11% hits, at the same range. British destroyers got 20% hits on the *Scharnhorst* in heavy seas at night, but the range averaged 2,277 yards. All of these World War Two actions took place at night and with radar.

Radar, however, was not a necessity for effective torpedo operations. The Japanese were the most effective practitioners of torpedo warfare. While they only once hit an American Dreadnought (from a submarine), they gave other Allied ships a very bad time, as at Tassafaronga when 30% of the torpedoes hit non-evading American cruisers at 9,000 or so yards. The British destroyers which attacked the *Bismarck* at night without radar scored some 13% hits at a range of 5,750 yards, but when the cruisers and Battleships tried their hand at it in daylight, they could do no better, although the average range was 6,780 yards. This was the only occasion where Dreadnoughts torpedoed each other, with *H.M.S. Rodney* scoring one hit.

Torpedoes could have their limitations, however. The Americans in the early days of World War Two and, to a lesser extent, the British throughout the First World War were plagued by defective torpedoes. Nor were hits always easy. Of the many dozens of torpedoes fired by American surface ships in the Guadalcanal Campaign, only one hit. Fourteen torpedoes fired at 9,000 yards at River Plate scored no hits. Yet it still remained that, by day or night, the torpedo was the weapon the Dreadnought had to fear most.

The other great enemy of the Dreadnought was air bombing. While high altitude bombing would seldom hit a moving ship, low altitude or dive bombing could claim up to 20% hits on a Battleship or Carrier, 12% on a cruiser, and 4% on a destroyer, although these figures could be reduced by 20% if the target was steaming more than 12 knots, and by 40% if the target was steaming over 25 knots. This was another frequently used method of destroying Dreadnoughts, and the Japanese lost many of their ships to American bombers.

[continued from page 27]

Dreadnoughts met only one more time in the North Sea during the First World War. The Germans made several other sorties, but fear of interception and the submarine and mine threat soon drove them back. The British, eventually reinforced by six excellent American Dreadnoughts, frequently swept the North Sea, but never succeeded in catching the Germans. On November 17, 1917, however, British Radio Intercepts revealed the presence of a German minesweeping force, escorted by light cruisers and destroyers, off Heligoland. The British met them with a force including three of Fisher's light Battlecruisers. Again, command control problems and poor visibility stopped the British from annihilating the

German light forces. The light Battlecruisers found themselves under-gunned and armored so lightly as to be damaged by the light cruisers. Still the British had the upper hand until two German Battleships arrived on the scene, followed by two Battlecruisers. The British, after a brief gunnery duel, turned north hoping to lead the four German Dreadnoughts towards the Grand Fleet, over the horizon, but the Germans refused to fall for the bait and withdrew, ending an indecisive action.

Elsewhere in the First World War, Dreadnoughts played a secondary role. In the Adriatic, French and Italian Dreadnoughts blockaded the Austro-Hungarians in much the same way the British did. When the Austro-Hungarians tried their equivalent of Jutland, an

Italian Motor Torpedo Boat broke through their flagship's screen and sank it, the only Dreadnought to fall victim to a torpedo in the First World War. The Russians did not have their Dreadnoughts fully operational at the start of the war, and, although their pre-Dreadnoughts were beaten by the High Seas Fleet off Riga in 1917, their Dreadnoughts did little until swallowed by the revolution.

The First World War has been described as a struggle between land power and sea power. This is an oversimplification, but the British naval blockade of Germany was obviously a vital strategic consideration. It sapped the German will and means to resist. By the winter of 1915, there were already food riots. By 1918, the High Seas Fleet's crew was so demoralized

The Effects of Battle Damage on Dreadnoughts

Even a glance at a photograph of a Dreadnought bespeaks the great strength of these vessels. The Battleship was generally resistant to gunfire. Only one Dreadnought Battleship was permanently sunk in action by gunfire. The Battlecruiser found its Achilles's heel in protection, and four of them succumbed to shells.

The damage done by a shell, torpedo, mine or bomb to a warship, especially one as complex as a Dreadnought, varies considerably. It depends on where it hits, the angle at which it hits, the ship's protection, the effectiveness of the ship's damage control, and the type of shell. One hit in a vital place can destroy a ship, as several British and French Dreadnoughts bear witness to. On the other hand, a Dreadnought can withstand a hurricane of steel in less vital places.

Of the many illustrations of this, perhaps the best is the Second Battle of Guadalcanal. There, *U.S.S. South Dakota* was hit by forty-two 14" and 8" shells. Yet her engines were intact and the ship was still capable of moving and fighting, as not one of these shells had penetrated a vital area of the ship. They did start fires in the superstructure, damaging the radar and forcing one turret to cease fire, making the ship easier to hit, but the *South Dakota* was lucky. Her wounds did not hit her guns, magazine, waterline, engine room, screws, rudder or any other vital area. *Kirishima* was not so lucky. Nine 16" and forty 5" shells left her dead in the water and badly flooded. She was scuttled before the planes were able to finish her in the morning. Unlike the *South Dakota*, which illustrates the amount of damage a ship can withstand in non-vital spots, *Kirishima* had her ability to fight, float and move affected drastically. This shows there is no "uniform" type of damage. There are too many variables.

It has been said that "to let air into a ship, use shells or bombs; to let water in, use mines or torpedoes." This shows why torpedoes strike at the ship's waterline. They could do more damage than a number of large shells, and the damage was more likely to be decisive. Torpedoes did have

their drawbacks. While heavy guns had ranges of over 30,000 yards, torpedoes were ineffective at over 10,000 yards and their effective range was but half that in the Second World War and 3,000 yards in the First World War. Torpedoes were more expensive and larger than shells, limiting the amount that could be carried. They were also much slower than shells and left a visible wake which allowed them to be "combed." Therefore, torpedoes were only effective against Dreadnoughts if launched by agents which were difficult to see or hit, such as submarines, aircraft or, in some cases, destroyers or torpedo boats. Mines rely totally on being unseen for their effect.

Exactly what was required to sink a Dreadnought can be seen from the following list, showing the ship's name and what sank it. Those sunk in harbor (when watertight doors are open); those sunk as practice (when there was no crew aboard for damage control, but also no fuel or munitions to explode); and those later raised are noted. Ships raised sank in shallow water. If they had not, they would not have been raised and returned to service.

1914 - 1918

Audacious, one mine; *Kawachi*, accidental explosion; *Indefatigable*, c.three hits - cordite flash and magazine explosion; *Queen Mary*, c.six hits, cordite flash and magazine explosion; *Lutzow*, 23 heavy shell hits, one torpedo, scuttled with one more torpedo; *Leonardo Da Vinci*, accidental explosion; *Imperatiza Maria*, accidental explosion; *Vanguard*, accidental explosion; *Szant Istvan*, two 18" torpedoes amidships, *Viribus Unitis*, limpet mine in harbor; *Catherine II*, scuttled with three torpedoes; *Petropavlosk*, two 18" torpedoes in harbor (raised), *Baden*, many 15" hits, practice; *Ostfriedland*, three 1,000 lb. bomb hits, six 2,000 lb. bomb near misses, practice; *Prinz Eugen*, many 13.4" hits, practice; *Poltava*, fire; *Espana*, ran aground; *France*, ran aground; *Alfonso XXIII*, one mine; *Jaime I*, one 2,000 lb. bomb, in harbor (raised).

1939 - 1945

Royal Oak, probably three 21" torpedoes, possibly accidental explosion, in harbor; *Bretagne*, three 15" hits - magazine explo-

sion; *Provence*, several 15" hits, fire (raised); *Littorio*, two 18" torpedoes, in harbor (raised); *Caio Duilio*, one 18" torpedo, in harbor (raised); *Conti de Cavour*, one 18" torpedo, in harbor (raised, but not repaired), sunk again by bombs; *Bismarck*, seven torpedoes, over a hundred shell hits (14" and 16"), finally scuttled; *Prince of Wales*, six 21" torpedoes; *Repulse*, five 21" torpedoes; *Barham*, three 21" torpedoes - magazine explosion; *Queen Elizabeth*, limpet mine, in harbor (raised); *Valiant*, limpet mine, in harbor (raised); *West Virginia*, seven 21" torpedoes, two 1,600 lb. bombs, in harbor (raised); *Oklahoma*, two 21" torpedoes, in harbor (raised, but beyond repair); *Nevada*, one 21" torpedo, five 1,600 lb. bombs, grounded to keep from sinking (raised); *California*, two 21" torpedoes, in harbor (raised); *Arizona*, one 21" torpedo, four 1,600 lb. bombs - magazine explosion, in harbor; *Petropavlosk* (alias *Marat*), several heavy bomb hits (raised, again); *Roma*, one glider bomb - magazine explosion; *Hiei*, over fifty 8", 6" and 5" hits, two 21" torpedoes, two 18" torpedoes, one 1,000 lb. bomb, scuttled; *Kirishima*, nine 16", twenty 5" hits, scuttled; *Gneisnau*, several bomb hits - magazine explosion, in harbor (raised); *Scharnhorst*, thirteen 14" hits, fourteen 21" torpedoes; *Tirpitz*, gradually sunk by limpet mines, sixteen bomb hits, several near misses by 9,000 lb. bombs; *Mutsu*, accidental explosion; *Fuso*, one 21" torpedo, magazine explosion; *Yamashiro*, three 21" torpedoes, many heavy shell hits; *Kongo*, one 21" torpedo - magazine explosion; *Musashi*, twenty 18" torpedoes, seventeen 1,000 lb. bomb hits, plus sixteen near misses; *Yamato*, ten 18" torpedoes, twenty-three 1,000 lb. bombs; *Ise*, nineteen bomb hits, many near misses; *Hyuga*, over ten bomb hits, over twenty near misses; *Haruna*, fourteen bomb hits, twelve near misses.

1946 - 1956

Arkansas, within 385 yards of underwater Atomic blast, practice; *Nagato*, within 1,000 yards of underwater Atomic blast, sank in five days, became radioactive, practice; *Novorissik*, mine, by accident (in 1956).

by its sticking to harbor and the diet of a few turnips a day per sailor, that when ordered to make a last sortie, hoping for a decisive victory at the last moment, they mutinied and hoisted the Red Flag of revolution. Within days, Germany had surrendered.

The end of the First World War saw a new weapons system based around the torpedo superceding the submarine menace as the chief threat to the Dreadnought. This was the Torpedo Bomber, which had evolved during the war to the point where the British were planning a "Pearl Harbor" style strike on the High Seas Fleet, in the spring of 1919, utilizing almost two hundred torpedo planes. As anti-aircraft protection was minimal at that time, it became obvious that the airplane

would become more of a threat to the Dreadnought than even the submarine. This was reinforced by American tests in 1920-22 which resulted in the sinking of a German Dreadnought and some obsolete American pre-Dreadnoughts by aerial bombardment. Already threatened from below the sea, the Dreadnought now had a new enemy above it.

Despite the rise of aircraft, the Dreadnought still ruled the seas. During the war, the Americans, suspicious of the Japanese, began a mammoth naval building program. The Japanese replied by laying down more Dreadnoughts. The British, although weakened by the effects of the war, joined in the new arms race as well. Yet before the majority of these new ships were launched, an

international conference was held at Washington to try and limit the expensive arms race. After much wheeling and dealing, it was agreed that the British and the Americans could each have no more than fifteen Dreadnoughts, the Japanese nine, and the French and Italians five each. No Dreadnoughts were to be built (with a few stipulated exceptions) until 1934.

The Washington Treaty aborted the entire tail end of the Second Generation of Dreadnoughts. The ships which were cancelled had been larger and better armed and protected than the earlier Second Generation ships. Curiously, there were many Battlecruisers among them, as their successes seemed to overcome, in many eyes, their failures.

What can be seen from all this? First, near misses are important, as they cause shock vibrations which open up the hull, which is also what happened with the Atomic tests. It should also be noted that accidents claimed a fair number of Dreadnoughts, some 17%. Of the Dreadnoughts' great enemies, airplanes destroyed 44%, submarines, 5%, and destroyers and torpedo boats, 5%. Of the more prominent weapons, torpedoes accounted for 38% of the Dreadnoughts sunk, while bombs added another 20%.

Few Dreadnoughts succumbed to gunfire directly. Some, such as *Lutnow*, the *Bismarck* and *Kirishima* were shot to pieces by gunfire. Yet the strength of these ships was such that even though their guns were out of action, and they were motionless, they still retained enough watertight integrity to keep them afloat. Thus, such ships had to be scuttled, for to stay with a dead ship only meant losing the highly-trained crew as well. Not only were few Dreadnoughts sunk outright by shells, but few of any sort of armored ship. They would, like the Dreadnoughts, only sink if hammered to pieces, or if they were subjected to violent overkill, as were the British heavy cruisers at Jutland and the Italian ones at Matapani.

The speed and violence of the shell hits is important for they overwhelm the damage control parties. Though another leading cause of ships sinking under gunfire, the explosion of the magazine either through cordite flash or direct penetration of the magazines was removed, the importance of damage control is seen in the relative ease with which ships were sunk at target practice. Some 25% of the Dreadnoughts lost in action were the result of detonation of the magazines.

It is difficult to quantify the ability of a ship to withstand damage. Probably the best indicator is the number of tons of its displacement devoted to its hull (to determine its ability to float) and that devoted to protection, especially compartmentization. Armor in itself is a measure of the ability to ward off damage rather than absorb it.

AVERAGE DISTRIBUTION OF HITS

HULL:

3% hit below waterline causing moderate flooding, on the order of 500 tons of water.

3.6% hit the waterline, but with little flooding. 10% hit below the waterline with considerable flooding, on the order of 1,500 tons of water. .6% destroyed the steering gear. 1.8% damaged the engines and reduced the ship's speed, or, in a third of these, prevented its guns from being trained. The area between the armored belt and the deck is not a vital one. It contains, among other things, the galleys, which attracted some 3% of the shells. The sick bay drew 1.8% hits. 9.6% hit elsewhere in this area, including 1.8% which started fires and 3.6% which entered through the deck in "plunging fire."

ARMAMENT AND SUPERSTRUCTURE:

3% of the hits put a main turret out of action without an explosion. .6% of the hits considered put a turret out of action through vibration, rather than by hitting it. 1.2% of the hits put a turret out of action with a resulting fire. 6% put secondary, or tertiary, guns out of action. 1.8% of the hits destroyed a gun director, of which there were normally two each for the main and secondary batteries. 1.2% of the hits were on the deck and the splinters damaged a turret, jamming it in one case and holing it, which eventually put it out of action, in another. 3.6% of the shells hit main turrets, but did not put them out of action, due in at least 1.2% of these cases to their not penetrating the turret armor. 3% put one gun of a main turret out of action. 1.2% hit a magazine, but without an explosion, due in one case to the magazine being empty. .6% resulted in a fatal magazine explosion. 1.2% of the hits generated survivable cordite flash. Of nine hits which could have generated cordite flash, only four did not, two did but the ships were saved, and three were fatal. 1.2% caused fire and flash in secondary armament magazines, without much ill effect. 1.2% hit the airplane or its hanger, usually resulting in fire. 1.8% struck the bridge, wiping out the radio (in 1.2% of the cases) and the compass in the remainder. The after conning tower was destroyed .6% of the time. 1.2% of the hits landed in the superstructure, but put an engine out due to vibration. 4.2% of the shells hit the superstructure and caused fires. 1.2% damaged communications, and .6% each hit the searchlights and secondary armament director. The

remaining 25.8% were either hits in the superstructure (at least 7.2%), insignificant, or unknown, but most were hits in the superstructure that did little damage.

The superstructure hits also frequently put searchlights, anti-aircraft guns, and other exposed positions out of action with their fragments.

The distance between the target ship and the firing ship also affects the position of shell hits by affecting the angle at which the shell falls. At very close range (such as under 3,000 yards), almost all shells will hit the superstructure, as the guns cannot be depressed enough to hit lower parts of the ship. At shorter ranges, 15,000 yards or so, shells descend at an angle of about 15 degrees. Some 23% would hit below the waterline, but this is a very rough figure due to the deflection effect of the water. 18% would hit between the waterline and the main deck, 41% would strike the superstructure or anything above the main deck, 18% would strike the top hamper and upper superstructure, or would hit the unengaged side of the deck or become a near miss. At longer ranges, the shells would come down at angles between 30 degrees, or by 1939, 45 degrees. At the smaller angle, 19% would strike below the waterline. This figure diminishes to 11% at 45 degrees. 17% and 13% are between the waterline and the main belt, 48% and 49%, respectively, hit above the main deck, but the larger the angle, the more likely the shell is to hit and penetrate the deck armor. This is plunging fire and is very effective. Plunging shells go through the armor deck and explode in the ship's vitals. The French ships at Oran and Casablanca fell victim to plunging fire, as did *Hood* and an Italian Battleship was badly damaged at Calabria by it. 14% and 20% hit the upper superstructure, and an additional 8% on the 45 degree angle hit the unengaged side's deck. All these figures assume ideal rather than combat conditions, and thus are but approximations of what really happened.

One unique way to avoid battle damage was demonstrated by *H.M.S. New Zealand*, which had a protective spell put on her by a Maori witch doctor. It must have worked, for, although the ship was hotly engaged several times, it was never hit.

The Washington Conference marked the beginning of the end of the Dreadnought. Most of the First Generation ships were prematurely scrapped. There were now so few Dreadnoughts that emphasis had to be given to the new breed of cruisers that were evolving, ships that were in effect "mini-

Dreadnoughts," able to fulfill the functions of a Dreadnought if there were no Dreadnoughts to oppose them. These cruisers were to bear the brunt of the naval fighting of the Second World War. Dreadnoughts had also become more expensive to run and build, especially in an era of small defense appropriations. The

challenge presented by the submarine and the mine still existed, and was compounded by the aircraft carriers that soon entered the Royal, American and Japanese Navies. The future of the Dreadnought was argued, pro and con, for many years until, with the end of the Washington Treaty, rearmament began.

Compendium of Dreadnoughts

The table shows the vital statistics of every Dreadnought launched. The first column shows the name of the class, named after one of its member ships, usually the first launched. Following this is the nationality of the ship's operation (not construction): GB = Great Britain, GR = Germany, BZ = Brazil, JP = Japan, RU = Russia, IT = Italy, FR = France, AH = Austria-Hungary, AR = Argentina, CH = Chile, SP = Spain. All Battlecruisers are marked by the designation "BC." All Hybrids are marked

by the designation "HB." *Built* shows the years from the start of the first member of the class to the completion of the last member. *Disp.* = the standard load displacement of the ship, in thousands of tons. This is of necessity an approximate figure, as ships varied considerably from their theoretical displacement. Whenever two figures are listed for the same ship, it means that it was extensively rebuilt. The years are the years involved in rebuilding, and the second line shows the ship's statis-

tics after it was rebuilt. *Speed* = speed, in knots; *Belt* = thickest part of the belt armor; again, an approximate figure, not taking into account size of belt or the material it was made of. Many ships had minor additions made to their belt. *Deck* = thickest armor on an armored deck. Even more approximate, as deck armor changed thickness frequently and most Dreadnoughts had more than one armored deck. Again, positioning, material and slope of the armor is important. Deck armor

| Class | Built | Disp. | Speed | Belt | Deck | Gun | Other Ships in this Class |
|-------------------------|----------------|----------------|----------------|--------------|--------------|---|--|
| Dreadnought (GB) | 05-06 | 17.90 | 21.00 | 11.00 | 3.00 | 10x12"/45-183-19 | |
| Invincible (GB) BC | 06-08 | 17.25 | 25.00 | 6.00 | 2.50 | 8x12"/45-385-19 | Indomitable, Inflexible |
| Westfalen (GR) | 06-10 | 18.90 | 19.50 | 11.75 | 2.20 | 12x11"/45-305-18 | Nassau, Posen, Rheinland |
| South Carolina (US) | 06-09 | 16.00 | 18.50 | 11.00 | 3.00 | 8x12"/45-394-23 | Michigan |
| Bellerophon (GB) | 06-09 | 18.60 | 20.75 | 10.00 | 3.00 | 10x12"/45-385-19 | Superb, Temeraire |
| St. Vincent (GB) | 07-10 | 19.25 | 21.00 | 10.00 | 3.00 | 10x12"/50-385-22 | Collingwood, Vanguard |
| Minas Gerais (BZ) | 07-10 | 19.20 | 21.00 | 9.00 | 2.00 | 12x12"/50-385-22 | Sao Paulo |
| Delaware (US) | 07-10 | 20.00 | 21.00 | 11.00 | 3.00 | 10x12"/45-394-23 | North Dakota |
| Settsu (JP) | 08-12 | 21.40 | 20.50 | 12.00 | 2.00 | 12x12"/50-385-22 | Kawachi |
| von der Tann (GR) | 08-10 | 19.10 | 26.00 | 9.75 | 2.00 | 8x11"/45-305-19 | |
| Helgoland (GR) | 08-12 | 22.80 | 20.00 | 11.75 | 2.20 | 12x12"/50-405-16 | Thuringen, Ostfriesland, Oldenburg |
| Neptune (GB) | 09-11 | 19.90 | 21.00 | 10.00 | 3.00 | 10x12"/50-385-22 | |
| Indefatigable (GB) | 09-13 | 18.80 | 25.00 | 6.00 | 2.50 | 8x12"/50-385-22 | Australia, New Zealand |
| Utah (US) | 09-11 | 21.80 | 20.75 | 11.00 | 3.00 | 10x12"/50-394-25 | Florida |
| Moltke (GR) BC | 09-13 | 22.60 | 27.00 | 11.00 | 2.00 | 10x11"/50-300-18 | Goeben |
| Kaiser (GR) | 09-13 | 24.70 | 20.50 | 13.75 | 2.40 | 10x12"/50-405-16 | Friedrich der Grosse, Kaiserin, Prinzregent Luitpold, Konig Albert |
| Dante Alighieri (IT) | 09-12 | 20.50 | 23.00 | 9.88 | 1.60 | 12x12"/46-452-24 | |
| Gangut (RU) | 09-15 | 23.30 | 23.00 | 8.75 | 3.00 | 12x12"/52-324-25 | Poltava, Petropavlovsk, Sevastopol |
| Colossus (GB) | 09-11 | 20.00 | 21.00 | 11.00 | 3.00 | 10x12"/50-385-22 | Hercules |
| Orion (GB) | 09-12 | 22.50 | 21.00 | 12.00 | 3.00 | 10x13.5/45-635-24 | Thunderer, Monarch, Conqueror |
| Lion (GB) BC | 09-13 | 26.30 | 26.00 | 9.00 | 2.50 | 8x13.5/45-635-24 | Princess Royal, Queen Mary |
| Espana (SP) | 09-21 | 15.70 | 19.50 | 8.00 | 1.50 | 8x12"/50-385-22 | Alfonso XIII, Jaime I |
| Arkansas (US) | 10-12 | 26.00 | 20.50 | 11.00 | 3.00 | 12x12"/50-394-23 | Wyoming |
| Viribus Unitis (AH) | 10-15 | 20.70 | 21.00 | 11.00 | 2.00 | 12x12"/45-450-23 | Tegetthof, Szent Istvan, Prinz Eugen |
| Rivadavia (AR) | 10-15 | 27.70 | 23.00 | 11.00 | 3.00 | 12x12"/50-394-25 | Moreno |
| Conte di Cavour (IT) | 10-15 33-37 | 22.38 23.00 | 22.00 28.00 | 9.75 9.75 | 1.75 1.75 | 13x12"/46-452-24 10x12.6/43.8-525-29 | Giulio Cesare, Leonardo da Vinci |
| Courbet (FR) | 10-14 | 23.50 | 20.00 | 22.75 | 2.75 | 12x12"/45-432-26 | Jean Bart, Paris, France |
| King George V (GB) | 11-13 | 23.00 | 21.00 | 12.00 | 3.00 | 10x13.5/45-635-24 | Audacious, Centurion, Ajax |
| Kongo (JP) BC | 11-15 34-37 | 27.50 32.20 | 27.50 30.00 | 8.00 8.00 | 2.00 4.80 | 8x14"/45-675-38 8x14"/45-675-38 | Hiei, Haruna, Kirishima |
| Seydlitz (GR) BC | 11-13 | 25.00 | 26.50 | 11.00 | 2.80 | 10x11"/50-300-18 | |
| New York (US) | 11-14 | 27.00 | 21.00 | 12.00 | 3.00 | 10x14"/45-635-30 | Texas |
| Konig (GR) | 11-15 | 25.40 | 21.00 | 14.00 | 2.40 | 10x12"/50-405-16 | Grosser Kurfurst, Markgraf, Kronprinz Wilhelm |
| Erin (GB) | 11-14 | 23.00 | 21.00 | 12.00 | 3.00 | 10x13.5/45-635-24 | |
| Agincourt (GB) | 11-14 | 27.50 | 22.00 | 9.00 | 2.50 | 14x12"/50-385-22 | |
| Imp. Aleksandr III (RU) | 11-17 | 22.40 | 21.00 | 12.00 | 3.00 | 12x12"/52-324-25 | Imperator Nikolai II, Imperatza Maria + Evgenia II |
| Almirante Latorre (CH) | 11-15 | 28.00 | 22.75 | 9.00 | 3.00 | 10x14"/45-720-25 | Almirante Latorre |
| Iron Duke (GB) | 12-14 | 25.00 | 21.00 | 12.00 | 4.00 | 10x13.5/45-635-24 | Marlborough, Benbow, Emperor of India |

REARMAMENT AND WAR, 1935-45

When the Washington Treaty ended in 1935, the international situation was grim. The Germans, although not putting emphasis on naval matters, had built three "Pocket Battleships," which were simply upgunned cruisers.

These were followed, however, by two Battle-cruisers launched in 1934. In 1935, the Anglo-German Naval Agreement cleared the way for the Germans to begin two new Dreadnoughts of the *Bismarck* class.

In a last attempt to save disarmament, the Americans, British and French signed the

London Agreement in 1936, which limited the size of their Battleships. All it did was to hamstring British naval architects trying to reconcile the needs of a warship within the limits dictated by political expediency. During this talk of disarmament, all nations were modifying their surviving Second

defended against "plunging fire" and bombs. *Gun* — the first number is the number of main battery guns carried, showing their caliber in inches (the bigger, the better), and the length of the gun barrel, expressed in terms of its caliber (a 45 caliber gun has a barrel 45 times its size), the number after the first dash is the weight of shell of the gun in kilograms. The next number is its range in thousands of meters. The rate of fire of the guns varied, in first generation ships, from 1.5 to 2 rounds a

minute, bigger guns firing slower. Later, improvements in loading increased it to 2 to 3 rounds a minute. These are theoretical rates and seldom achieved in combat, although they could even be exceeded at times. Secondary armament is not listed as it changed frequently. Rate of fire was more determined by fire control methods than the guns themselves. The last column lists the different Dreadnoughts which made up each class. All ships following the *Queen Elizabeth* are Second Generation

ships. All of those following the *Dunkerque* are Third Generation ships.

Only a few Dreadnoughts changed nationality. *Admirale Lattre* spent four years as *H.M.S. Canada*. *Goeben* became the Turkish *Yavuz*. The Russians used *H.M.S. Royal Sovereign* as *Archangelsk* and the *Gulio Cesare* as *Novorissok*. *Australia* and *New Zealand* were owned by their namesake countries, but operated by the British.

| | | | | | | | |
|----------------------|----------------|----------------|----------------|----------------|--------------|---|---|
| Derfflinger (GR) BC | 12-17 | 26.20 | 26.50 | 12.00 | 3.20 | 8x12"/50-405-16 | Hindenburg, Lutzow |
| Fuso (JP) | 12-17 33-44 | 29.30 34.70 | 22.5 24.7 | 12.00 12.00 | 2.00 3.90 | 12x14"/45-675-38 12x14"/45-675-38 | Yamashiro |
| Caio Duilio (IT) | 12-15 37-40 | 22.70 23.80 | 22.00 27.00 | 9.75 9.75 | 1.33 3.20 | 13x12"/46-452-24 10x12.6/43.8-525-29 | Andrea Doria |
| Tiger (GB) BC | 12-14 | 28.50 | 29.00 | 9.00 | 3.00 | 8x13.5/45-635-24 | Leopard (C) |
| Bretagne (FR) | 12-16 | 23.20 | 20.50 | 10.75 | 2.75 | 10x13.4/45-559-25 | Lorraine, Provence |
| Queen Elizabeth (GB) | 12-16 34-37 | 27.50 32.00 | 25.00 24.00 | 13.00 13.00 | 3.00 4.00 | 8x15"/42-875-32 8x15"/42-875-32 | Warspite, Valiant, Barham, Malaya, Agincourt (C) |
| Oklahoma (US) | 12-16 42 | 27.50 29.00 | 20.50 20.00 | 13.50 13.50 | 3.00 4.00 | 10x14"/45-635-30 10x14"/45-635-30 | Nevada |
| Pennsylvania (US) | 13-16 42 | 31.40 32.60 | 21.00 20.00 | 14.00 14.00 | 3.00 4.00 | 12x14"/45-635-30 12x14"/45-635-30 | Arizona |
| Royal Sovereign (GB) | 13-17 | 27.50 | 21.00 | 13.00 | 5.50 | 8x15"/42-875-32 | Royal Oak, Resolution, Ramilles, Revenge, Resistant (C), |
| Baden (GR) | 14-17 | 28.00 | 22.30 | 13.75 | 4.00 | 8x15"/45-750-20 | Bayern, Scharnhorst (C), Deutschland (C), Renown (C), Repulse (C) |
| New Mexico (US) | 15-19 42-43 | 32.00 33.40 | 21.00 21.00 | 14.00 14.00 | 3.60 6.00 | 12x14"/50-635-32 12x14"/50-635-32 | Idaho, Mississippi |
| Renown (GB) BC | 15-16 31-36 | 26.50 32.00 | 30.00 29.00 | 6.00 9.00 | 3.00 4.00 | 6x15"/42-875-32 6x15"/42-875-32 | Repulse |
| Courageous (GB) BC | 15-17 | 18.60 | 31.00 | 3.00 | 1.75 | 4x15"/42-875-32 | Glorious |
| Furious (GB) BC/HB | 15-17 | 19.10 | 3.15 | 3.00 | 1.75 | 1x18"/40-350-40 | |
| Ise (JP) | 15-18 42-43 | 29.90 35.30 | 23.60 25.00 | 12.00 12.00 | 3.30 3.30 | 12x14"/45-675-38 8x14"/45-675-38 | Hiuga |
| Hood (GB) BC | 16-20 | 41.20 | 31.00 | 12.00 | 3.75 | 8x15"/42-875-32 | Anson (C), Howe (C), Rodney (C) |
| Tennessee (US) | 16-21 42-43 | 32.60 34.00 | 21.00 21.00 | 14.00 14.00 | 3.60 5.00 | 12x14"/50-632-32 12x14"/50-632-32 | California |
| Colorado (US) | 17-23 42-43 | 32.50 35.00 | 21.00 21.00 | 16.00 16.00 | 3.60 4.00 | 8x16"/45-952-31 8x16"/45-952-31 | Maryland, West Virginia, Jackson (C) |
| Nagato (JP) | 17-21 33-35 | 32.70 39.10 | 23.00 25.00 | 13.00 13.00 | 3.00 3.50 | 8x16"/45-993-42 8x16"/45-993-42 | Mutsu |
| Nelson (GB) | 22-27 | 33.90 | 23.00 | 14.00 | 6.25 | 9x16"/45-907-41 | Rodney |
| Dunkerque (FR) BC | 32-38 | 26.50 | 29.50 | 11.00 | 5.10 | 8x13"/52-560-42 | Strasbourg |
| Gneisenau (GR) BC | 34-39 | 31.30 | 32.00 | 13.00 | 2.00 | 9x11"/54.5-315-43 | Scharnhorst |
| Roma (IT) | 34-40 | 35.00 | 30.00 | 12.00 | 6.40 | 9x15"/50-882-43 | Littorio, Vittorio Veneto |
| Richelieu (FR) | 35-49 | 38.50 | 30.00 | 15.75 | 5.60 | 8x15"/45-890-43 | Jean Bart, Clemenceau (C) |
| Bismarck (GR) | 36-41 | 41.70 | 30.00 | 12.60 | 4.80 | 8x15"/47-798-36 | Tirpitz |
| King George V (GB) | 37-42 | 35.00 | 28.00 | 15.00 | 6.00 | 10x14"/45-708-37 | Duke of York, Prince of Wales, Anson, Howe |
| Washington (US) | 37-42 | 35.00 | 28.00 | 12.00 | 5.80 | 9x16"/45-1224-37 | North Carolina |
| Yamato (JP) | 37-42 | 68.20 | 27.00 | 13.00 | 7.75 | 9x18"/45-1460-37 | Musashi |
| S. Dakota (US) | 39-42 | 35.00 | 28.00 | 12.00 | 5.00 | 9x16"/45-1224-37 | Alabama, Massachusetts, Indiana |
| Iowa (US) | 40-44 | 45.00 | 33.00 | 19.00 | 5.60 | 9x16"/50-1224-39 | New Jersey, Missouri, Wisconsin, Kentucky (C), Illinois (C) |
| Vanguard (GB) | 41-46 | 44.50 | 30.00 | 14.00 | 6.00 | 8x15"/42-875-32 | |
| Alaska (US) | 41-44 | 27.50 | 33.00 | 9.00 | 2.80 | 9x12"/50-500-37 | Guam, Hawaii (C), Johnston (C), Wake (C), Saipan (C) |

Generation Dreadnoughts. This usually entailed strengthening the armor and anti-torpedo protection, for shells and torpedoes had gotten larger since these vessels were built. Horizontal armor was also increased against plunging fire and the Dreadnought's greatest threat, the airplane. Some ships, like the Japanese *Kongo's* and the Italian Dreadnoughts, were completely rebuilt. Others were only slightly modified.

In most of the world's navies, sailors and airmen argued whether the Dreadnought was made obsolete by the airplane. In most navies, the Battleship men held the upper hand, adding a few anti-aircraft guns as a grudging concession to reality. But the American, Royal and Japanese Navies had enough dedicated aviators and aircraft carriers to maintain those Navies' air power.

The modified ships were soon to be joined by the Third Generation of Dreadnoughts. In 1937, fifteen were under construction. All of the navies emphasized different points with their ships. They were all relatively fast ships, from 28 to 33 knots. They were all, except for the German and American Battlecruisers, well armed, with the smallest guns being the 14" of the *King George V* and the largest the 18" of *Yamato*. All were well armored and compartmented, although some were better than others. The Italians and French put the least emphasis on protection. The defensive-minded Italians put the emphasis in their *Littorio* class on speed. The French could never build Dreadnoughts well, as their *Dunkerque* class Battlecruisers and the *Richlieu* class Battleships showed. The British *King George V* class was hampered by the treaty restrictions. It had a good range and speed, but its protection was inadequate, as was that of the *Bismarck* class; ships which were primarily commerce-destroyers. The Japanese concentrated on two super-ships. Bigger than any other Dreadnought, the *Yamato* class, were to supplement the Japanese Battleline and weaken the Americans before range could close enough to penetrate their thick armor. Less imposing were the American ships of the similar *Washington*, *Alabama* and *Iowa* classes. These were probably the best fighting Dreadnoughts ever built, an excellent blend of the American "all or nothing" protection, large guns, including much anti-aircraft, and only a little less speed. The *Iowa* class did five knots faster than its compatriots, but this required an extra 10,000 tons displacement devoted to speed.

Another change was that Dreadnoughts no longer operated together in squadrons or fleets. They were used instead in task forces, integrated groups of Dreadnoughts, lighter ships and, in some cases, aircraft carriers. Although some admirals still supported the massed battle-lines, this was the best way to utilize the Dreadnoughts since their decimation with the Washington Treaty.

Aside from the French and German Battlecruisers, none of the Dreadnoughts under construction were ready when war again broke out on September 1, 1939. For the first few months all was quiet, although British and French Dreadnoughts searched for German raiders.

The naval war began in earnest with the German invasion of Norway in April, 1940. On April 9, the two German Battlecruisers encountered the British *Renown*, one of "Fisher's Follies," and four destroyers, off

Norway. Even though the German ships were superior to the British, they promptly turned and fled after a brief gunnery duel. *Renown*, almost thirty years old, tried hard, but the Germans escaped with light damage. It was the first Dreadnought-to-Dreadnought action of the war. Elsewhere, *Warspite* helped destroy a German destroyer flotilla while other Battleships did coast bombardment, a role they were frequently to fulfill throughout the Second World War. Yet they began to suffer damage from the German aircraft that controlled the skies off Norway. For the first time, the Dreadnought was helpless in the face of air opposition, its freedom to operate in range of enemy aircraft gone. This was one of the reasons the British withdrew from Norway, during which the two German Battlecruisers intercepted and sank a British aircraft carrier.

The next time Dreadnought fought Dreadnought, it was in unusual circumstances, after the fall of France. The French had failed to take steps to guarantee that their fleet would not be used against the British. Faced with this threat, the British attacked the main French naval base at Oran, in Algeria. Hit by the gunfire of three British Dreadnoughts, the French Dreadnoughts were found to be poorly protected. The first generation Battleships and a new Battlecruiser were sunk, although all but one Battleship (whose magazine blew up) were later raised, but never repaired. Another Battlecruiser escaped, due to British command problems. The fate of the Battleship which blew up was due not to cordite flash, but to plunging fire penetrating the deck armor and exploding in the magazine. The ship which claimed credit for this hit was *H.M.S. Hood*.

The entry of Italy into the war opened up a new theatre for confrontations between Dreadnoughts. The Italian and British concepts of how Dreadnoughts might be employed were quite different. The British believed in an offensive strategy. The Italians believed in the more defensive "fleet in being" strategy, which was compounded by their chronic fuel shortage. As a result, the Italians held to the same sort of caution that was seen in the North Sea in the First World War, and with good reason. The Italian ships were built to fight the fast, yet poorly protected, French Dreadnoughts, and so they emphasized speed at the expense of protection. The Mediterranean was also full of submarines and mines as the North Sea had been in the First World War.

Both the British and Italian fleets were escorting troop convoys at sea when they encountered each other off Calabria on July 9, 1940. Three British Dreadnoughts engaged two Italian Dreadnoughts in a long range gunnery duel. After suffering slight damage, the Italians used their superior speed to withdraw.

Since the Italians were not going to be easy to destroy at sea, the British decided to attempt to destroy them in port. On the night of November 11-12, 1940, twenty-one British biplane torpedo bombers attacked the Italian Battlefleet at anchor in Taranto harbor. At dawn, three Italian Battleships were on the bottom. Although two were soon repaired, the third never sailed again.

The consequences of this act were far-reaching. A few airplanes had done what all the Royal Navy's Dreadnoughts had been unable to do, deal a crippling blow to the Italian Battle Fleet. The naval balance of power

had been redressed in the British favor by their innovative use of aircraft. In the Pacific, the Japanese were faced with the threat of a superior U.S. Battle Fleet. They were very interested in the results of the Taranto Raid.

In the months after Taranto, there was an inconclusive skirmish at Cape Spartenvino, where the opposing Dreadnoughts did not fire at each other. On March 28, 1941, off Cape Matapan, an Italian sortie resulted in an Italian Dreadnought being torpedoed by British bombers at sea, while three *Queen Elizabeth* class Dreadnoughts massacred an equal number of Italian cruisers in a night action. This was because the British had, for the first time, used radar. Radar not only helped warn of enemy ships and aircraft, and give their range and bearing, but by 1941 radar was also used for fire control.

Meanwhile, in the Atlantic, the Germans had been engaging in some relatively ineffective commerce raiding. In May, 1941, however, the newly completed third generation Dreadnought, *Bismarck*, accompanied by a heavy cruiser, left Norway hoping to disrupt the British convoys. On May 24, 1941, the *Bismarck* was intercepted in the Denmark Strait by the Battlecruiser *Hood* and the recently completed Dreadnought *Prince of Wales*. In a ten-minute action, *Hood* blew up. *Prince of Wales* and the *Bismarck* were both damaged. Again, the poor protection of the British Battlecruisers had been the culprit, only here it was the magazine that was hit, as with the French at Oran, rather than the cordite flash at Jutland.

The *Bismarck*, like the Italian Dreadnoughts, soon ran afoul of British torpedo bombers. One of the torpedo hits destroyed *Bismarck's* rudder, making it impossible for her to steer. This enabled the British to intercept her. On May 27, *King George V* and *Rodney*, with the aid of some cruisers, methodically pounded the *Bismarck* to pieces at point-blank range. Again, the airplane had been the decisive element in the action, rather than the Dreadnought.

The fighting off Crete in May, 1941 underlined the fact that the airplane now controlled all of the seas within its range during the hours of daylight. The Royal Navy found it could only exert seapower in areas where the enemy held air superiority by suffering unreasonable losses. Here, again, was the lesson of Norway and Dunkirk, that the Dreadnought could not control the seas unless supported by control of the air.

That the Japanese had learned the lessons about the supremacy of aircraft was seen on December 7, 1941. On that day the air groups of six Japanese carriers attacked the Second Generation Dreadnoughts of the U.S. Pacific Fleet at Pearl Harbor. Two of them were sunk, with six more damaged. It was a crippling blow on the order of Taranto, but the ships had been old and slow and were as vulnerable at sea as in port. A greater shock for the proponents of the Dreadnought came when *Prince of Wales* and *Repulse* were sunk by Japanese bombers off Malaya on December 11, 1941. They were at sea, able to maneuver, and equipped with the best anti-aircraft armament in the world at the time, but still they were sunk. For the loss of few airplanes, the Japanese swept the Pacific of all Dreadnoughts except their own, which were confined to escorting the carriers and troop transports or waiting in reserve in Japan. The airplane had replaced the

Dreadnought as the prime weapons system of naval strategy. It had begun to lose its value when ships such as the American Pacific Fleet or the British Battleships no longer could deter the Japanese from war.

The Dreadnought was being displaced because it was no longer decisive enough as a weapons system. The airplane had the flexibility and the hitting power to supplant the Dreadnought. Aircraft were not exposed to torpedoes and mines, the Dreadnought's other great enemies. When they were based on aircraft carriers, the carriers could stay out of danger to do damage, while the Dreadnought had to confront its enemy directly.

Yet the Dreadnought was not finished by the rise of airpower, and the aircraft carrier which brought this power in striking range of enemy ships. If defended by friendly aircraft, Dreadnoughts could operate as before. At night, or when out of range of aircraft, Dreadnoughts could also operate and regain something of their own supremacy, but the aircraft carrier was now the capital ship by which naval strength was measured.

In response, all Dreadnoughts had their anti-aircraft armament increased. The American *Iowa* class carried 148 (!) anti-aircraft guns ranging from 5" to 20mm in size. Also improved were the fire control devices, which made Battleship mounted anti-aircraft guns more effective than those on smaller ships, since Battleships could carry more elaborate equipment.

Dreadnoughts were also better adapted than aircraft to shore bombardment. Each heavy shell was as effective as one plane's entire bombload.

Throughout most of 1942, the Dreadnoughts on both sides in the Pacific played a supporting role as the opposing aircraft carriers fought the decisive battles without ever sighting enemy ships. A new role emerged for the Dreadnoughts. Those that could keep up with the fast, 30-knot carriers provided anti-aircraft protection, as Dreadnought anti-aircraft armament was increased at every opportunity. Slower ships provided coast bombardment.

When the Guadalcanal Campaign began in August, 1942, the need for Dreadnoughts became apparent. The Japanese found that a Dreadnought could be a devastating weapon for coast bombardment. It was on the way to such a bombardment that two Japanese Dreadnoughts encountered a force of American cruisers in the First Battle of Guadalcanal, on the night of September 12-13, 1942. In a bloody, brief, close quarters brawl, *Hiei* was left damaged enough to be in range of American airplanes the next day, and was sunk.

Two nights later, the surviving Japanese Battleship, *Kirishima* came down to Guadalcanal supported by cruisers. This time, the Americans met them with two of their Third Generation Dreadnoughts, the *South Dakota* and the *Washington*. The Americans had the numbers and radar fire control. The result of the Second Battle of Guadalcanal was that *Kirishima* was badly damaged and had to be scuttled. The long-awaited clash of U.S. and Japanese Dreadnoughts had occurred. It was not the decisive duel of battle lines, but rather a night-time skirmish, as the aircraft precluded any other else.

In the European Theatre, the Dreadnoughts were faced with similar problems. British

Dreadnoughts helped maintain the control of the Mediterranean, but with considerable loss from submarines. They never met the Italian Dreadnoughts again, although they had sortied often, until they surrendered in 1943, at which time the *Roma* was sunk by a German guided bomb.

The surviving French ships did not do so well either. Their *Jean Bart*, acting as a floating battery, lost a gunnery duel with U.S.S. *Massachusetts* off Casablanca in September, 1942. The surviving French Dreadnoughts, whose only real action had been against the Allies, finally joined the Free French for the rest of the war.

The German Dreadnoughts did not fare well either. The *Gneisnau* hit a mine in 1942 and was finished off by bombing. The *Tirpitz* played the role of fleet-in-being and tied down British ships that might have been sent to the East, but she never saw action and was repeatedly damaged by submarines and aircraft before being sunk by bombers in November, 1944. The *Scharnhorst* went to sea to intercept a convoy on December 31, 1943, but found *Duke of York* and a force of cruisers and destroyers. In the Battle of North Cape, the *Scharnhorst* was battered to pieces by the big guns and finally sunk by torpedoes. The British Dreadnoughts finished the war in Europe doing coast bombardment.

In the Pacific, the Americans used their fast Third Generation ships as escorts for the carriers, while the rebuilt Second Generation ships, raised off the mud of Pearl Harbor, did invaluable work bombarding Japanese positions in amphibious operations. After Guadalcanal, however, the opposing Dreadnoughts did not see any real action until the Battle of Leyte Gulf in 1944. A complex series of maneuvers resulted in two battles involving Dreadnoughts on October 25, that of Samar and Surigao Strait. The Japanese force off Samar had been subjected to air attack, which sank the mighty *Musashi*, proving that even that ship was not invulnerable. But the surviving force of Dreadnoughts and Cruisers fell on the American escort carriers. They did some damage, but withdrew in the face of American airstrikes.

The Surigao Strait action, however, was a duel of Battlewagons such as might have occurred in the Golden Age of the Dreadnought. The Japanese had two rebuilt First Generation ships. The Americans had a battle line of six heavily modified Second Generation ships — victims of Pearl Harbor, out to settle old scores. The Americans also had an overwhelming superiority in light forces, which was seen as they opened the battle with a destroyer attack. *Fuso*, one of the Japanese Battleships, was hit and blew up. This left only one damaged Battleship to face the American Dreadnoughts, who capped the Japanese T. Soon, the last Japanese Battleship was ripped apart by the American shells, and limped away to sink. The last duel of Dreadnoughts was over. It was a pale imitation of the projected battles of an earlier age, the Trafalgars that might have been, but it was close enough.

For what was left of the war, the American and British Dreadnoughts continued with bombardment and escort. All but one of the Japanese Dreadnoughts were mopped up by submarines and airplanes; and the *Yamato* went down in a last, futile sortie.

EPILOG, 1946-69

The Atomic Bombs ended the war and, so it seemed, the Dreadnought. But tests at Bikini Atoll, in 1946, showed that Dreadnoughts were surprisingly difficult to sink by Atomic blast.

Nevertheless, the world's remaining Dreadnoughts, sadly decimated by war, were diminished even further. Almost all of the Second Generation ships, their jobs done, were scrapped, except for those of the Russians which survived German bombers. These soldiered on into the '50's, as did the South American ships. The Japanese, German, and Italian ships were all sunk or disposed of. The Americans and British mothballed some of their Third Generation ships and operated others.

The four American *Iowa* class ships were recalled to service during the Korean War, when they did excellent work on shore bombardment. The Turks were even threatening to bombard Cyprus with the *Yavuz* (ex-Goeben) in 1964. U.S.S. *New Jersey* operated off Vietnam in 1968 and 1969. It was greatly loved by the Marines it supported, and did excellent work until the Air Force, feeling it usurped "their" targets, had it sent home. Today, only eight Dreadnoughts remain, all American, although four are simply museums. The other four are "mothballed."

Despite its use since 1945, that year effectively marked the end of the Dreadnought era. The Golden Age of the Dreadnought lasted only until 1922. By then the Washington Treaty and the rise of the airplanes cut into the superiority of the previous fifteen years. Despite this, they accomplished a great deal in the Second World War, but took heavy losses.

The Dreadnought was not a decisive weapon. It was never intended to exercise the "quick kill" of an ICBM or even of torpedo bombers. Even the biggest and best Dreadnoughts were, in the end, brought down by submarines and airplanes. Despite these failings in concept, the Dreadnought remains a memorable part of an era when majestic ships ruled the waves.

ORIGINS I WARGAMING/MINIATURES NATIONAL CONVENTION

DATE: JULY 25, 26, 27, 1975

PLACE: JOHN HOPKINS UNIV., BALTIMORE, MD.

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For Pre-registration, Dealer Exhibition, or further information send an SSAE to: 'CONVENTION' c/o T.A.H.C. 4517 Harford Road, Balto., Md. 21214, or phone: (301) 254-5300.

Co-sponsored by Interest Group Baltimore and the JHU Historical Simulation Society in co-operation with The Avalon Hill Game Company.

SCENARIOS AND VARIANTS:

NEW SCENARIOS FOR DREADNOUGHT

A Mediterranean Excursion

by George Lyon

A close review of any extended period of military operations will usually reveal a number of conflict situations too insignificant in implication to be extensively dealt with by historians. These events could have turned out differently. Their possibilities may take on unusual significance to players of *Dreadnought* who seek historically-based scenarios only to find that the admirals of 1906-1945 failed to take the needs of today's wargamer into account in planning and executing their operations.

The following scenarios take a step toward changing that. Now, Cunningham's elusive Genoa Bombardment Force will be intercepted by the superior Italian reaction force that failed to locate it in 1941. The often ir-resolute Italians will summon the determination (and the fuel oil) for a last glorious throw of the dice in an attempt to break up the invasion of Sicily.

As you will see, all scenarios are taken from the Mediterranean theater, one of the bloodiest of all areas of naval operations in World War II. (See *S&T* 26, p. 17). The historical notes supplied with each scenario provide a brief summary of the situation as it developed and of the assumptions that have been made to make the scenario possible.

Of necessity, some liberties have been taken in the OB regarding cruisers and destroyers, and where aircraft carriers were actually present they are assumed to have managed to avoid surface combat. Any effect they may have through the launching of air strikes is provided for in each scenario's special rules.

PUNTA STILO (Calabria), 9 July 1940

ORDERS OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|-----------------------|------------------|
| Warspite (134) | E 1408/N/5 |
| Royal Sovereign (151) | E 1409/N/5 |
| Malaya (133) | E 1410/N/5 |
| L21 | E 1406/N/5 |
| L22 | E 1209/N/5 |
| L31 | E 1609/N/5 |
| D31 | E 1607/N/5 |
| D32 | E 1207/N/5 |
| D33 | E 1412/N/5 |

Italian Player:

| | |
|-----------------------|------------|
| Conte de Cavour (921) | F 0408/N/5 |
| Giulio Cesare (922) | F 0409/N/5 |
| C61 | F 0407/N/5 |
| C71 | F 0410/N/5 |
| C72 | F 0405/N/5 |
| D61 | F 0207/N/5 |
| D62 | F 0210/N/5 |
| D63 | F 0607/N/5 |
| D64 | F 0610/N/5 |
| D71 | F 0411/N/5 |

GAME LENGTH

20 Game-Turns

BASE VISIBILITY

Nine hexes

SPECIAL RULES

Italians may not cross lines formed by the south and east edges of the initial map configuration.

VICTORY CONDITIONS

British must sink or wreck one of the Italian capital ships and score more victory points than the Italian player or they lose.

HISTORICAL NOTES

The Italian force was returning to Taranto after escorting a large convoy to Benghazi. The British attempted to cut off the Italians thinking that they could be taken by surprise. However, the Italians, aware of the British presence, actually sought battle in the friendly waters off Calabria within range of their land based air power.

CAPE TEULADA, 27 November 1940

ORDERS OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|------------------|----------------------------|
| Gibraltar Force | |
| Renown (241) | E 1810/NE/6 |
| C21 | E 1910/NE/6 |
| D21 | E 1711/NE/6 |
| D22 | E 2009/NE/6 |
| Alexandria Force | (Enters per special rules) |
| Ramilles (153) | |
| C22 | |
| L21 | |
| D23 | |

Italian Player:

| | |
|-----------------------|-------------|
| Vittorio Veneto (931) | F 0809/NW/6 |
| Giulio Cesare (922) | F 0910/NW/6 |
| C61 | F 0608/NW/6 |
| C71 | F 1010/NW/6 |
| C72 | F 1111/NW/6 |
| D61 | F 0609/NW/6 |
| D62 | F 0708/NW/6 |
| D63 | F 0908/NW/6 |

GAME LENGTH

16 Game-Turns

BASE VISIBILITY

Eight hexes

SPECIAL RULES

Alexandria Force arrives on game turn six from the North at the British Player's discretion, but not less than 20 hexes from the nearest Italian unit. British must specify board section of entry on Turn 5.

VICTORY CONDITIONS

Italians must score more victory points than the British and exit both Italian capital ships from the west edge of the original map set up with equal or fewer total unrepaired hits than those inflicted on the two British capital ships or they lose.

HISTORICAL NOTES

The British attempted to pass a convoy eastward through the Mediterranean from Gibraltar. Their Gibraltar force was to be relieved by the Alexandria force with both forces providing strategic support during the most dangerous part of the convoy's

passage. In actuality the Italian attack on the convoy was made by light forces, submarines and aircraft. The Italian battleship force never encountered either the convoy or either British capital ship escort. This scenario assumes that a capital ship encounter did take place.

BOMBARDMENT OF GENOA, 9 February 1941

ORDERS OF BATTLE AND DEPLOYMENT

| British Player: | hex/facing/speed |
|-----------------|------------------|
| Renown (241) | C 0611/NW/6 |
| Malaya (133) | C 0712/NW/6 |
| C31 | C 0511/NW/6 |
| D31 | C 0710/NW/6 |
| D32 | C 0513/NW/6 |

Italian Player:

| | |
|-----------------------|-------------|
| Vittorio Veneto (931) | E 1905/NW/6 |
| Giulio Cesare (922) | E 1804/NW/6 |
| Andrea Doria (924) | E 2005/NW/6 |
| C71 | F 0106/NW/6 |
| L61 | E 1603/NW/6 |
| D71 | E 2003/NW/6 |
| D72 | E 1806/NW/6 |

GAME LENGTH

20 Game-Turns

BASE VISIBILITY

Twelve hexes

SPECIAL RULES

1. British may not move North or East of lines formed by the North and East edge of the original map section deployment.

2. Due to the presence in the vicinity of the British aircraft carrier Ark Royal, the British Player uses the following procedure to simulate air attacks made by the Ark Royal's aircraft. On each turn the British Player rolls two dice. On each turn on which the result of the roll equals six the British player is allowed to make a separate 1-1 attack against any one ship unit of the Italian force which is not otherwise being attacked on that turn. This attack is resolved at the same point at which gunnery combat is resolved.

VICTORY CONDITIONS

Italians must sink or wreck either Renown or Malaya and score more victory points than the British player to win. Achieving one of these conditions means a draw. Achieving neither means a British victory.

HISTORICAL NOTES

After the British had successfully carried out a naval bombardment of Genoa (although failing to do any further damage to the Caio Duilio which was docked in the harbor for repairs) the Italians sent out a force in order to cut off the British withdrawal. Although the Italians were in a good position to intercept the withdrawing British, the British escaped with the aid of bad weather. This scenario assumes good weather and a successful Italian interception.

[continued on page 30]

months, and are published at the request of the convention sponsors. These "cons" will deal in substantial part with board wargaming, with the occasional touch of miniatures and Science Fiction. When writing to the organizations listed, please mention that you read of their convention in *MOVES*.

*United States Army Recreation Center,
Landstuhl, West Germany
February 12, 13 and 14, 1977*

There will be no entrance or games fees. The games will run from 10:30 AM to 10:30 PM each day. There are BOQ rooms available at Ramstein AFB and Landstuhl Army Base for those U.S. military personnel attending the convention. There are several moderately priced hotels in the area. For those planning to attend, call or write: SFC Paul A. Fuessel, or SFC David Rolfe at 2223-8244; Box 14, 2nd General Hospital, APO N.Y. 09180 or Director, USA Recreation Center, Landstuhl Box 43, 2nd General Hospital, APO 09180. Phone # 2223-7278.

Orcon I

January 7, 8, and 9, 1977

The Armchair Strategists Club is hosting a Wargame Convention at the spacious and scenic campus of California State University, Fullerton. Scheduled events will include boardgame tournaments, miniatures, D&D, diplomacy and an auction. Prizes will be awarded to the victors of the tournaments. Dealers will be present for your convenience. There will be plenty of room for open gaming and there will be going games of Terrible Swift Sword, Drang Nach Osten, War in Europe and possibly Wellington's Victory. All those pre-registering will receive, by mail, a convention schedule of starting times. CSU Fullerton is located about 20 miles southeast of Los Angeles in Orange County. Cost is \$2 per person to pre-register or \$3 per person at the door. Make all checks payable to Mark Snowdon C/O The Armchair Strategists Club, University Activities Center, California State University, Fullerton, Ca. 92634.

Winter War IV

January 14, 15 and 16, 1977

You are invited to attend the fourth annual convention of the University of Illinois Conflict Simulations Society, Foreign Language Building, 700 S. Mathews Ave., Urbana, Ill. 61801. Tournaments, exhibits, seminars, auctions, demonstrations and free gaming. Winter War remains one of the most inexpensive conventions going: \$1/day, \$2/weekend and \$1/tournament. Dealer fee this year will be \$25. If you have any questions please write: Alan B. Conrad, 911 S. Locust #101, Champaign, Ill. 61820.

"WarCon III"

January 28, 29 and 30, 1977

Tournaments will be for the following games: Dungeons & Dragons, Panzer Leader, Empire of the Petal Throne, Kingmaker, Patrol, Nuclear War, and miniatures (probably). For further information write: Steve Hageman, 435 Aston, College Station, Texas 77840.

Dreadnought

[continued from page 24]

DEATH RIDE OF THE ITALIAN NAVY,

12 July 1943

ORDERS OF BATTLE AND DEPLOYMENT

| Allied Player: | hex/facing/speed |
|-----------------------|-------------------------|
| Massachusetts (463) | E 0607/NE/5 |
| Texas (342) | E 0405/NE/5 |
| New York (341) | E 0306/NE/5 |
| Warspite (134) | E 0908/NE/5 |
| Maylaya (133) | E 0808/NE/5 |
| Renown (241) | E 0709/NE/5 |
| C31 | E 0505/NE/5 |
| C32 | E 0707/NE/5 |
| L31 | E 0806/NE/5 |
| D41 | E 0206/NE/5 |
| D42 | E 0508/NE/5 |
| D43 | E 0609/NE/5 |

Italian Player:

| | |
|--------------------|-------------|
| Littorio (932) | B 0412/SE/5 |
| Roma (933) | B 0312/SE/5 |
| Andrea Doria (924) | B 0511/SE/5 |
| Caio Duillio (923) | B 0410/SE/5 |
| L61 | B 0513/SE/5 |
| L62 | B 0611/SE/5 |
| L71 | B 0211/SE/5 |
| D71 | B 0609/SE/5 |
| D72 | B 0213/SE/5 |

GAME LENGTH

16 Game-Turns

BASE VISIBILITY

Seven hexes

SPECIAL RULES

Neither side may leave original map area. (Exception: See Victory Conditions.)

VICTORY CONDITIONS

Italian Player must sink or wreck one Allied capital other than BB's Texas or New York or exit two or more capital ships having no unrepaired damage from the south edge of the original map area or score more victory points than the Allied Player or they lose.

HISTORICAL NOTES

The Italian OB represents what was available to repel an invasion of Sicily. (Vittorio Veneto was repairing bomb damage). This scenario assumes the Italians possessed adequate luck and resolve to take advantage of night and bad weather conditions that restrict the use of Allied air power.

The Allies respond by assembling a scratch force of their own capital ships (including New York and Texas, far better suited to bombardment missions) to prevent the Italians from interfering with landing and supply operations. The Italian player has the option of trying to sink at least one more Allied capital ship for the sake of la gloire or of doing damage among the Allied troop and cargo transports by exiting the map. At the end of sixteen turns, the first of a series of Allied airstrikes, launched when the weather cleared a bit, begins the obliteration of the Italian force.



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another to complete mopping up. Following this, the Allied Player is left only with the French forces in Africa and Syria and the French Navy. Rather than being lost to a Vichy government, these forces can be saved for use by the Allies.

During the Naval Stage of the Second Game-Turn, before the Vichy government is declared, move all French combat and merchant ships to New Caledonia. This may seem somewhat unorthodox, but, according to rule 20.17, "The French possession of New Caledonia (hex E1116), and any French units based there, always become Free French when France falls, regardless of the declaration of a Vichy government." Then, after the Vichy government is declared, the Allied Player can return these forces to the Atlantic for his own use.

The Allied Player could do the same with the three French Land Strength Points in Africa and Syria, but a simpler solution is at hand. Locate the 2i in Africa at hex 2619. The 1i in Syria might also be shifted to the same hex during Game-Turn One for added strength. A strong French force located at 2619 will delay an Axis drive on Gibraltar (hex 2617). According to rule 20.14, "Should any Axis or Allied unit (other than U.S.) enter Vichy territory, the Vichy French will ally themselves with the non-attacking side." But, don't forget to establish supply with these units once they come over to the Allies.

Following the above procedure, the Allied Player will be able to keep the French Navy and Merchant Marine on his side and be able to use the French Army in North Africa as a blocking force.

—Allyn R. Vannoy

*

DREADNOUGHT: ADJUST FIRE

Dreadnought is an exciting and easily playable simulation of surface combat, but several design errors may influence play to a degree not seen in actual naval combat. Foremost of these minor faults are Range Allowances for several types of British and Japanese capital ships. It is with the Japanese BB's and BC's that I begin. The game allows the 780 **Fuso**, 800 **Ise**, 820 **Nagato**, 850 **Kongo** and 870 **Kirishima** Classes to fire to ranges (21-23 hexes) that these vessels were not able to attain until their reconstructions in the mid-1930's. Corrected values and hex equivalents follow:

Kongo, Kirishima (850, 870) as built... 25,800m (28,200 yds) = 14 hexes.

Fuso, Ise (780, 800) as built... 29,000m (31,700 yds) = 16 hexes.

Nagato (820) as built... 32,000m (35,000 yds) = 18 hexes.

790, 810, 860, 880 in 1936... 38,000m (41,500 yds) = 21 hexes.

830 in 1936... 42,000m (46,000 yds) = 23 hexes.

These differences are caused by the increase in elevation (generally from 33° to 43°) of the

main batteries of these ships in their rebuilds. The same case is made for the British capital ships, **Queen Elizabeth** (110-120), **Royal Sovereign** (140-150), **Renown** (230-250) and **Courageous** (260), armed with the 15"/42 Mk.I rifle. When built, the elevations of the 15" aboard these ships was 20°, giving a maximum range with the 1920 lb. AP shell of 22,500m (24,600 yds) or 13 hexes. When the **Queen Elizabeth** (131), **Valiant** (132), **Warspite** (134) and **Renown** (251) were extensively rebuilt prior to World War II, elevation increased to 30°, allowing fire to 32,000m (35,000 yds) or 18 hexes. All other ships armed with the 15"/42, except **Hood** (271-281) retain the lesser range, including **Malaya** (133) and **Repulse** (252), which were not as extensively modified as their sisters.

Another bone of contention is the base visibility in the Campaign Scenarios. It is possible to have a maximum visibility of 18 hexes on individual turns. Fine, you say, as most ships' ranges fall short of 18 hexes, allowing visual fire to maximum distance. But, few ships, if any, had observation or fire-control posts high enough (about 230 feet) to see this far. The magnificent **Yamato**, with her tremendous bridge structure, had her highest post 130 feet above sea level, giving her the ability to "see" 13.1 miles (26,200 yds or 24,000m or 13 hexes) to the relative horizon. Firing at a target beyond this range would be extremely difficult or impossible as the target would be hull-down. Then again, few bodies of water in the world are calm enough or untouched by foul weather to allow this kind of visibility year-round. Opening fire at 25,000 yards in the North Sea or Denmark Strait in winter? Unlikely, without radar, which was not generally in use for 34 of the battleship's 39-year existence. Therefore, I suggest that maximum visibility for initial contact be no more than 14 hexes, and that maximum visibility for firing be no more than 13 hexes, or the result of the die roll (see 5.7, Visibility), whichever is less.

Information cited is from Breyer's **Battleships and Battle Cruisers, 1905-1970**, **Warship Profile #12 "IJN Kongo," Warship Profile #30 "IJN Yamato and Musashi,"** and Alnavco's **Seapower III Surface Action Rules** (for the visibility data).

—Dave Newman

*

VICTORY IN WORLD WAR THREE

Victory in **World War Three** is based on the number of Industrial Hexes held at the end of the game. Now, I have counted the number of Industrial Hexes in the game and I find seven in Europe, three in Japan, two in China, five in Russia, and eleven in the US, for a total of twenty-eight. Hence, to win the game one must have fifteen Industrial Hexes. As I found in the game, England will usually not fall to the Russians since they have only one or two amphibious units with which to

invade; likewise with the US. Thus, they simply cannot touch twelve hexes, assuming that you have a competent US Player. In Japan, if the Russian Player gets lucky he may be able to seize the northern Industrial Hex, but unless he is fantastically lucky, the US Player can reinforce the rest of the remaining two hexes, thus giving him fourteen hexes, assuring a draw. In fact, if the US plays its cards right it will command the seas by Game-Turn Seven, make an amphibious landing in the hex above the Russian Industrial Hex in Japan and isolate the Russian units there; then, through a major effort, the US could regain the hex, thus giving him fifteen hexes and the game, without having to set foot in Europe. At best, the Russian might be able to capture the oil in Iran and Singapore, thus giving the US Player only thirteen hexes, but that only salvages a draw, and usually the US Player can reinforce Singapore after the Chinese invade Southeast Asia, but before they reach the oil wells. Hence, a victory for the Russians is highly improbable, and the game loses some of its flavor. After all, the idea is of a return to Europe, not isolation.

To circumvent this problem, either deplete one Industrial Hex from the US and give it to the Russians, institute variable degrees of victory and different victory conditions, or, and this is the approach I prefer, do not assign all hexes the same value. I assume that industry in Russia is basically heavy, while that in the US is consumer, hence Russian industry is geared for war and, factory for factory, they are probably more valuable in time of war (although the US still enjoys a preponderance of industrial strength) and, hence, they should be accorded a higher weight in terms of victory. This method may balance the game as far as victory goes. For Victory Point purposes, assign the Russian home hexes a value of three Points each; assign the rest a value of two Points each and a value of only one Point if they don't have oil to function. Hence, the Russian Player with his thirteen hexes will have 31 Points, the US Player with his fifteen hexes will have 30 Points — a Russian marginal victory. Even if the Russian controls the oil, if the US Player holds onto Japan and liberates Western Europe, he will have 31 Points to 25 for the Russians, a substantive victory. If he only liberates one hex, the Russian will have twenty-nine Points to the US total of twenty-nine Points without the oil. This method will encourage a liberation of Europe attempt, where the other system fails to do so.

—Ernie K. Demanellis

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Footnotes*

*Footnotes

FACING IN PANZER '44/MECH WAR '77

One fault of the **Panzer '44/Mech War '77** game system is the lack of emphasis on flanking maneuvers as an effective tactic in engagements on the platoon/company level. With no advantage accruing to the Player who maneuvers to lay flanking fire on his opponent, the game takes on some of the flavor of an aerial engagement, where the primary use of maneuver is to bring units within spotting and firing range of the enemy and the primary device of subtlety is the timing with which this is accomplished.

In the period of the **Panzer '44** game, particularly, the importance of maneuver and flanking fire should not be ignored, as this was often the only viable tactic for Allied commanders whose tanks were severely outgunned. For instance, the 75mm gun of the M4 could not penetrate the frontal armor of the Panther at the killing range of the Panther's gun, as the strengths in **Panzer '44** readily show. But this same gun was quite capable of penetrating the thin side and rear plates of the Panther—try it in **Tank!**—even at 1000 meters and you'll see.

A platoon of AFV's deployed in combat will usually have a front orientation as the commanders strive to keep their frontal armor presented to the enemy. When fire is received from several directions, this effort is compromised, and some of the incoming fire is sure to impact on the more vulnerable aspects of the vehicles.

The lack of field-of-fire restrictions on towed artillery is another unrealistic element, which decreases the value of maneuver. There are severe limitations on the effectiveness of towed guns in a fluid situation, but the **Panzer '44** rules give such units the same flexibility and offensive value as turreted AFV's, though vulnerability to fire is, if anything, overstated.

It is possible to correct these omissions and restore maneuver to its proper value without adding a lot of dirt to the mechanics of the game. Neither is it necessary to depart from the spirit of abstraction and playability, which makes this system work. The following rules are, admittedly, rather abstract, if not arbitrary, in their specifics, but the principles are sound and they work without seriously altering the balance of the scenarios.

1. When any Hard target is fired upon by more than one M-Class unit in a given Phase, determine the Line of Fire from each firing unit. If any two LOF's enter the target hex through non-adjacent hexsides, then all attacks are upgraded by adding one (+1)

Attack Strength Point before Range Attenuation.

2. The primary facing of a towed artillery unit is indicated by the orientation of the weapons symbol on the counter, which must be directed unambiguously toward a single hexside. The Field of Fire encompasses a 120° arc centered on the orientation of the weapon symbol and projected to the limits of range through the three adjacent hexes so indicated. Fire on any target within the Field of Fire is executed normally. Fire on any targets outside the Field of Fire may be executed, but three (-3) is subtracted from the die roll. This restriction should not apply to mortars, anti-aircraft guns, or any other guns with all-around traverse or which are light enough to be manhandled by a fear-crazed gun crew. Non-turreted AFV's have their Field of Fire limitations factored into their Attack Strength, so they are excluded from this rule.

3. This is unrelated to the "maneuver" issue, but I'll throw it in anyway as it cries for attention. M-Class Attack Strengths are computed on the basis of armor-piercing capability. The resulting range of values for weapons whose high-explosive capabilities were very similar is unfair to Soft Targets. An infantryman would be unlikely to appreciate or experience any difference between the incoming high-explosive shells from the 75mm of an M4 and, say, the 17-lb. gun of the Firefly. Therefore, when M-Class units attack Soft Targets, use Attack Strengths from this table:

| Caliber of Firing Weapon | Attack Strength |
|-------------------------------|--------------------|
| 57mm or less | basic |
| 75mm to 85mm (incl 17-lb.) | 7 |
| 87mm or greater | 9 |

The mental switch should not be hard to make in the course of play and it will bring the effectiveness of primarily armor-piercing weapons against Soft targets back into line.

The suggested rules modifications have limited applicability to **Mech War '77**. Flanking fire is of less significance with the common use of HEAT projectiles as opposed to kinetic rounds. The only units subject to Field of Fire restrictions are the Soviet and PLA towed artillery and anti-tank batteries. However, with the greatly increased strength of M-Class units, rule #3 is even more important. A new class, including 105mm and greater calibers, should be added to the table, with an Attack Strength of "10."

—William Tallen

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DREADNOUGHT

Dreadnought may be made even more realistic by slightly amending certain ship values and game procedures, at no expense in playability. [See **MOVES 23**, pg.17—Ed.]

The game allows the U.S. battleships armed with 14" rifles to fire to ranges these weapons were unable to attain until angles of elevation were raised, generally from 15° to 30°. These modifications were a part of the extensive reconstructions conducted in the late 1920's through late 1930's. The only exceptions were the 410-420 Tennessee Class BB's, the last of the 14" U.S. BB's, which were built with 30° elevation for the main battery.

The 340 Texas, 350 Oklahoma and 370 Pennsylvania, all armed with the 1911 Mark II 14"/45 should have a range of approximately ten hexes, instead of the 17-hex Range Allowance on the counters. The 360 Oklahoma and 380 Pennsylvania Classes, after their respective 1927-28 and 1929-31 rebuilds, have the printed range. Since there is no "refit" Texas counter, the 341 New York and 342 Texas should have a ten hex range until after their 1940-41 modifications, when the printed range is valid.

The 390 New Mexico Class, armed with the longer 1915 Mark IV 14"/50 should have a range of approximately eleven hexes. After their modifications in the early 1930's, the printed 18-hex allowance is valid.

The C60 and C70 screen units should be allowed to use torpedo attacks when used as Japanese CA's, as this was a vital aspect of Japanese naval doctrine (remember Savo Island?). The C60's, as they approximate the Furutaka/Aoba Classes, and the C70's, which represent the Myoko/Takao/Mogami types, should be given a 1:1T capability.

Further, all DD types which did not carry reloads (generally, all non-Japanese ships) should be limited to only one torpedo attack per scenario, not two per scenario, as in Case 8.22.

The rules allow a BB to blast away at a wrecked screen unit all day, and not sink it unless first rolling an "E" Result on the CRT and then rolling a 7 or 11. This rule is very valid for damage on capital ships, as the resilience of the capital ship was amply documented in the S&T "Dreadnought" article. But lightly-or-non-armored screen units are a different story. To allow for more sinkings, and a more realistic touch, amend Case 5.42, as follows:

[5.42] Screen units are sunk whenever damage exceeds the 2G2S condition as follows: when the attacker is a capital ship, an additional 'G' or 'S' hit sinks the unit. If the attacker is a screen unit, only an additional 'S' hit will sink the unit. And, regardless of the nature of the attacker, an 'E' hit assessed against a wrecked screen unit will sink the unit.

Also, the rules allow for screens armed with 8", 6", 5" and smaller weapons to inflict damage on heavily protected capital ships from the extreme limits of a screen's range. Certainly, at ranges of 5-10 miles (5 to 10 hexes) light artillery like 5" or 8" will not penetrate a BB's vitals, protected by 12"-16" of armor. But light weapons (and, after all, a 250 lb. 8" AP is a feather compared to a 2000

lb. 15" AP shell) can damage a capital ship's bridge, fire-control positions (exposed radars, RF's, etc.), light weapons, and so forth. At First Guadalcanal on 13 November 1942, BC Hiei's bridge was peppered and set ablaze by 5", 40mm and 20mm fired at point-blank range. This hail of fire which smothered Hiei had a definite effect on morale and clear tactical thought by Admiral Abe. To simulate this, amend Case 5.23 as follows:

[5.23] Screen units (CA's, CL's and DD's) may not engage capital ships unless the range is 1-3 hexes. Further, a maximum of 'GS' damage may be accumulated by one target in one Game-Turn. The Range Effects Table (5.51) does apply.

The only exceptions to this suggestion are the 260 Courageous and 720 Lutzow Classes, with their cruiser-type armor. Screens may engage these units as they would other screens, at all possible ranges.

Information cited is from Breyer's **Battleships and Battle Cruisers, 1905-1970** and from Watts and Gordon's **The Imperial Japanese Navy**.

—Dave Newman

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BRINGING BACK SURPRISE

A problem with many conflict simulations, especially sequential movement simulations, is the relative ease with which a Player can anticipate his opponent's plans. One look at the map gives a Player perfect knowledge of the disposition and strength of the enemy army. Of course, there is still some uncertainty as to the exact move his opponent will make, but his task of planning the deployment and maneuver of his forces is made simpler by his knowledge of where the enemy is. In other words, the element of surprise is almost completely lacking. Occasionally inverted counters and dummy counters are incorporated into a game, and this provides one solution to the problem. However, even inverted counters provide some useful information—while not revealing precisely where a Player's forces are, they do give the almost-as-important information of where those forces are **not**. As another alternative, we would like to outline an idea which Players could use to bring back that element of surprise.

The key idea is that a Player may temporarily remove some of his units from the map. While off-map, the units still retain their "locations." They can be moved and are subject to all movement inhibitions and restrictions which apply when on-map. The difference is that, instead of a unit being moved to a new hex on the map, the new location is noted on a piece of paper. Maps with numbered hexes are best suited to this, and SiMove pads are ideal for keeping track of off-map units. The particulars of a specific move need not be noted, only the destination hex.

Use of this rule creates a new dimension to board games. If, for example, your opponent has all of his armored units off-map, you have no idea where his attack will come. Thus, there is more pressure to prepare a good defense, and there is a real need to keep a reasonably sized force in reserve.

Beginning with the idea that a unit can be temporarily removed from the map, there are many variables which will apply differently to various games. Among these are:

1. The number of pieces which can be off-map on a given Turn. This would depend on the reconnaissance and intelligence gathering capabilities of the opposing armies; but, in any case, the number should be kept fairly low to prevent too much paper work from accumulating.

2. Which pieces can be removed from the map: There should be restrictions on which units can be removed. For example, to be removed from the map, a unit must be out of contact with all Enemy units and their Zones of Control; to be removed, a unit must be a certain number of hexes from the nearest Enemy unit, etc.

3. Restrictions which apply to off-map pieces. Some examples of restrictions are: the unit may not attack and has no ZOC; the act of moving off-map consumes its entire Movement Allowance for that Turn; off-map units which move adjacent to Enemy units must be returned to the map, which expends their Movement Allowance for that Turn, and they may not attack immediately after being brought back onto the map.

The above are intended as general suggestions. Players could adopt the idea to specific games as they see fit. To incorporate this idea does require a bit of paperwork and a fair amount of honesty.

—John & David Tate

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BRIDGE LAYING VEHICLES IN TANK!

The anti-tank ditch markers in **Tank!** are an absolutely impassable obstacle. But in reality, every defensive measure ultimately produces an offensive gimmick to counteract it. The remedy for the anti-tank ditch is the bridge-laying tank.

As early as the First World War, armored units went into action carrying "fascines," huge round bundles of brushwood that could be dropped into trenches ahead of the advancing tank to facilitate crossing. By the Second World War, several types of assault bridging vehicles had been developed for the purpose of crossing streams, canals, trenches, ditches and other minor obstacles. Such vehicles would normally be concentrated in brigade or division engineer units, but for a planned attack on a prepared position, they could be attached to individual tank companies. The simplest type was represented by the British "ARK" or a Soviet modification of the T-34. This was simply a

tank chassis, minus turret, with a platform atop the hull and drawbridge extensions at bow and stern. It would be driven bodily into the ditch, the drawbridges would be lowered onto either bank of the obstacle and the following tanks would cross directly over it. More sophisticated bridging vehicles carried a rigid steel girder bridge up to 40 feet long that could be launched out over an obstacle on rollers mounted on the front of the tank hull. The final development was the "scissors bridge" (as mounted on the British Valentine, and on modified Main Battle Tank chassis in most armies since WWII). This type of bridge is raised, unfolded and extended over a gap by hydraulic rams, then dropped and uncoupled without the crew dismounting.

A few simple, somewhat abstracted rules for **Tank!** can readily reproduce this capability:

[37.0] Bridge-Laying Vehicles

At the discretion of the Players, and within the limits of the various historical periods and national weapons inventories, the Alpha Force may include up to one section (four vehicles) of assault bridging vehicles in scenarios involving anti-tank ditch defenses.

[37.1] **Ark-type Bridging Vehicles:** This is an unarmed tank chassis, with Defense Strength characteristics corresponding to the battle tank employed by Alpha Force (or an "obsolete" vehicle of the same army). They may be attached to each separate platoon, or moved together as an "engineer" platoon. To use its bridging capability, the unit must be moved adjacent to the ditch, where it must stop and move no further in that Turn. On the following Turn, it may be driven into the ditch, and other vehicles may cross "over" it. The "bridge" vehicle is considered to be abandoned, it may not leave the ditch or move at all for the remainder of the scenario. The bridge itself may be destroyed by HE Fire, defending with a strength of "15."

[37.2] **Steel Girder and Scissors Bridge Laying Vehicles:** These are unarmed tank chassis which carry a "bridge" unit as a "passenger" ("bridge" counters may be made up from blanks or borrowed from games that use bridge units). The "bridge" is emplaced by moving the vehicle adjacent to the ditch. On the following Turn, the bridge may be unloaded, and vehicles may cross. The bridge may be taken up again by reversing the process. The bridge itself defends against HE attacks with a strength of "12."

Players should research the special characteristics of the various types of gap-crossing vehicles they wish to simulate. Some vehicles, for example, retained main or secondary armament. Others could lay a bridge, but could not take it up again. In practice, special purpose vehicles tend to attract a disproportionate volume of enemy fire. But this takes some of the heat off the MBT's. So let's hear it for the engineers!

—Mike Markowitz

DREADNOUGHT scenarios:

GRAHAM WHEATLEY

Almost all of the real-life campaigns and battles have been beaten to death. And so, in a fit of insanity, I have cooked up the following what-if scenarios to grace your hex sheets:

Background: Dreadnought is a tactical level game of sea combat in the first half of the 20th century, in the Dreadnought era. Each counter represents one Dreadnought, two cruisers or five destroyers. Each game-turn represents 15 minutes of real-time.

Abbreviations: C= heavy cruiser; L= light cruiser; D= destroyer.

WALLGAMING

C. MACLACHAN

For those of us without a spare room, board games would be easier to play and keep on playing, if we could hang them on the wall. The board itself, of course, presents no problems; you can suspend an S.P.I. map-sheet using plastic poster hangers. The trouble is to stick the counters to a vertical surface. I have heard of people who use Blu-tack, which ruins both counters and board eventually, and S.P.I. have been advertising magnetic strip, although not the sheet metal to put behind the map-sheet nor advice on how to fix such a sheet to your wall. Neither of these methods seems to suit back-printed counters. What is wanted is something which does not alter the appearance of either board or counters, and the cheaper and lighter the better.

With pleasure, then, and pride, I have to announce that this problem has been solved. Yes, solved! Now you can hang your games up, and leave them up, out of reach of children, small dogs, house-cleaners, rats and other vermin. First, you need a sheet of clear plastic to cover your board (Furnham Trading, of 3 Church Lane, Market Square, Wantage, Oxon., sell it by the yard — send them a S.A.E.). Second, to make the counters adhere to this smooth surface, wrap them in freezer film (also known as cling film and available at most supermarkets).

Wrapping the counters is a tedious and fiddly job, best done by cutting a quantity of film from the roll, smoothing it out on a chopping board and then, with a sharp knife, cutting out a piece about 1½ inches square for each counter. Lay the counter in the centre of this piece of film, fold in two opposite sides and smooth them together, then fold in the remaining ends. The smoother the folded surface, the better the adhesion on that side. You may have to rewrap a few counters which just will not stick at first, but once these teething troubles are over all the counters will fix themselves to the plastic overlay if pressed firmly, which means you need to hang the board against a flat, unyielding surface. Like a wall.

You can stack counters, because they will stick to each other, and because the film is transparent you can see both sides of a back-printed counter. I have had games hanging up literally for months, without mishap, and a friend of mine has also tried the idea with success. I verily believe that it will prove a boon to boardgamers everywhere, especially those who play solo or by mail. All I ask in return is that commercial organisations, when they recommend this method, acknowledge its inventor, and that gamers when they cast dice or pick chits invoke my name with honour as a friend to mankind?!

14.0 ADDITIONAL SCENARIOS

14.1 Falkland Islands 8th December 1914 ORDERS OF BATTLE & DEPLOYMENT

British Player: hex/facing/speed
Invincible (191) D0709/NE/6
Inflexible (192) D0609/NE/6
C11 D0410/NE/5
L21 D0906/NE/6

German Player:
C51 D1608/NE/5
L61 D1708/NE/5
L51 D1807/NE/5

GAME LENGTH: 16 game turns

SPECIAL RULES: The British C11 cruiser unit has a top speed of '5'.

BASE VISIBILITY: 12 hexes

VICTORY CONDITIONS: At least 2 German units must break sighting with no irreparable damage by game-turn 16. British must sink or wreck all German ships. If neither condition is met, the game is a draw.

14.2 Dogger Bank 24th January 1906 ORDERS OF BATTLE & DEPLOYMENT

British Player: hex/facing/speed
Dreadnought (011) D1602/N/5
L11 D1601/N/5

German Player:
Hessen (701) A1608/SE/4
C51 A1709/SE/4
D51 A1809/SE/4

GAME LENGTH: 20 game turns

BASE VISIBILITY: 8 hexes

VICTORY CONDITIONS: German player must exit the south or east sides of map F with the Hessen by the end of the scenario. The British player must wreck the Hessen (or sink it). If neither condition is met the game is a draw.

HISTORICAL NOTES: After the First World War broke out in late 1905 two small squadrons of ships met off Dogger Bank. The Germans, believing that their new pre-Dreadnought Hessen was unsinkable, sent it out into the North Sea for trials. But they had not reckoned with the Dreadnought, which was cruising in the area (I know, but I have to think of something!!)

14.3 Trafalgar 12th November 1914 ORDERS OF BATTLE & DEPLOYMENT

French Player: hex/facing/speed
France (504) E0812/NW/5
Paris (504) E0913/NW/5
C11 E0713/NW/5
C12 E0811/NW/5
L11 E0712/NW/5
D11 E1013/NW/5

Spanish Player:
Espana (951) D1306/NE/5
Jaime I (952) D1206/NE/5
Alfonso (953) D1107/NE/5
C51 D1405/NE/5
L51 D1307/NE/5
D51 D1007/NE/5

BASE VISIBILITY: 10 hexes

GAME LENGTH: 12 game-turns

VICTORY CONDITIONS: Victory is based on point count, with the Spanish Player getting 10 extra victory points for each French dreadnought wrecked or sunk at the end of the scenario.

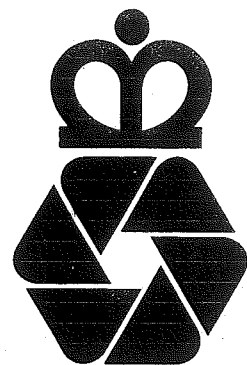
HISTORICAL NOTES (!): Let me see ... Oh, yes. Soon after Austria-Hungary's declaration of war, Spain entered the war, on the Central Powers' side. Because of the lack of troops any major conflict between Spain and France was likely to take place at sea. And so it happened.

14.4 The Falkland Campaign October-November 1914

Campaign Game

British Player:
Force 1: C11
Australia (202) L21
C11 L22
L11

Force 3: C11*
Force 4: C11*
C12
L11



SIMPUBS BRIEFING

MALCOLM WATSON

WRITTEN JANUARY 4th 1980

Welcome to 1980, the start of a new decade and 'The Year Of The Chip! or so we are led to believe. In our own case I hope most sincerely that it becomes just that with the lovable 'Superchip' swinging into action at last. As predicted the last issues of Moves, Phoenix and S&T were the first to go into the post courtesy of our various working programmes. An explanation of the codes and indicators to be found on your labels was sent out with these issues and we are now waiting for details of any corrections to be made on individuals subscriptions and or names/addresses. The main mail order programmes have been put through their initial tests and the errors that were detected have been corrected. We are now moving into the 'fine tuning' stage where we hope to adjust the programmes to enable them to deal with all of the strange things that can happen during the course of a mail order transaction.

It behoves me to bring two points to your attention, both of which are a declaration of procedure to be adopted when we go on stream. First, for all purposes including subscriber discounts, a subscription will be deemed to have expired at the point in time that the label for the last issue in that sub is created. From that point on, 'Bigbadchip' will discontinue giving subscriber discounts to the lapsed subscriber. With this in mind it will be evident that subscribers who wish to continue their subs must get their renewals to us on or before the date indicated on their expiry note. The second change affects orders that are underpaid. In the past it has been our practice to issue an invoice for the balance of an underpaid order, in future we will send as much of the order as is covered by the remittance received. The balance of your payment, if any, will be put into credit against your account. It is quite possible that this procedure will affect the subscriber discount given on an underpaid order since discounts will be worked out on the final invoice value. In all cases where we are obliged to implement this procedure we will use our discretion to ensure that the maximum number of items will be sent out with the minimum adverse effect on subscriber discounts. Of course if sufficient payment is made then none of this need concern you. As a postscript to this section, when we get the mail order off the ground we will no longer issue credit notes per se, rather we will maintain a credit balance (assuming there is one of course) against individual accounts. The current state of your balance will be shown on the delivery note that comes to you with each order.

The briefing feature in issue 22 contained a certain amount of gloom with regard to the situation at SPI, happily it looks like they are getting themselves back together at last. There has been a marked improvement in the service and co-operation that we are now getting from their shipping department. The last shipment received was almost

Continued on page 26

Continued on page 26

flawless although it was late which can be put down to a hangover from the pre-shakeup days. The S&T 77 shipment got out on time which is particularly encouraging when one bears in mind the fact that it was put together just prior to Xmas, SPI's busiest time. In the past we have found that the Xmas order always falls behind schedule. Could this be the start of a new era, I certainly hope so, another year like 1979 and I'll be a candidate for ulcers. Not only will S&T be on schedule but wait for it there will be five new games in there. **Commando, Medieval Quads, City Fight, Demons and Deathmaze** are shown on the packing list. The following shipment should contain **Air War 80, Air War Expansion Kit, Bulge, Leningrad and John Carter Of Mars**. Yes I did say **John Carter**, the copyright problems have been cleared up at long last much to the relief and delight of yours truly. Having been starved of new titles for so long the sudden influx is a most delightful experience.

The good news does not finish there, stocks of Yaquinto Games are also en route to us after a considerable delay and it looks like we will be able to offer subscriber discounts on these games as well as setting prices considerably lower than those currently being asked. If you can hold off your desire for these games for a few weeks then do so, I am sure we can save you a bob or two.

It would be very pleasant to continue this feature in the above ebullient manner however there are two sobering facts hovering over our heads at present, both of which are the price increases mentioned in issue 22. S&T is definitely going up in price to us, or rather has now gone up in price. The same is true of the boxwraps. The effects of the former will not be felt by subscribers immediately, we are absorbing the increase temporarily while we look into the feasibility of producing S&T over here, if it proves to be a viable proposition you may never feel the pinch, if however we cannot get this off the ground then you can expect to be hit by a price increase of about 50 pence per issue. Not a pleasant thought.

You will note on the current price list that we have now dropped the unboxed versions of SPI games. Fewer and fewer people have been going for this style over the past 12 months, combine this with the problems of stock control caused by operating the dual format and you have yourself every justification for taking this measure.

Finally we have an Irish problem. Since the recent monetary developments with the EEC, Irish cheques and postal orders have been treated by British banks as foreign. This means that bank charges of £1.00 to £1.50 have been levied on each transaction, obviously we cannot absorb this shortfall therefore we have been obliged to hold up and invoice most Irish orders. Anyone ordering from Eire is advised to go along to their bank to ascertain the best way to get payments to us. Yet another case of governments messing with mans recreational activities.

Since sending off this column for inclusion in Phoenix 23 I am delighted to report that our mail order system is now ready to go on steam. Until we take delivery of regular stationary we will be creating temporary invoices with each order, these will carry an explanation of the comments to be found under the 'Action' heading but do not contain all the information to be included on the regular invoices which should be to hand in 3 months. If you are not sure about any part of your order please contact us giving details of your query along with your new A/C Code, the date and the invoice number, all of which will be found at the bottom right of your invoice. It is possible that we will still come up against some problems during this initial period, any alterations you might find on the printed invoice will be there as a result of the manual checks that we intend to carry out.

FEEDBACK

How to use the Feedback Response Card: After you've finished reading this issue of Phoenix, please read the Feedback questions below and give us your answer/numbers on the card in the response boxes which correspond to each number. See centre spread for reply card. Please be sure to answer all the questions (but not write anything in the box for question-numbers labelled "no question"). Incompletely filled out cards cannot be processed. **What the numbers mean:** When answering questions "0" always means NO OPINION or NO QUESTION, "1" means YES and "2" means NO. When the question is a rating question, "1" is the WORST rating, "9" is the BEST rating; "5" is an average rating and all numbers in-between express various shades of approval or disapproval. Please do not use decimals or halves.

The deadline for the return of this card is 3 weeks from the receipt of this issue.

- (1) How long have you been playing board wargames? 0= less than 1 year, 1= 1 year, 2= 2 years ... 9= 9 or more years.
- (2) How many board wargames do you have? (Quad games count as 4 games). 1= 1-10, 2= 11-20,9= 81 or more.
- (3) Did you send in the Feedback card from issue 22?
- (4) Did you send in the Feedback card from issue 21?

The following set of questions will, hopefully, give me some idea as to how you, the reader, view board wargaming (or whatever you will call it) — acknowledgements to MOVES for the format of the question:

- (5) Pick the *one* name from the following list that best suits our hobby and enter its number in the answer box: 1= Wargaming, 2= Conflict simulation gaming, 3= Adventure gaming, 4= History gaming, 5= Simulation gaming, 6= Military gaming, 7= Board wargaming, 8= Some other title not listed — enter comments below.

The next set of questions ask you to indicate which types of games you think belong in our hobby. For each game type write 1 (Yes) if you think it forms part of the hobby or 2 (No) if you think it shouldn't be considered part of the hobby. Many of the questions only differ by a word or two so please consider them carefully.

- (6) Historical, military board games
- (7) Historical/political/economic/sociological board games
- (8) Historical personal combat or strategy board games (e.g. gunfighting, questing, duelling).
- (9) Science fiction military board games
- (10) Science fiction political/economic/sociological board games
- (11) Science fiction personal combat board games.
- (12) Fantasy Military Board games (e.g. War of the Ring)
- (13) Any board game that simulates a real-world experience or event that involves struggle or conflict on a military or para-military basis.
- (14) Any board game that simulates a real-world experience or event that involves struggle or conflict of any type
- (15) Any board game that simulates a real-world experience or event of any type (not necessarily involving struggle or conflict)
- (16) Non-board games, using miniatures, that simulate historical military events
- (17) Non-board games, using miniatures, that simulate science-fictional military or para-military conflict
- (18) Non-board games, using miniatures, that simulate science fictional personal combat or struggle
- (19) Non-board games, using miniatures, that simulate fantasy military or para-military conflict
- (20) Non-board games, using miniatures, that simulate fantasy personal combat or struggle

- (21) Non-board games, using miniatures, that simulate conflict or struggle of any kind.
- (22) Role-playing games that simulate personal combat and adventure in a military or para-military setting.
- (23) Role-playing games that simulate personal adventure not involving personal combat or violence.
- (24) Role-playing games that simulate personal combat adventure in a non-military setting.
- (25) Role-playing games that simulate personal struggle in a political, social, economic or psychological context.
- (26) Games which do use boards, miniatures or role playing techniques but which simulate real or imaginary conflict in a military or para-military setting.
- (27) Games which don't use board, miniatures or role playing techniques but which simulate real or imaginary personal combat or struggle
- (28) Any game, using any type of equipment or techniques, that simulates an historical military or para-military conflict
- (29) Any game, using any type of equipment or techniques, that simulates an historic economic, political or sociological conflict or struggle
- (30) Any game, using any type of equipment or technique, that simulates personal combat or adventure
- (31) Any game, using any type of equipment or technique, that simulates any real world process (not necessarily involving conflict or struggle)
- (32) Any game, using any type of equipment or technique, that simulates any imaginary (sf/fantasy) conflict or struggle
- (33) Any game, using any type of equipment or technique that simulates any process or event, real or imaginary
- (34) Any game, using any type of equipment or technique that give the appearance of simulating or modelling any process or event, real or imaginary
- (35) Rate this issue of Phoenix on a scale of 1-9 9 being excellent and 1 being poor. I would appreciate a few constructive comments and reasons below if you rate it 4 or less

Rate the following articles/reports in this issue on a scale of 1-9, 9 being excellent and 1 being poor. Please insert zero if you did not read the article.

- (36) Fulda Gap — D.Mack
- (37) Army Group South — P.King
- (38) Fear God & Dreadnought — D.Davies
- (39) Games Day 5 — J.Lambshead
- (40) History and the Horse Bowman — R.Musson
- (41) Great War in the East — A.McGee
- (42) Wallgaming — C.Maclachlan
- (43) Arnhem — D. Cuin
- (44) Dreadnought scenarios — G.Wheatley
- (45) Objective Moscow Review — A.Sarker
- (46) Simpubs Briefing
- (47) Grapevine
- (48) Book Review
- (49) Mail Call
- (50) The idea of a Contact Column
- (51) The idea of incorporating occasional cartoons
- (52) The published cartoon

DREADNOUGHT SCENARIOS: CONT

| Force 5: | German Player: |
|------------------|----------------|
| Invincible (191) | C51 |
| Inflexible (192) | L61 |
| C11 | L51 |
| L21 | |

At the beginning of each scenario the British Player rolls a die (secretly) to show him which force he uses (a roll of 1= use Force 1 etc). If he rolls a '6' or number already rolled, he rolls again.

* = take 2 from speed of unit and add one to attack and defence (represents pre-dreadnoughts Triumph and Canopus).

BASE VISIBILITY: in all scenarios is 10 hexes.
VICTORY POINTS: German Player: 20 victory points if German force (all of it) breaks sighting. Normal points for inflicting damage.
 British Player: double points for inflicting damage.

Note: the German force is represented in each scenario, so in each scenario there is C51, L61 and L51.

Fear God & Dreadnought

A REVIEW BY DOUG DAVIES

There can be little doubt that the 'state of art' in boardgaming design has advanced considerably over the last decade in the area of 'simulation', but that the 'playability' aspect of most games has in contrast deteriorated. This is one reason in my estimation why recent games have such a short life span; they are no sooner produced, (often with labyrinthine rules to try and simulate every detail of a situation), than a barrage of criticism descends revealing the impossibility of adequately play-testing such a creation. Those few games designed more for playability are, in such a situation, often cast contemptuously aside by the advocates of historical accuracy who now tend to dominate the critical horizons of the hobby. This can be great loss to those simply seeking a good, exciting, and balanced struggle of wits and to hell with history.

Such a game is **Dreadnought** produced by SPI in 1975. If you want to sit on the edge of your chair for a couple of hours, nerves tense, your brain whirring with plans, schemes and doubts, the excitement growing by the minute, but above all enjoying yourself, then give this, the final design of the late John Young, a try. If on the other hand the facts that the *Invincible* had 6" armour tapering to 4" on the bow, that the director firing mechanism was designed by Vickers, and that the Captain's coxswain was called Campbell are more important to you, then stay well away from **Dreadnought**, it would drive you crazy.

The subject of **Dreadnought**, as the name suggests, are those huge leviathans which for a brief span of years controlled the seas and then passed on in the space of a generation, leaving behind the same type of romantic image often associated with the steam locomotive. The game is on a tactical level and includes counters for every one of those mighty battleships, plus all the various refits made to some of them (yes, Gladys, they were plagued with errata even then) and allows you to fight all the battles which these creations of Jack Fisher were involved in. As actual battles were in fact rare (Admirals were notoriously inconsiderate about losing ships to provide scenarios for boardgamers) there exists a simple procedure for making your own, — so that you can find out if the Austro-Hungarian-Italian-Spanish Navy could have beaten the Brazilian-Argentinian-American Navy in 1917.

The action takes place on one of those chopped up game maps which come in six separate pieces so that you can move bits of it around should any of your ships threaten to sail off the edge of the board. The rules are simple to master, making it a good game for introducing a new recruit to the hobby into the pleasures of boardgaming, with a sequence of play which is basically fire, move and repair. Firing and movement are simultaneous with plotting taking place secretly, which is where the tension comes in as is usual with *si-move* games. With no terrain to worry about movement is fairly straight forward in that ships may move up to the limit of their movement allowance, with certain restrictions on acceleration and deceleration, and the number and placement of turns which can be made in the course of a move. Battle-

ship counters representing single ships are allowed to stack four high, but screen units which represent groups of cruisers and destroyers are limited to one counter per hex.

Being able to fire depends on the visibility, which can fluctuate from turn to turn, and the range of your guns, and combat is resolved using two 2-12 tables, the Damage Point Table (DPT) and the Combat Result Table (CRT). The attack strength of a firing ship, which may be modified by the range and other considerations, is calculated then two dice are rolled with the result being cross-referenced with the modified attack strength on the DPT. This yields the number of damage points obtained which are then compared with the target ship's defense strength to produce the combat ratio used on the CRT. The dice are then rolled again and the results list the actual damage inflicted on the target. Firing strength is affected by such considerations as facing, previously accrued damage, other ships firing at the same target, and if the firing ship is itself under attack.

Damage comes in the usual SPI fashion for naval games — one can suffer 'G' (gun) damage which either halves or eliminates your ability to fire, or 'S' (speed) damage which has similar effects on your movement capabilities. In the damage control phase ships have a 50% chance of repairing 'G' damage, and a 33 1/3% chance of removing 'S' damage. This ability is limited however to the defense strength of the ship, e.g. a ship with a defense strength of 5 could remove five separate increments of damage, but if at any time the damage is allowed to accumulate to a state of 2G2S the ship is deemed to be a wreck with the damage control parties overwhelmed. It is also possible for a ship to explode, but this is a rare event reflecting the designer's view that in general dreadnoughts could sustain tremendous amounts of damage and still stay afloat.

Other rules cover such things as torpedo attacks, secondary battery fire, smoke screens, radar, the position of the sun, and other assorted esoteria which might affect a naval battle. As previously mentioned a considerable portion of the rules deal with the creation of campaign games as well as listing some seven historical scenarios.

Victory is based mainly on a point system in which you obtain points each time you inflict damage on the enemy, the rewards rising steeply once a ship's damage control level is reached. A couple of scenarios differ in that they are concerned with moving, or preventing a force escaping off a designated map edge. Generally it is a good system which accurately gauges each player's performance. However the game system can be wildly dependant on luck (as big gun naval battles often were), and it is therefore better suited to large fleet actions than to individual ship to ship duels, for the luck element will then, in all probability, even itself out. The drawback to such things as the Jutland scenario, with over 80 units in play, will be the amount of book keeping required, and this is probably best played by mail where more time is

available, or as a multi-player game, which can be great fun if only for the confusion it produces. For normal face to face encounters a force of between six to ten battleships per side gives a better game.

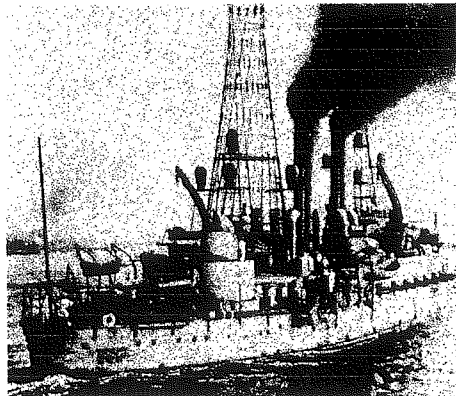
What are the tactics to remember as you sail into battle? Well of course each scenario presents it's own problems but certain guidelines can be recommended. First think long and hard before splitting your fleet into separate squadrons however tempting it might appear. It is rare that the tactical considerations of separate squadrons will coincide allowing them to act in conjunction, and one will invariably find itself confronted by the whole enemy force. This concentration usually takes the form of closing to minimum range on one of the detached squadrons so that the attack factor of each firing ship is either doubled or trebled with a corresponding increase in the possibility of inflicting heavy damage. Of course this effects both sides equally, but a player who has all his ships attack strengths so enhanced will naturally gain a distinct advantage over an opponent who divided his fleet as only half his ships are at close range.

If you outnumber the enemy make sure you engage every one of his vessels, for a ship under fire suffers adverse adjustments on the DPT, and concentrate your best ships and the extra ones against his weaker units. These are easier and quicker to get rid of and it allows you to bring larger concentrations of fire against his better armoured ships later on with more chance of hurting them. A useful tactic to use in conjunction with this is the 'soak off' attack in which you employ ships which are suffering '1G' damage, and whose attack factor is therefore halved, or your least powerfully gunned ships, (such as the older German battleships at Jutland) to fire against the strongest enemy units. The idea being not particularly to hit them, although of course you might be lucky, but rather to allow you to fire two, three, or even more, of your most powerful units against a single target, hoping to overwhelm it in the space of a single fire phase, giving the enemy no chance of carrying out any damage control.

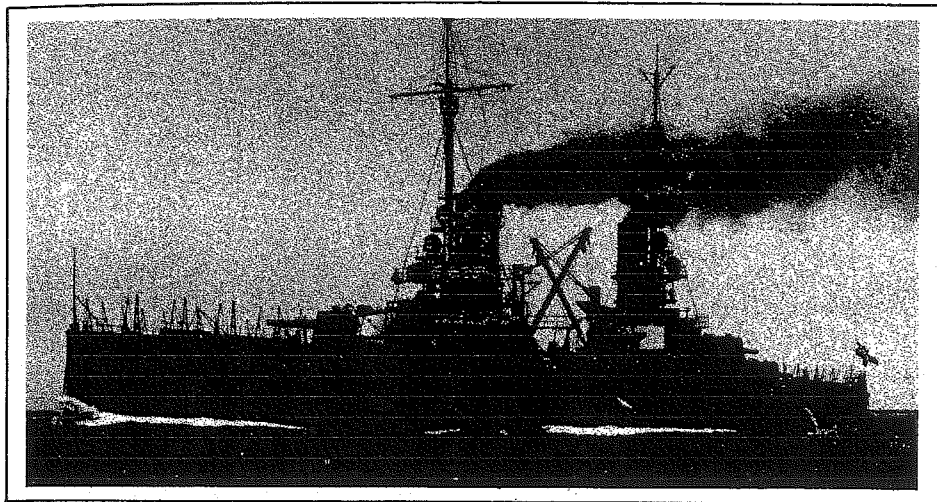
If on the other hand you are outnumbered try to use your destroyers to shield your battleships from part of the enemy strength by employing a smoke screen, thus reversing the situation for a while, and let the exposed portion of his fleet suffer the disadvantages of the inferior side, if only for a turn. Clever use of such smoke screens will frequently split the enemy into two — in effect making them into separate squadrons with it's opportunity to close for a killing. Also a player who finds he is outnumbered will usually discover a compensating advantage — he may be fortunate enough to out-range the enemy in which case he should endeavour to keep the action at long distance, hoping on the odd turn to be able to hit without any chance of reply. Alternatively he might hold a distinct speed advantage over his opponent, which, with careful

| | | |
|------------------|----------|--------------------|
| Attack Strength | 61 20 | Range Allowance |
| Defense Strength | 20 7 | Movement Allowance |
| Nationality | GE | 741 |
| Name | Bismarck | ID Code |

| | | |
|------------------|--------|--------------------|
| Attack Strength | 16 12 | Range Allowance |
| Defense Strength | 6 8 | Movement Allowance |
| Heavy Cruisers | 2 CA's | ID Code |



| | | | |
|-----------------------------|---|------------------------------|-----------------------------|
| 1/2 Attk GS 1/2 Speed | Attack & Movement Halved | Attack Halved No Movement | 1/2 Attk G2S No Speed |
| No Attk 2G2S No Speed | No Attack No Movement — "Wrecked" | No Attack Movement Halved | No Attk S2G 1/2 Speed |
| No Attk 2G | No Attack | No Movement | 2S No Speed |



manoeuvring, can result in a concentration being made against part of the enemy battle fleet.

When you succeed in hitting an enemy ship continue to fire at it in preference to fresh targets, endeavouring to push its damage level up to 2G2S before damage control can remove the hit. This particularly applies to vessels with speed damage, which is harder to remove, and which will tend to become detached from the main body of the enemy fleet giving your opponent all kinds of nasty problems. Naturally keep a check on targets which are approaching the limit of their damage control capability because once this is exceeded, and damage starts mounting, so too, do the victory points you gain with each hit.

Protect your own damaged ships by turning them away from the enemy line, blanketing them behind a smoke screen while you attempt to carry out repairs. Try to keep your own fleet between your cripples and the enemy in order to prevent him from closing with them. Should you have the choice between removing gun or speed damage always roll for the latter first for if you are successful the damaged ship can attempt to flee the scene, but if instead you remove the 'G' damage the chances are that you will eventually be caught by the enemy and pounded into submission. Ships nearing the limit of their damage control level should clear off out of the battle. Far better to lose a small portion of your offensive power than the loss of large numbers of victory points should the vessel remain.

Remember that screen units are highly vulnerable, and that they can also provide a good harvest of victory points if caught without capital ships to protect them, so keep them out of harm's way. In a fleet action destroyers are better employed putting smoke screens round your damaged heavy units, or in trying to divide the enemy fleet into two as described above, rather than in desperate torpedo attacks against the enemy battle line which will rarely succeed in the face of massed secondary battery fire. Torpedo attacks are difficult to execute in this game system and virtually the only time they are profitable is when your opponent is behind on points and is desperately trying to close so that you can predict his course with some chance of accuracy. Cruisers can be used as 'soak off' units if absolutely necessary but this can lead to trouble for their defense strengths are naturally weak and the enemy may well knock them out. Unless their presence is vital it is best to run them out of danger at the very beginning of the battle rather than risk losing the victory points on their demise.

Of course, when you actually get embroiled in action, you soon discover that many of the tactics and considerations discussed above are diametrically opposed to each other, and that you are continually having to make compromises between them. It is this constant battle between conflicting interests which provides the game with its entertainment factor, and as every playing of each scenario can be different, even a constantly played situation will often provide a different set of problems to be solved.

All this might seem sufficient to whet the appetite of any simulation orientated gamer — so why the warning at the start? Well to begin with many of the values assigned to the various battleships are, to say the least, a little controversial. Naval buffs, who spend hours arguing about the relative merits of each ship as it is, will shake their heads in amazement when comparing the factors of some of the vessels depicted in *Dreadnought*. The French battlecruisers "Dunkerque" and "Strasbourg", for example have bigger attack factors than the battleships "Richelieu" and "Jean Bart", which were of the same era and carried larger calibre guns and consequently fired a much heavier broadside. Slightly more difficult to detect, but more serious is the undoubted undervaluing of the whole British World War 1 Fleet. This could have been done to balance the game's main historical scenario — but it has been carried to such lengths that the odds are firmly on a German victory — try telling that to Reinhard Scheer! That German dreadnoughts were better protected than the British is of course widely acknowledged but surely not by the factor of 100% which the designer would have you believe. Also the generally larger British guns are rated below the inferior German calibres (and I know all about the disadvantages of lyddite charges). Further the range factors of many American and Japanese ships of first world war vintage are grossly overstated, and were American ships always so superior to their contemporaries? No I fear we must accept the fact that the designer did not make a good job of trying to sort out an admittedly tangled web of conflicting factors in producing his ship values. Those particularly incensed by this can of course try making up their own counters — they probably would have done so anyway.

Then we should examine the vexing question of arcs of fire. In the game you can fire over any intervening ships at targets which in all probability would have been masked. Now this subject of maintaining clear arcs of fire was one of the main tactical considerations in favour of the battleline against other sailing formations and as such it was an Admiral's prime concern. One of the advantages of crossing the 'T' was that the rear ships of the enemy line would have great difficulty in seeing their assailants, and, of course, only their bow guns would bear in any case. Yet all this is virtually ignored in *Dreadnought* apart from a slight adjustment to the die roll on the DPT to reflect bow or stern fire. This makes the optimum formation not the battleline but the battleblob, a grouping of ships round a central hex. A simple rule change can rectify this situation, but I know many people do not like tinkering with rules.

Next comes the problem caused by the complete absence of any form of command control in the scenarios which would make the combatants obey strategic common sense. Instead a player can order his fleet to its doom in an orgy of self destruction without even a nod in the direction of reality. Surely something like the preservation level system as used in *Frigate* could have been included? This problem is admittedly tackled in the campaign game, but the thought of Jellicoe and Scheer watching their vessels disappear beneath the waves

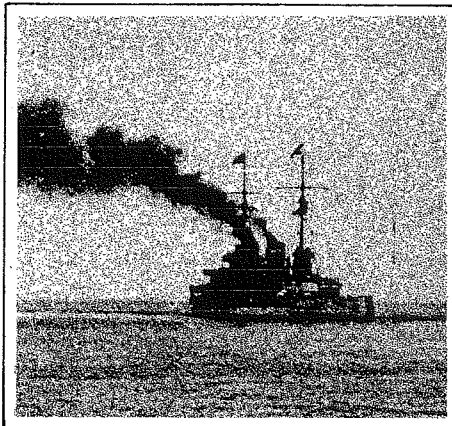
without any apparent concern detracts from the game's major historical scenario.

Finally, mention must be made of the difficulty of actually sinking a ship. It is virtually impossible, as the rules stand, to have more than a minimal chance of sending a dreadnought to the bottom — which reflects, as I've mentioned before, the designer's contention that they were capable of sustaining tremendous degrees of damage. This is all very well, but I've seen so called wrecked ships stand several turns of fire, at minimum range, from eight to ten battleships without sinking. I suggest that once a ship reaches a state of "2G2S" it's defensive factor is halved and any 'E' result on the CRT be treated as a sinking, — normally one rolls again with an over 75% chance that the target won't explode.

The above are all design problems and, to it's credit, the game has few rules problems and none of these is of great import. Nowhere does it state what happens to secondary batteries when a ship sustains 'G' damage. The actual order in which one removes damage from a ship can have an effect, yet it does not state in the rules if 'G' damage must be removed before 'S' damage; or vice versa, or indeed if the player has a choice (this being the method I prefer).

Following such a catalogue of simulation type faults why do I enjoy the game so much that I urge you to find a copy and give it a try? Partly it's so you can experience the sensation of feeling that wonderful air of calm assurance you had, as you planned the utter destruction of the enemy fleet, slowly evaporating to absolute horror as you realise that fool of an opponent hasn't sailed north, as all logic said he must, but instead, has gone south, and is in fact about to cap your 'T'. It's the nervous waiting between completing your plot, which frequently becomes so intense that you can scarcely bear to wait any longer, to see where he's gone and how you can clobber him. Then the nightmare realisation that your biggest battleship has failed to obtain a hit at point blank range. Don't despair however, just as you are about to hurl the dice into the fire and take up Ludo or Ochi one of your destroyers, against all the odds, succeeds in torpedoing a whole column of the enemy's battleships. It's that marvellous feeling of elation when your longer ranged guns give the enemy a couple of broadsides without reply and your frantic opponent is forced to come charging onto your waiting guns. Above everything else it's because the game is so bloody exciting even when your ships are blowing up and you can't see the enemy for smoke.

Yes, in spite of its limitations, it does show you how Jellicoe could have lost the war in an afternoon, and it does so in a highly entertaining manner, so never mind what its critics say — Fear God and Dreadnought!



The following sources are acknowledged:
From The Dreadnought To Scapa Flow (five vols) by Arthur J Marder
The Battleship Era by Peter Padfield
Naval Battles Of The First World War by Geoffrey Bennett
Dreadnought by Richard Hough
The Strategy Of Sea Power by S W Roskill
Moves No23 and No26 by SPI

[5.8] DAMAGE POINT TABLE

Attack Strength

| Die Roll | 0-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31-40 | 41-50 | 51-60 | 61-80 | 81+up | Die Roll |
|----------|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 3 |
| 4 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 8 | 10 | 10 | 10 | 4 |
| 5 | 0 | 0 | 2 | 2 | 4 | 8 | 8 | 10 | 16 | 20 | 20 | 5 |
| 6 | 0 | 2 | 2 | 4 | 6 | 8 | 10 | 10 | 20 | 20 | 20 | 6 |
| 7 | 2 | 4 | 4 | 6 | 8 | 10 | 10 | 16 | 20 | 25 | 30 | 7 |
| 8 | 4 | 6 | 6 | 8 | 10 | 10 | 16 | 20 | 25 | 25 | 30 | 8 |
| 9 | 6 | 8 | 8 | 10 | 12 | 16 | 18 | 25 | 25 | 30 | 40 | 9 |
| 10 | 8 | 10 | 12 | 16 | 18 | 20 | 25 | 25 | 30 | 35 | 45 | 10 |
| 11 | 10 | 12 | 16 | 18 | 20 | 25 | 25 | 30 | 30 | 40 | 50 | 11 |
| 12 | 12 | 16 | 18 | 20 | 25 | 30 | 30 | 40 | 50 | 60 | 80 | 12 |

[5.43] DAMAGE CONTROL TABLE

| Remove one step of... | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|-----|-----|-----|----|----|----|
| ...G Damage | yes | yes | yes | no | no | no |
| ...S Damage | yes | yes | no | no | no | no |

[5.51] RANGE EFFECTS TABLE

| Distance in hexes |
|-------------------|
| 1 or 2 |
| 3 or 4 |
| 5 to 12 |
| 13 or more |

Attack Strength is...

...tripled

...doubled

...unchanged

...halved

[5.9] COMBAT RESULTS TABLE

Combat Ratio

(Damage Points -to- Defense Strength)

| Die Roll | 1-1 | 2-1 | 3-1 | 4-1 | 5-1 | Die Roll |
|----------|-------|-------|-------|-------|-------|----------|
| 2 | • | • | • | • | • | 2 |
| 3 | • | • | • | • | 1G | 3 |
| 4 | • | • | • | 1G | 1G | 4 |
| 5 | • | • | 1G | 1S | 1G,1S | 5 |
| 6 | 1G | 1G | 1G | 1G,1S | 1G,1S | 6 |
| 7 | 1G | 1G | 2G | 2S | 2G,1S | 7 |
| 8 | 1S | 2G | 1G,1S | 2G | 1G,2S | 8 |
| 9 | 1G,1S | 2S | 2G,1S | 2G,1S | E | 9 |
| 10 | 1G,1S | 2G | 1G,2S | 1G,2S | E | 10 |
| 11 | 1G,1S | 2G,1S | 2G,1S | E | E | 11 |
| 12 | E | E | E | E | E | 12 |

When an "E" results, immediately roll the dice again. If a seven or eleven come up, the ship sinks; otherwise it suffers 2G,1S damage.

DREADNOUGHT

CHARTS & TABLES

SPI SIMULTANEOUS MOVEMENT PLOTTING CHART

Game Turn: _____ Phase: _____

| UNIT | MOVEMENT PLOT | | | | | | | | | | | | PLAYER: _____ | GAME: _____ | DATE: _____ |
|------|---------------|----|----|----|----|----|----|----|----|-----|-----|-----|---------------|-------------|-------------|
| A. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| B. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| C. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| D. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| E. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| F. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| G. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| H. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| I. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| J. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| K. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| L. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| M. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| N. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| O. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| P. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| Q. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| R. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| S. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| T. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| U. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| V. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| W. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| X. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| Y. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |
| Z. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | | | |

DREADNOUGHT

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| | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| 13 10 4 5 BR 011 Dreadnought | 13 10 4 5 BR 021 Temeraire | 13 10 4 5 BR 022 Bellerophon | 13 10 4 5 BR 023 Superb | 13 12 4 5 BR 031 S Vincent | 13 12 4 5 BR 032 Collingwood | 13 12 4 5 BR 033 Vanguard | 13 12 4 5 BR 041 Neptune | 13 12 5 5 BR 051 Colossus | 13 12 5 5 BR 052 Hercules |
| 18 13 5 5 BR 061 Orion | 18 13 5 5 BR 062 Thunderer | 18 13 5 5 BR 063 Monarch | 18 13 5 5 BR 064 Conqueror | 18 13 5 5 BR 071 K. George | 18 13 5 5 BR 072 Centurion | 18 13 5 5 BR 073 Ajax | 18 13 5 5 BR 074 Audacious | 18 12 6 5 BR 081 Iron Duke | 18 12 6 5 BR 082 Benbow |

| | | | | | | | | | |
|--|---------------------------------------|-------------------------------------|------------------------------------|----------------------------------|---|-------------------------------------|-----------------------------------|-------------------------------------|--|
| 18 12 6 5 BR 083 Emp India | 18 12 6 5 BR 084 Marlborough | 22 12 3 6 BR 091 Agincourt | 18 12 3 5 BR 101 Erin | 18 12 3 5 BR 102 Canada | 36 18 8 6 BR 111 Q. Elizabeth | 36 18 8 6 BR 112 Valliant | 36 18 8 6 BR 113 Malaya | 36 18 8 6 BR 114 Warspite | 36 18 8 6 BR 115 Barham |
| 36 18 9 6 BR 121 Q. Elizabeth | 36 18 9 6 BR 122 Valliant | 36 18 9 6 BR 123 Malaya | 36 18 9 6 BR 124 Warspite | 36 18 9 6 BR 125 Barham | 36 18 10 7 BR 131 Q. Elizabeth | 36 18 10 7 BR 132 Valliant | 36 18 10 7 BR 133 Malaya | 36 18 10 7 BR 134 Warspite | 36 18 8 5 BR 141 R. Sovereign |

BRITAIN

| | | | | | | | | | |
|-------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| 36 18 8 5 BR 145 Royal Oak | 36 18 8 5 BR 143 Ramilles | 36 18 8 5 BR 144 Revenge | 36 18 8 5 BR 145 Resoluton | 36 18 9 5 BR 151 R. Sovereign | 36 18 9 5 BR 152 Royal Oak | 36 18 9 5 BR 153 Ramilles | 36 18 9 5 BR 154 Revenge | 36 18 9 5 BR 155 Resoluton | 40 24 11 6 BR 161 Nelson |
| 40 24 11 6 BR 162 Rodney | 42 20 11 7 BR 171 K. George | 42 20 11 7 BR 172 D of York | 42 20 11 7 BR 173 P of Wales | 42 20 11 7 BR 174 Anson | 42 20 11 7 BR 175 Howe | 45 18 18 7 BR 181 Vanguard | 10 10 2 6 BR 191 Invincible | 10 10 2 6 BR 192 Inflexible | 10 10 2 6 BR 193 Indomitable |

| | | | | | | | | | |
|---|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|---------------------------------|------------------------------------|--------------------------------------|------------------------------------|
| 10 12 2 7 BR 201 Indefatigable | 10 12 2 7 BR 202 Australia | 10 12 2 7 BR 203 N Zealand | 18 13 5 7 BR 211 Lion | 18 13 5 7 BR 212 Prin Royal | 18 13 5 7 BR 213 Qu Mary | 18 13 6 7 BR 221 Tiger | 27 18 4 8 BR 231 Renown | 27 18 4 8 BR 232 Repulse | 27 18 5 8 BR 241 Renown |
| 27 18 5 8 BR 242 Repulse | 27 18 7 7 BR 251 Renown | 27 18 6 7 BR 252 Repulse | 18 18 1 8 BR 261 Courageous | 18 18 1 8 BR 262 Glorious | 41 18 7 8 BR 271 Hood | 41 18 9 8 BR 281 Hood | 16 13 5 4 US 301 Michigan | 16 13 5 4 US 302 S Carolina | 20 13 6 5 US 311 Delaware |

| | | | | | | | | | |
|------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|------------------------------------|-------------------------------------|----------------------------------|--|-------------------------------------|-------------------------------------|
| 20 13 6 5 US 312 N Dakota | 20 13 6 5 US 321 Utah | 20 13 6 5 US 322 Florida | 24 14 7 5 US 331 Arkansas | 24 14 7 5 US 332 Wyoming | 24 17 8 5 US 341 New York | 24 17 8 5 US 342 Texas | 24 17 10 5 US 351 Oklahoma | 24 17 10 5 US 352 Nevada | 24 17 12 5 US 361 Oklahoma |
| 24 17 12 5 US 362 Nevada | 29 17 10 5 US 371 Pnsylvania | 29 17 10 5 US 372 Arizona | 29 17 12 5 US 381 Pnsylvania | 29 17 12 5 US 382 Arizona | 29 18 10 5 US 391 N Mexico | 29 18 10 5 US 392 Idaho | 29 18 10 5 US 393 Mississippi | 29 18 12 5 US 401 N Mexico | 29 18 12 5 US 402 Idaho |

USA

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|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| 1/2 Attk GS 1/2 Speed | 1/2 Attk GS 1/2 Speed | 1/2 Attk GS 1/2 Speed | 1/2 Attk GS 1/2 Speed | 1/2 Attk GS 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed |
| 1/2 Attk G2S No Speed | 1/2 Attk G2S No Speed | 1/2 Attk G2S No Speed | 1/2 Attk G2S No Speed | 1/2 Attk G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed |

| | | | | | | | | | |
|---------------|---------------|---------------|----------------|----------------|----------------|-------|-------|-------|-------|
| No Attk 2G | No Attk 2G | No Attk 2G | 2S No Speed | 2S No Speed | 2S No Speed | TF 1 | TF 2 | TF 3 | |
| 1:1 2 | 1:1 2 | 1:1 2 | 1:1 3 | 1:1 3 | 1:1 3 | 1:1 3 | 2:1 5 | 2:1 5 | 2:1 5 |

| | | | | | | | | | |
|-------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|--|-------------------------------------|-----------------------------------|---------------------------------------|
| 14 10 7 5 GE 601 Westfalen | 14 10 7 5 GE 602 Nassau | 14 10 7 5 GE 603 Posen | 14 10 7 5 GE 604 Rheinland | 18 11 9 5 GE 611 Thuringen | 18 11 9 5 GE 612 Helgoland | 18 11 9 5 GE 613 Ostfriesland | 18 11 9 5 GE 614 Oldenburg | 22 11 10 6 GE 621 Kaiser | 22 11 10 6 GE 622 Frdrich Gr |
| 22 11 10 6 GE 623 Kaiserin | 22 11 10 6 GE 624 Pr Luitpld | 22 11 10 6 GE 625 K Albert | 22 11 11 5 GE 631 Konig | 22 11 11 5 GE 632 Markgraf | 22 11 11 5 GE 633 Gr Kurfirst | 22 11 11 5 GE 634 Kr Wilhelm | 42 11 12 6 GE 641 Beden | 42 11 12 6 GE 642 Bayern | 6 8 4 6 GE 651 Blucher |

GERMANY

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|--|-----------------------------------|--------------------------------------|------------------------------------|-----------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|------------------------------------|
| 9 10 6 7 GE 661 vn dr Tann | 15 10 7 7 GE 671 Moltke | 15 10 7 7 GE 672 Goeben | 15 10 8 7 GE 681 Seydlitz | 6 8 5 4 GE 691 Deutschld | 6 8 5 4 GE 692 Hannover | 6 8 5 4 GE 693 Pommern | 6 8 5 4 GE 694 Schlesien | 6 8 5 4 GE 695 S Holstein | 6 8 4 4 GE 701 Hessen |
| 18 11 10 7 GE 711 Derfflinger | 18 11 10 7 GE 712 Lutzow | 18 11 10 7 GE 713 Hindenbrg | 21 18 4 7 GE 721 Lutzow | 21 18 4 7 GE 722 Scheer | 21 18 4 7 GE 723 Graf Spee | 32 24 16 8 GE 731 Gneisenau | 32 24 16 8 GE 732 Schnhorst | 61 20 20 7 GE 741 Bismarck | 61 20 20 7 GE 742 Tirpitz |

| | | | | | | | | | |
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| 13 13 3 5 JA 751 Settsu | 13 13 2 5 JA 761 Satsuma | 13 13 2 5 JA 762 Aki | 6 13 3 5 JA 771 Kawachi | 29 21 8 6 JA 781 Fuso | 29 21 8 6 JA 782 Yamashiro | 29 21 12 6 JA 791 Fuso | 29 21 12 6 JA 792 Yamashiro | 29 21 9 6 JA 801 Ise | 29 21 9 6 JA 802 Hyuga |
| 29 21 12 6 JA 811 Ise | 29 21 12 6 JA 812 Hyuga | 32 23 10 6 JA 821 Mutsu | 32 23 10 6 JA 822 Nagato | 32 23 14 6 JA 831 Mutsu | 32 23 14 6 JA 832 Nagato | 66 24 23 7 JA 841 Yamato | 66 24 23 7 JA 842 Musashi | 27 21 6 8 JA 851 Kongo | 27 21 6 8 JA 852 Hiei |

JAPAN

| | | | | | | | | | |
|--|---------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| 29 18 12 5 US 403 Mississippi | 29 18 10 5 US 411 Tennessee | 29 18 10 5 US 412 California | 29 18 12 5 US 421 Tennessee | 29 18 12 5 US 422 California | 29 17 10 5 US 431 Colorado | 29 17 10 5 US 432 Maryland | 29 17 10 5 US 433 W Virginia | 29 17 12 5 US 441 Colorado | 29 17 12 5 US 442 Maryland |
| 29 17 12 5 US 443 W Virginia | 66 20 17 7 US 451 N Carolina | 66 20 17 7 US 452 Washington | 66 20 17 7 US 461 S Dakota | 66 20 17 7 US 462 Indiana | 66 20 17 7 US 463 Msachusts | 66 20 17 7 US 464 Alabama | 66 22 23 8 US 471 Iowa | 66 22 23 8 US 472 N Jersey | 66 22 29 8 US 473 Missouri |

| | | | | | | | | | |
|--------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|
| 66 22 23 8 US 474 Wisconsin | 30 19 12 8 US 481 Alaska | 30 19 12 8 US 482 Guam | 13 13 5 5 FR 501 Courbet | 13 13 5 5 FR 502 Jean Bart | 13 13 5 5 FR 503 France | 13 13 5 5 FR 504 Paris | 22 14 5 5 FR 511 Provence | 22 14 5 5 FR 512 Bretagne | 22 14 5 5 FR 513 Lorraine |
| 27 12 5 5 AU 551 Vir Unitis | 27 12 5 5 AU 552 Tegetthof | 27 12 5 5 AU 553 Pnz Eugen | 22 14 7 5 FR 521 Provence | 22 14 7 5 FR 522 Bretagne | 22 14 7 5 FR 523 Lorraine | 45 20 11 8 FR 531 Dunkerque | 45 20 11 8 FR 532 Strasbourg | 43 20 16 8 FR 541 Richelieu | 43 20 16 8 FR 542 Jean Bart |

| | | | | | | | | | |
|-------------------------------------|--------------------------------------|------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------|---------------------|---------------------|---------------------|
| 27 12 5 5 AU 554 S Istvan | 16 10 3 5 BZ 561 Min Gerais | 16 12 5 6 RU 581 Gangut | 16 12 5 6 RU 582 Sevastopol | 16 12 5 6 RU 583 Petrovplk | 16 12 5 6 RU 584 Poltava | 4 6 2 6 C11 | 4 6 2 6 C12 | 4 6 2 6 C13 | 4 6 2 6 C14 |
| 16 10 3 5 BZ 562 Sao Paulo | 22 12 3 6 BZ 571 R Janeiro | 16 12 7 5 RU 591 Im Maria | 16 12 7 5 RU 592 Ekaterina | 16 12 7 5 RU 593 Im Alksndr | 16 12 7 5 RU 594 Im Nikolai | 11 10 4 8 C21 | 11 10 4 8 C22 | 11 10 4 8 C23 | 11 10 4 8 C24 |

| | | | | | | | | | |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 16 12 6 8 2 CA's C31 | 16 12 6 8 2 CA's C32 | 16 12 6 8 2 CA's C33 | 16 12 6 8 2 CA's C34 | 2 1 4 1 7 2 CL's L11 | 2 1 4 1 7 2 CL's L12 | 3 2 5 2 8 2 CL's L21 | 3 2 5 2 8 2 CL's L22 | 3 2 5 2 8 2 CL's L23 | 6 3 8 3 8 2 CL's L31 |
| 6 3 8 2 CL's L32 | 6 3 8 2 CL's L33 | 1 5 4 5 7 5 DD's D11 | 1 5 4 5 7 5 DD's D12 | 1 5 4 5 7 5 DD's D13 | 1 5 4 5 7 5 DD's D14 | 1 5 4 5 7 5 DD's D15 | 1 5 4 5 7 5 DD's D16 | 1 5 4 5 7 5 DD's D17 | 1 5 4 5 7 5 DD's D18 |

ALPHA SCREENING FORCES

| | | | | | | | | | |
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| 2 5 8 5 8 1-1T D21 5 DD's | 2 5 8 5 8 1-1T D22 5 DD's | 2 5 8 5 8 1-1T D23 5 DD's | 3 5 6 5 9 1-1T D31 5 DD's | 3 5 6 5 9 1-1T D32 5 DD's | 3 5 6 5 9 1-1T D33 5 DD's | 3 1 7 8 9 1-1T D41 5 DD's | 3 1 7 8 9 1-1T D42 5 DD's | 3 1 7 8 9 1-1T D43 5 DD's | 3 1 7 8 9 1-1T D44 5 DD's |
| 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk S | 1/2 Attk S | 1/2 Attk S | 1/2 Attk S |

ITALY

| | | | | | | | | | |
|----------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| 27 21 10 8 JA 861 Kongo | 27 21 10 8 JA 862 Hiei | 27 21 6 8 JA 871 Kirishima | 13 12 4 6 IT 901 D Alighieri | 15 12 6 5 IT 911 C Cavour | 15 12 6 5 IT 912 G Cesare | 15 12 6 5 IT 913 Caio Dullio | 15 12 6 5 IT 915 L DeVinci | 15 12 6 5 IT 914 An Doria | 26 14 9 7 IT 921 C Cavour |
| 27 21 6 8 JA 872 Haruna | 27 21 9 8 JA 881 Kirishima | 27 21 9 8 JA 882 Haruna | 26 14 9 7 IT 922 G Cesare | 26 14 9 7 IT 923 Caio Dullio | 26 14 9 7 IT 924 An Doria | 30 24 11 8 IT 931 V Veneto | 30 24 11 8 IT 932 Italia | 30 24 11 8 IT 933 Roma | 30 24 11 8 IT 934 Impero |

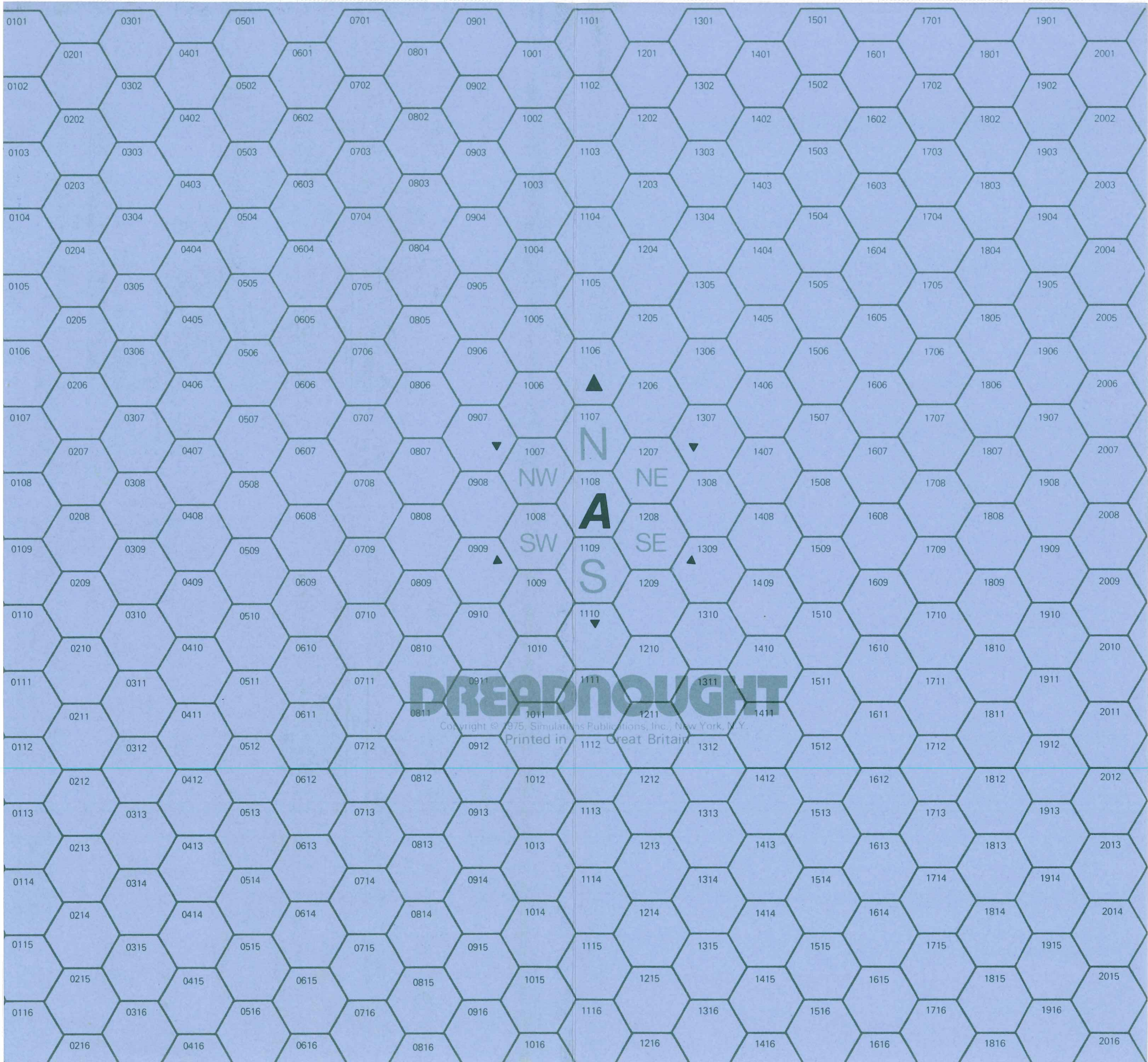
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|-------------------------------------|-----------------------------------|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 10 12 2 5 SP 951 Espana | 10 12 2 5 SP 952 Jaime I | 10 12 2 5 SP 953 Alfonso | 5 6 2 5 2 CA's C51 | 5 6 2 5 2 CA's C52 | 10 8 4 8 2 CA's C61 | 10 8 4 8 2 CA's C62 | 10 8 4 8 2 CA's C63 | 10 8 4 8 2 CA's C64 | 15 10 6 8 2 CA's C71 |
| 20 13 7 6 AR 961 Rivadavia | 20 13 7 6 AR 962 Moreno | 15 10 6 8 2 CA's C72 | 15 10 6 8 2 CA's C73 | 15 10 6 8 2 CA's C74 | 2 1 4 1 7 2 CL's L51 | 2 1 4 1 7 2 CL's L52 | 2 1 4 1 7 2 CL's L53 | 2 1 4 1 7 2 CL's L54 | 3 2 5 2 8 2 CL's L61 |

BRAVO SCREENING FORCES

| | | | | | | | | | |
|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 3 5 2 8 2 CL's L62 | 3 5 2 8 2 CL's L63 | 3 5 2 8 2 CL's L64 | 5 8 3 8 2 CL's L71 | 5 8 3 8 2 CL's L72 | 1 4 3 7 1-1T D51 5 DD's | 1 4 3 7 1-1T D52 5 DD's | 1 4 3 7 1-1T D53 5 DD's | 1 4 3 7 1-1T D54 5 DD's | 1 4 3 7 1-1T D55 5 DD's |
| 1 4 3 7 1-1T D56 5 DD's | 2 4 4 4 8 1-1T D61 5 DD's | 2 4 4 4 8 1-1T D62 5 DD's | 2 4 4 4 8 1-1T D63 5 DD's | 2 4 4 4 8 1-1T D64 5 DD's | 3 6 5 9 1-1T D71 5 DD's | 3 6 5 9 1-1T D72 5 DD's | 3 6 5 9 1-1T D73 5 DD's | 3 6 5 9 1-1T D74 5 DD's | 3 7 8 9 1-1T D81 5 DD's |

| | | | | | | | | | |
|----------------------------------|----------------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| 3 7 8 9 2-1T D82 5 DD's | 3 7 8 9 2-1T D83 5 DD's | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | 1/2 Attk G | TF 1 | TF 2 | TF 3 |
| 3 7 8 9 2-1T D84 5 DD's | 1/2 Attk GS | 1/2 Attk GS | 1/2 Attk GS | 1/2 Attk GS | 1/2 Attk GS | 1/2 Attk G2S | 1/2 Attk G2S | 1/2 Attk G2S | 1/2 Attk G2S |

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| No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk 2G2S No Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed | No Attk S2G 1/2 Speed |
| S 1/2 Speed | S 1/2 Speed | S 1/2 Speed | S 1/2 Speed | 2S No Speed | 2S No Speed | 2S No Speed | No Attk 2G | No Attk 2G | No Attk 2G |



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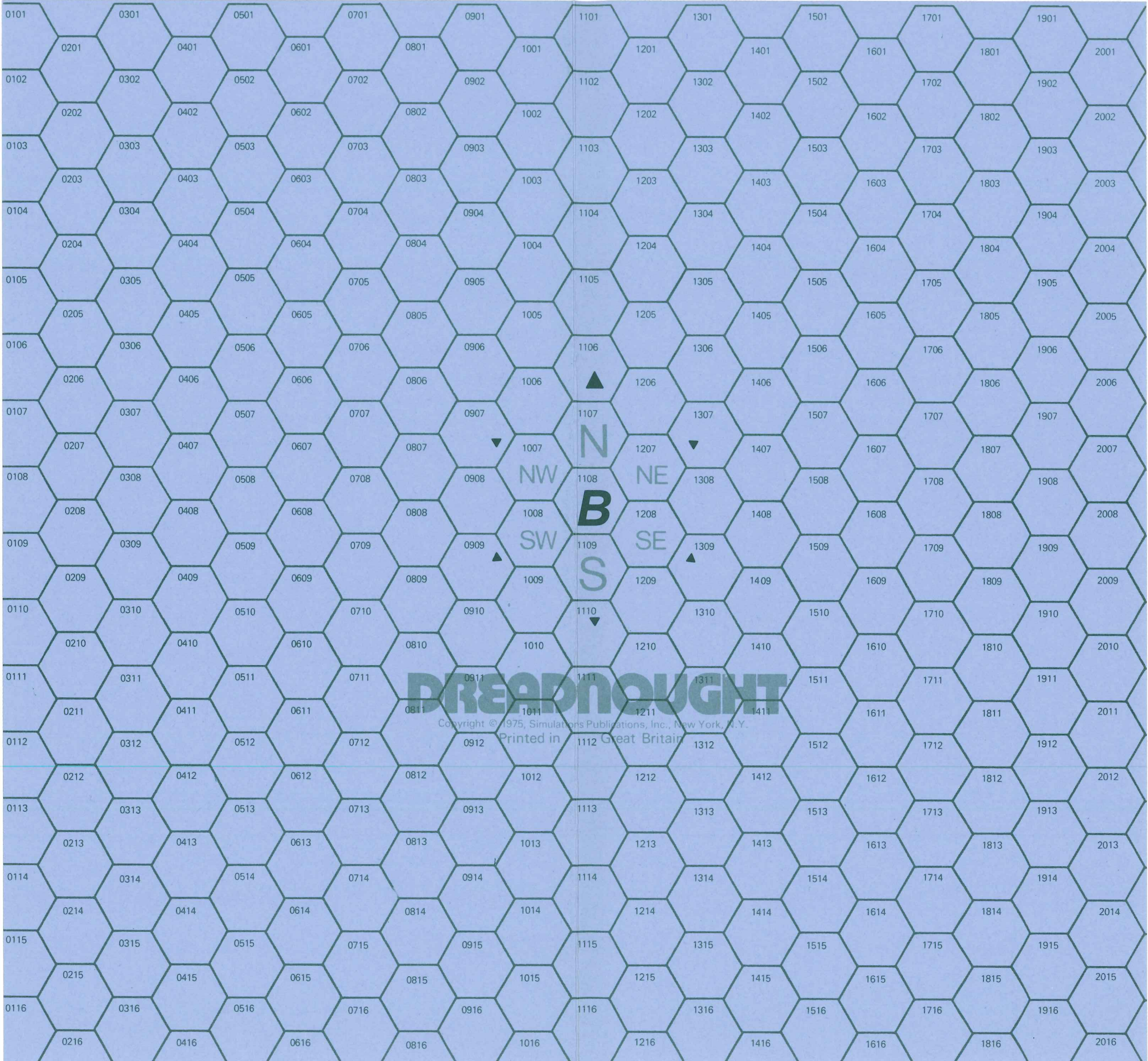
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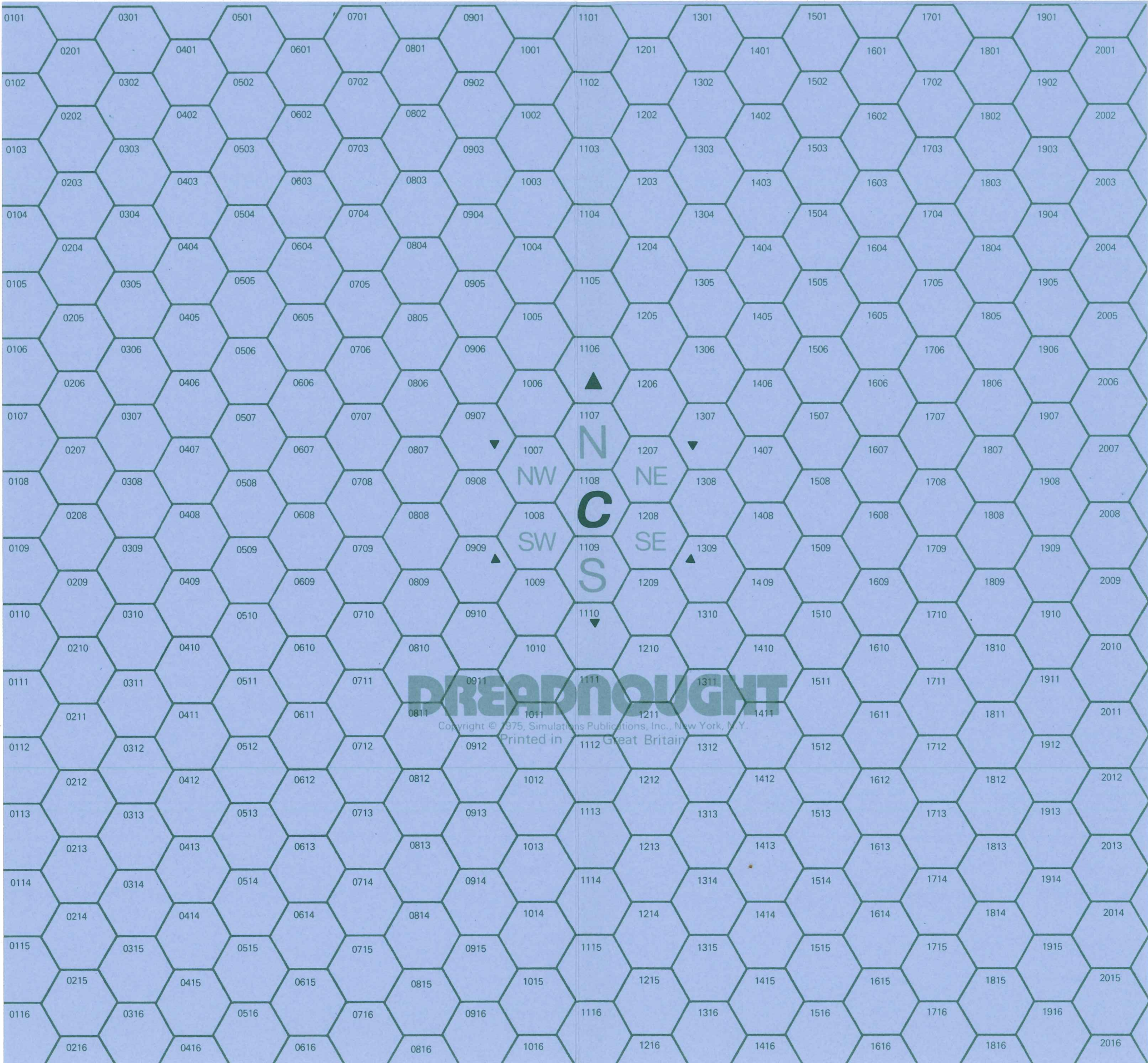
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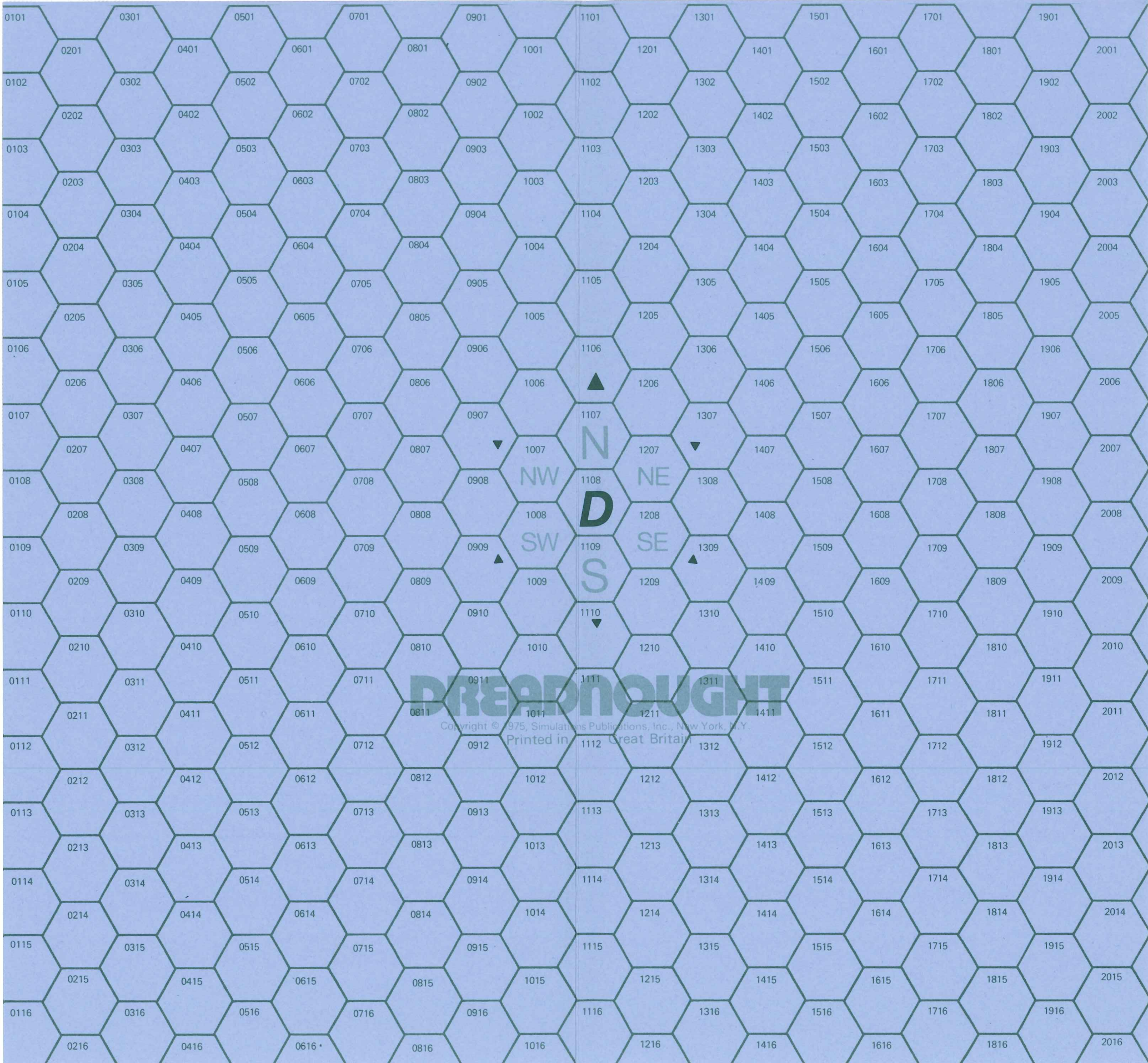
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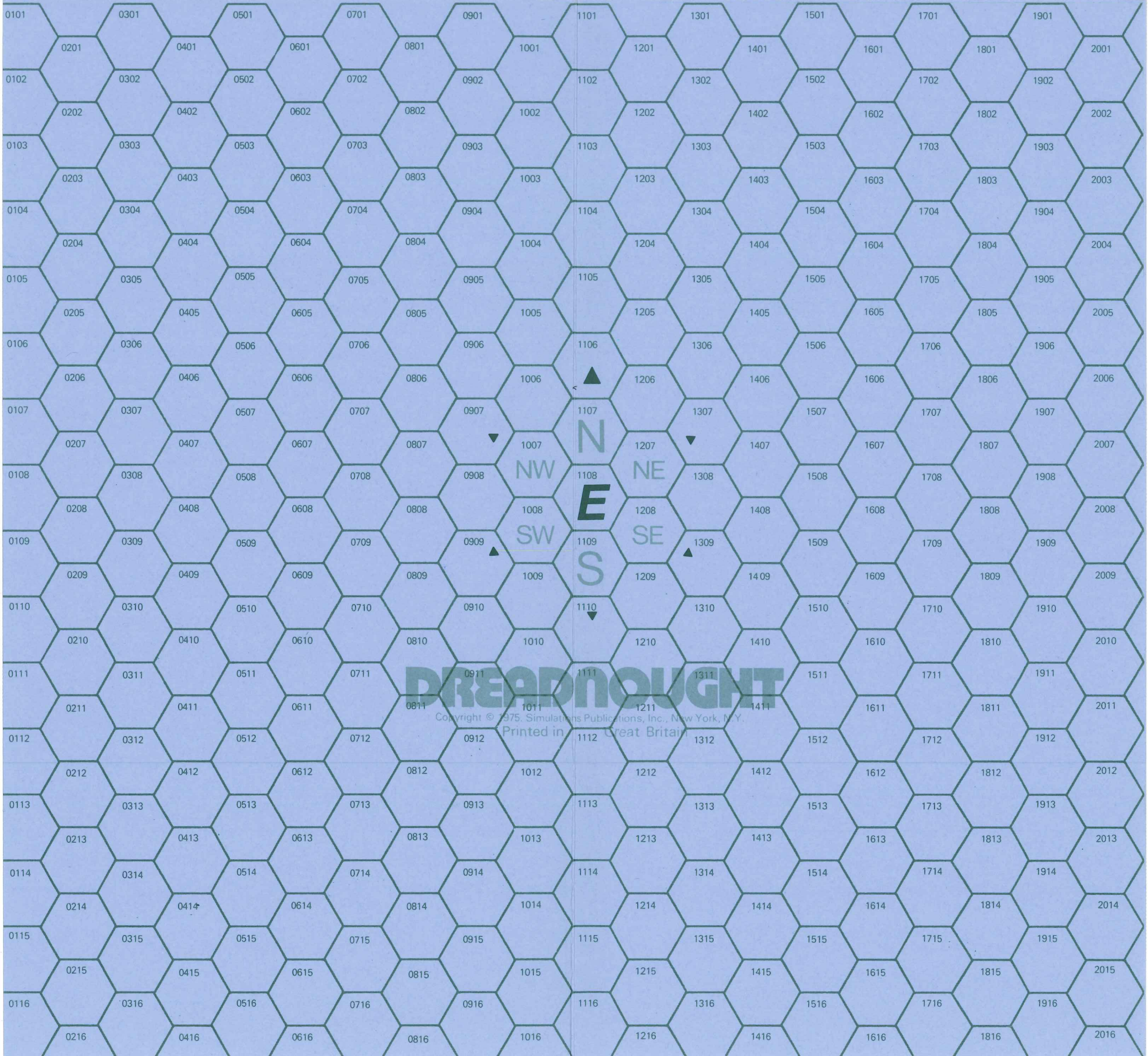
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