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WHEN Thomas Edison crash-landed on Mars in 1870 in the ether flyer of his own invention, it opened the portal to an ancient and exotic civilization. Nineteen years later, the British Empire is finally established in several colonial enclaves, and steam-powered aerial gunboats patrol the skies above the Martian canals. But not all the Martian princes tolerate the British, and cloudfleets of stately kites and powerful screw galleys are hurled against the invader.

SPACE

1889

## SKY GALLEONS OF Mars



Frank Chadwick

GDW

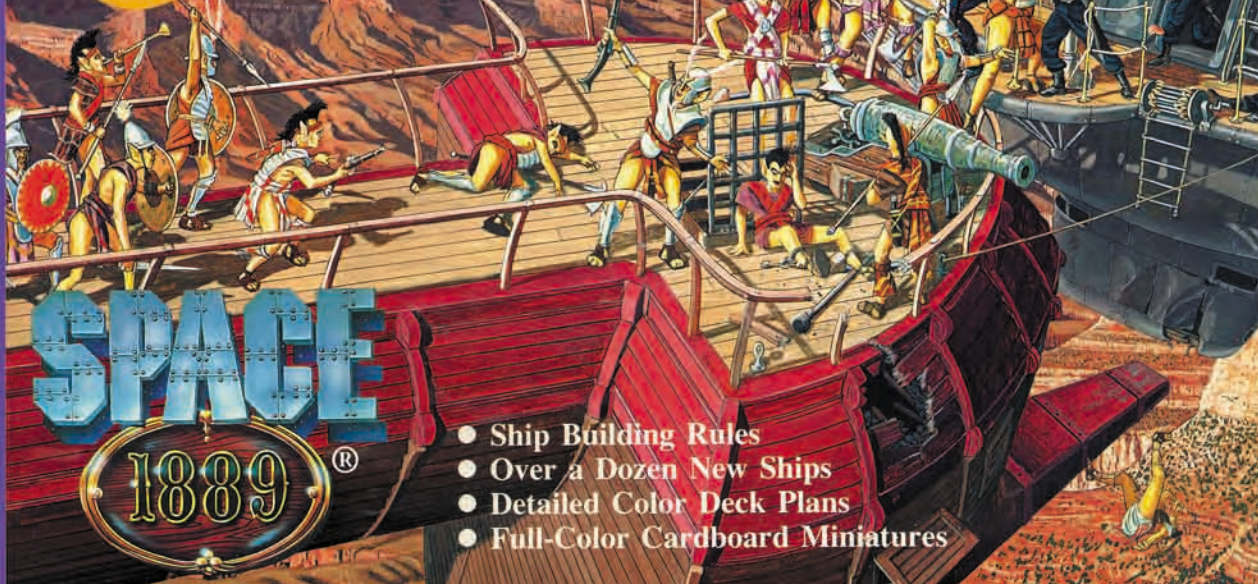
Game contains small pieces not suitable for children age 3 and below

1890

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## CLOUDSHIPS & GUNBOATS

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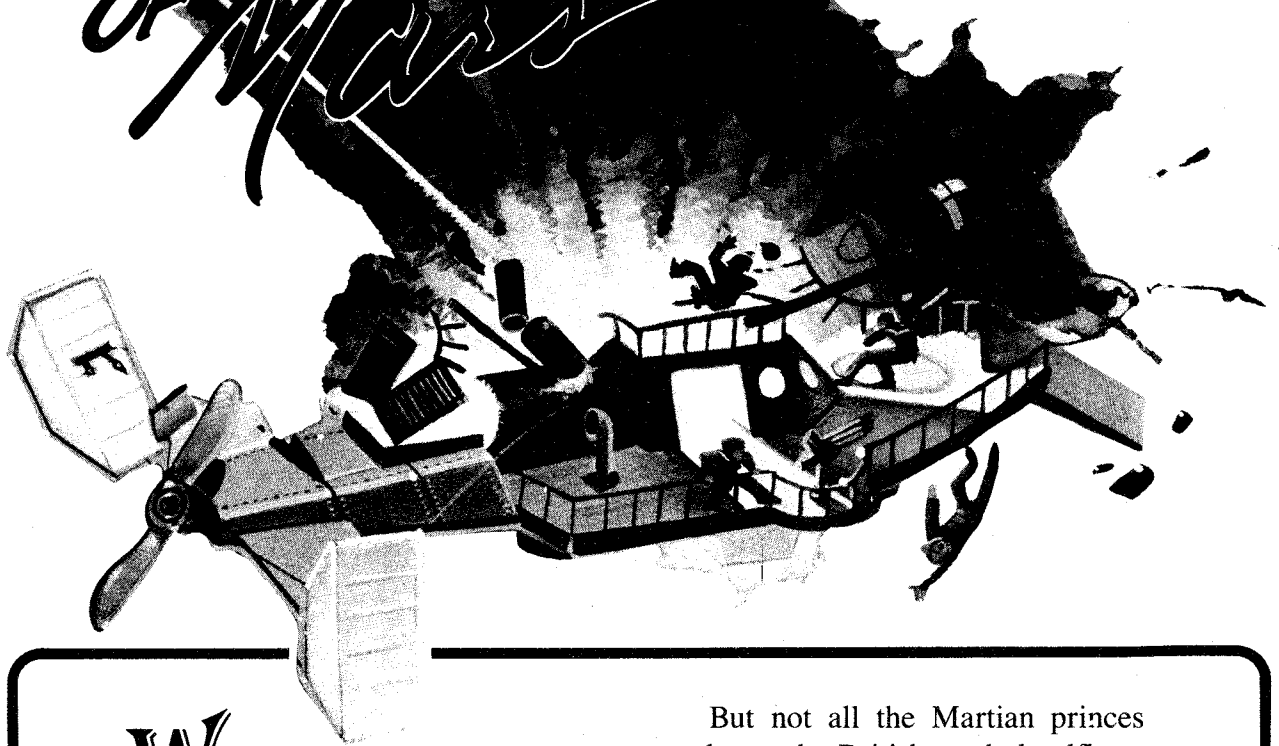
SKY GALLEONS  
*of Mars*

and

**CLOUDSHIPS**  
& GUNBOATS



# SKY GALLEONS



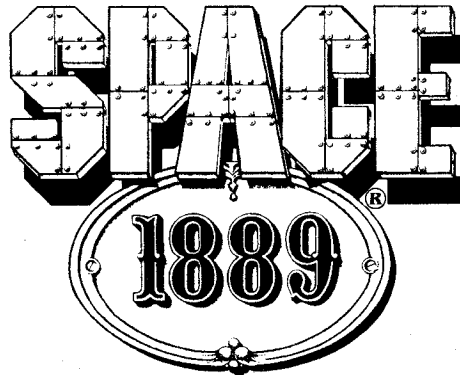
**W**HEN THOMAS EDISON crash-landed on Mars in 1870 in the ether flyer of his own invention, it opened the portal to an ancient and exotic civilization. Nineteen years later, the British Empire is finally established in several colonial enclaves, and steam-powered aerial gunboats patrol the skies above the Martian canals.



But not all the Martian princes tolerate the British, and cloudfleets of stately kites and powerful screw galleys are hurled against the invader.

**S**ky Galleons of Mars is a fast-paced game of aerial combat in the Martian skies between the wooden cloudfleets of the Martian princes and the armored aerial gunboats of Queen Victoria's Royal Navy. Once the basic rules are mastered, players can play a variety of battle games and scenarios, and then move on to design their own ships and battles.





# SKY GALLEONS *OF Mars*

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## TABLE OF CONTENTS

<b>Part I: Basic Rules</b> .....4	Machineguns.....23
Game Components.....4	Maxim Guns.....23
Sequence of Play.....4	Gardner Guns.....23
Facing.....4	Aerial Bombardment
Movement.....4	of Ground Targets.....24
Collisions.....5	Ground Batteries.....24
Altitude.....5	Nonexploding Rounds (Optional)...24
Combat.....6	Line of Sight (Optional).....25
Fire Combat.....6	Restricted Firing Arcs (Optional)..26
Combat Charts.....7	
Damage.....8	<b>Scenarios</b> .....27
Armor and Penetration.....10	Scenario 1: Thieves Fall Out.....27
Ship's Crew.....11	Scenario 2: John Bull's Tyranny...27
	Scenario 3: Diplomatic Incident...28
<b>Part II: Advanced Rules</b> .....12	Scenario 4: Slash and Run.....28
Ramming and Grappling.....12	Scenario 5: Hearts of Oak.....29
Towing.....13	Scenario 6: The Great Raid.....29
Boarding Actions.....14	Scenario 7: Pitched Battle.....30
Small Arms Fire.....16	Additional Scenarios.....30
Marines.....16	
Martian Lob Guns.....17	<b>Campaign Rules</b> .....31
Wind Direction.....17	Introduction.....31
Kites.....17	Getting Started.....31
Crew Quality.....18	The Map.....31
High Martians.....18	Movement.....32
Throckmorton Conveyors.....18	Ship Encounters.....32
Signal Communication.....19	Money.....33
Shrapnel and Grapeshot.....19	Experience.....34
Power Grapnel.....19	An Epic Trek.....34
Smutts Dischargers.....20	Winning.....35
Tether Mines.....21	
Drogue Torpedoes.....21	<b>Ship Design</b> .....36
Infernal Devices.....22	Part I: Basic Design.....36
Hale Rocket Batteries.....22	Part II: Rating.....38
Martian Liquid Fire.....22	Weapon Characteristics Tables....39

### GAME COMPONENTS

YOUR COPY of *Sky Galleons of Mars* includes this rules booklet, a background and history booklet entitled **Space: 1889**, a booklet of ship record forms, two maps showing parts of the surface of Mars, two game reference folders, five sprues of plastic playing pieces, and four dice.

The rules are divided into two main sections: basic and advanced. After the basic rules have been read you can play the first scenario. A variety of advanced rules can then be added to the game to allow play for a greater variety of situations. Each additional section of rules is accompanied by a scenario that illustrates those rules.

The Ship Record Form booklet has sufficient record forms for many gaming sessions, but it is a good idea to make additional photocopies of these forms for subsequent play. Although additional Ship Record Form booklets are for sale from GDW, you will find it more convenient and economical to copy those included in the game, and permission is hereby given to do so for your personal use.

The plastic playing pieces should be carefully cut away from their sprues with a sharp knife. Several of the pieces require some assembly. The accompanying illustration identifies the playing pieces and shows how they are to be assembled for use by players.

### SEQUENCE OF PLAY

*SKY GALLEONS OF MARS* is played in turns, each of which represents about one minute of real time. There are three phases in a turn: the Initiative Phase, the First Player Movement Phase, and the Second Player Movement Phase. In the Initiative Phase both players form or disband boarding parties and make any other changes in crew assignments they wish. In addition, each player rolls a die and the high die roll has the *initiative* and decides which player will be the first player (move first) and which will be the second player for that turn.

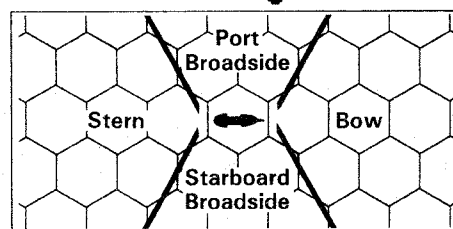
In each player movement phase, one player (the moving player) moves all of his vessels according to the rules of movement. After all of his movement is finished, both players may fire at the enemy. Each weapon may only fire once during the game turn, however, so weapons which fire at the end of the First Player Movement Phase may not fire again at the end of the Second Player Movement Phase. After both players have fired their weapons, the moving player fights any battles involving boarding parties of his on board enemy ships. After all such battles are fought, the moving player makes all damage repair rolls that he is entitled to.

After both players have completed their movement phases the turn is over, and a new turn begins with its Initiative Phase.

### FACING

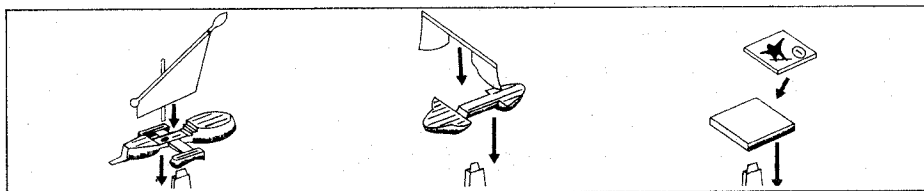
EACH SHIP is always oriented in such a manner that its bow is facing one of the six hexsides in its hex. Whenever a ship moves its first hex entered must be the one directly in front of it. Ships may only change facing during movement, and the procedure for doing so is covered in the movement rule.

Facing also affects the ability of ships to fire. There are four *firing aspects* of a ship; these are determined by its facing. Most weapons may only fire at targets in certain firing aspects, as explained in the rules on gunfire. The four firing aspects are illustrated below.



### MOVEMENT

**4** EACH SHIP has a movement allowance, which is the number of movement points it may expend in a single turn. The enclosed picture at the top of each ship record sheet includes a large circle with a number in it to the right of the picture. This number is the ship's movement allowance. Each movement point spent allows a vessel to move one hex in the direction it is facing and change its facing by one hexside. Vessels which move one hex but do not change their facing still pay one movement point. At the cost of one movement point steam vessels may change their facing in a hex without moving. This maneuver is called a power turn.



If more than one ship ends a turn in the same hex, their relative position may be important, particularly for determining which guns bear in which direction. The player who moved last determines where in the hex his ship ends its move, and thus its relative position to the other ship or ships in the hex. He does so by announcing which firing aspect of his the other enemy ship is in and which firing aspect of it his ship is in. For example, he might say, "The enemy ship is in my broadside aspect; I am in his rear aspect."

The relative position and aspect chosen must be possible, given the facing of the ships. For example, if two ships in a hex are facing the same direction it is possible for them to be in each other's broadside aspect, or for either one to be behind the other. It is not possible for them to be in each other's bow aspect, however, as that would require them to face each other.

### COLLISIONS

WHENEVER A SHIP enters a hex already occupied by another ship there is a chance of a collision. Roll a die; there is a collision on a roll of 1 or 2. Add 1 to the die roll if the moving ship entered the hex by way of the bow or stern hexside of the nonmoving ship. Subtract 2 from the die roll if the moving ship attempts to turn while in the same hex as the nonmoving ship. If there is a collision, the moving ship immediately stops and may not move further that turn.

8

The enclosed picture at the top of each ship record sheet includes a large square in the lower left-hand corner of the enclosure.

The number in the square is the ship's hull size. Each player involved in a collision rolls a die. If the result is equal to or less than the hull size of the other player's ship, the player who rolled the die suffers a hull hit on his own ship. If the other ship has a hull size greater than 6, then one hit is automatically taken and a second is suffered if the die roll is less than or equal to the amount by which the hull size exceeds 6. In other words, the bigger the ship you collide with, the more likely your own ship is to take damage.

Finally, the smaller ship in the collision has a chance of suffering a loss of trim. Roll a die. If the die roll is less than or equal to half of the difference in hull size (round fractions down), the smaller ship suffers a loss of trim. (See the section "Damage" for a description of the effects of loss of trim.)

If two ships begin a phase together in the same hex, the moving player's ship may move out of the hex immediately, but must roll for a collision again. If it collides, it remains in the hex for the rest of its move and checks for collision damage again.

### ALTITUDE

THERE ARE six altitudes: Very High (VH), High (H), Medium (M), Low (L), Very Low (VL), and Ground (G). In general, the surface of the planet is at ground level, but some mountains rise to higher altitudes. Mark the altitude of a ship by placing the correct altitude marker on its stand.

The maximum altitude of a vessel is noted on its ship status sheet. There is a block of several rows of boxes labelled "Hull Hits." The

H			
M			
L			
VL			

boxes on the left of the rows include an abbreviation for the various altitude levels. The highest level shown is the maximum altitude of the ship.

All ships may go down 1 altitude level per turn at no cost. Each altitude the ship goes up costs 2 movement points. Each level the ship goes down after the first one costs 1 movement point. Thus a ship with a movement allowance of 5 could move 5 hexes or move 3 hexes and climb 1 level, or move 1 hex and climb 2 levels. A vessel whose speed is reduced to 1 hex may still climb 1 level instead of moving. Each level of altitude change allows a 1 hexside change in facing. This does not apply to the 1 free altitude drop per turn.

If a vessel is in the same hex as another vessel but is at a different altitude, there is no possibility of a collision. If it changes altitude and thus both ships are at the same altitude, there is the normal chance of a collision.

If a vessel involuntarily drops to the same altitude as the surface of the planet, it crashes and is destroyed. If it voluntarily drops to the surface, it has landed. However, a vessel may only drop 1 altitude level and may only move 1 hex the turn it lands. If it moves more than 1 hex or drops more than 1 level, it crash lands. The crew is safe, but the vessel is crippled and is removed from play. If a vessel enters a hex which contains land at an equal or higher altitude as the vessel (such as a mountain top or cliff wall), and the vessel is moving at a speed of 1, it lands. If the vessel is moving faster than 1, it crashes.



## COMBAT

### FIRE COMBAT

FIRING MAY take place at the end of each movement phase. Ships of both players may fire at the end of each movement phase, but each weapon may fire only once per turn.

Each weapon has a limited arc of fire, as shown on the ship status sheet. Each gun mount is shown on the enclosed picture at the top of the sheet. The picture is a stylized deck plan of the ship showing placement of its guns. Each gun is indicated by a box. The type of gun is noted in the box, and its allowed field of fire is shown by the lines coming out of the box. A gun with

lines pointing to the bow, stern, and side, for example, can fire into the bow, stern and broadside (on that side of the ship) firing aspects. The small circles next to the gun box represent the gun crew.

The number of shots that a weapon may take is called its rate of fire (ROF). Weapons with a rate of fire greater than 1 may take more than one shot in a turn, but all must be resolved at the same time and all must be directed at a single enemy vessel. Weapons with a rate of fire expressed as a parenthetical number, take that many turns between shots to reload. Thus a gun with a rate of fire of (2) could fire on turn 1 of a game and then could not fire again

until turn 4, having spent turns 2 and 3 reloading.

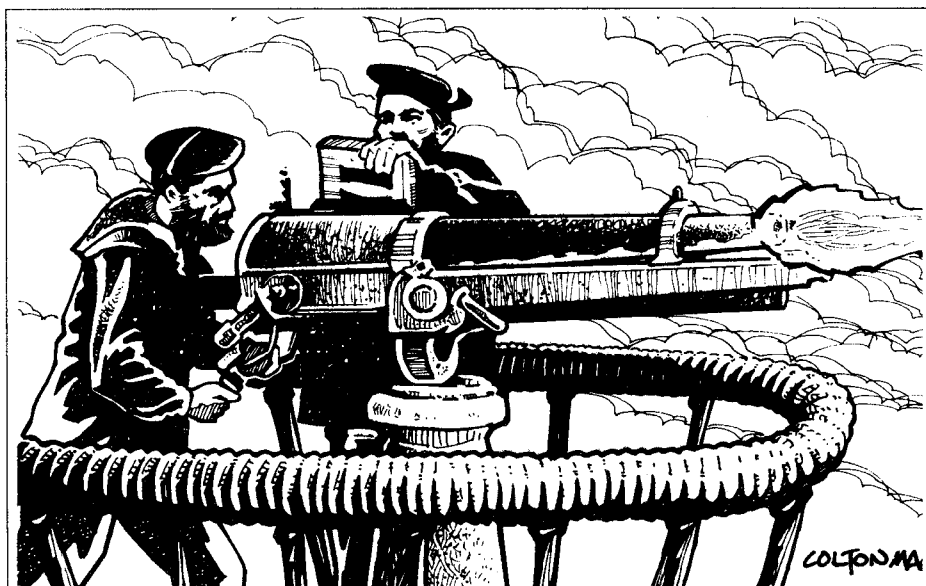
The chance of a shot hitting is determined by the range at which the gun is fired. The weapons chart lists the short range and long range of a gun in hexes. The first (smaller) number listed under range for the gun is its close range. Weapons with a close range of 0 conduct close range fire only when firing at targets in the same hex. Each shot from a gun hits on a roll of 3, 4, 5, or 6 at close range and on a roll of 5 or 6 at long range.

If there is more than one ship in the target hex, roll to hit normally. However, if the shot misses, roll a second time. If the second roll is a hit, then it hits the other ship in the hex. If there are several other ships in the hex, the second roll is made only once and the hit, if any, is assigned to one of the ships by means of a random die roll.

Altitude differences also affect the chance of hitting the target. No ship may fire at an enemy ship if the difference in altitude (in levels) is greater than the range (in hexes). For example, a ship cannot fire at a ship 2 hexes away but 3 hexes lower.

If fire is possible at a higher target, add 1 to the range for every level higher the target is compared to the firing vessel. Thus, a target 2 hexes away and 2 levels higher would be fired at as if it were at a range of 4. Firing at targets at lower elevations does not add to the range.

Finally, all fire at targets at different altitudes is conducted with a die roll modification of -1 on the hit die roll. Thus, at close range shots would only hit on rolls of 4, 5, or 6 and at long range they would hit only on rolls of 6.



Sailors fire a Hotchkiss one-pounder

## WEAPON CHARACTERISTICS:

## Martian Cannon

Weapon	Pen	DV	ROF	Range
Sweeper	P	—	2	0/1
Light	0	1	1	1/2
Rod Gun	3	1	(1)	3/6
Heavy	1	2	1	2/4
Rogue	2	3	(1)	3/6
Lob Gun	2	4	(1)	—/3

*Weapon:* The common weapon name. *Pen:* Penetration of the weapon. *DV:* Damage value of the weapon. *ROF:* Rate of fire of the weapon. *Range:* Maximum range (in hexes) the weapon may fire.

## INFERNAL DEVICES

Device	Pen	DV	To Hit
Smutts Torpedo	1	12	As collision
Tether Mine (B)	0	6	6 (if released)
Tether Mine (M)	0	4	6 (if released)
Drogue Torpedo	0	10	6

*Device:* The common device name. *Pen:* Penetration of the device. *DV:* Damage value of the device. *To Hit:* The die roll on which the device hits the target. *B:* British. *M:* Martian.

## WEAPON CHARACTERISTICS:

## Royal Navy Guns

Weapon	Pen	DV	ROF	Range
Maxim	—	P	6	1/2
Gardner	—	P	2/3	1/2
Nordenfelt	—	P	5	1/2
1-pdr HRC	0	1	3	2/4
3-pdr HRC	1	1	3	2/4
6-pdr HRC	1	1	3	3/6
4'' short	2	2	1	3/6
4'' long	3	2	1	4/8
5''	4	4	1	4/8
6''	5	6	1	5/10
8''	9	8	(1)	6/12
10''	10	10	(1)	7/14
12''	12	12	(1)	8/16
14''	14	14	(1)	9/18
16''	16	16	(1)	10/20

*HRC:* Hotchkiss Rotating Cannon. *Weapon:* The common weapon name. *Pen:* Penetration of the weapon. *DV:* Damage value of the weapon. *ROF:* Rate of fire of the weapon. *Range:* Maximum range (in hexes) the weapon may fire.

## HIT LOCATION

Die Roll	Location
1	Hull
2	Hull
3	Crew
4	Crew
5	Gun
6	Critical

*Die Roll:* The roll of one six-sided die. *Location:* The location the hit occurred (see Hit Location Explanation).

## CRITICAL HIT TABLE

Die Roll	Result
2	Magazine
3	Bridge
4	Fire/Boiler
5	Trim Damage
6	Rudder Jammed
7	Fire
8	Lifters Jammed
9	Screw/Mast
10	Magazine
11	Bridge
12	Fire/Boiler

*Die Roll:* The sum of the die roll results of two six-sided dice. *Result:* The result of the Critical Hit (see Critical Hit Explanation).

## TO HIT

Range	Die Roll
Close:	3, 4, 5, 6
Long:	5, 6

## To Hit Modifiers:

Different Altitude:	—1
Green Crew:	—1
Burning:	—1
Crack Crew:	+1
Shrapnel or Grape:	+1

*Range:* The type of range at which the attempt to hit is being made. *Die Roll:* The die roll of one six-sided die. *To Hit Modifiers:* Modifiers to the die roll.

## DAMAGE

WHEN A GUNSHOT hits an enemy vessel, roll a die and consult the Hit Location table to determine what type of damage was inflicted on the enemy. Each gun on a ship has a damage value, which is the amount of damage it causes when it strikes an enemy vessel. The damage value of the round is the number of hits inflicted in that location. For example, if a gun with a damage value of 3 rolled a hull hit location, 3 hull hits would be recorded on the ship's ship status sheet.

If firing at a vessel at a higher altitude, all crew hits become hull hits instead.

It is possible to inflict the following types of damage to another vessel:

**Gun:** A Gun hit destroys one gun. If the firing gun has a damage value greater than one, all additional hits are crew hits, with the crew of the destroyed gun suffering casualties first. The destroyed gun must be mounted in such a way that it faces the firing aspect from which it received the fire. If several such guns are present, roll a die to randomly determine which gun is hit. If no guns are present in that firing aspect, reroll the hit location and continue to reroll until a nongun hit is achieved.

**Hull:** A Hull hit causes hits to be recorded in the hull boxes equal to

the damage value of the gun. Each ship has a series of hull boxes arranged in rows. Each row has hull boxes equal to the ship's hull size and each row corresponds to one of the altitudes the ship can fly at. For example, a ship with a hull size of 3 and a maximum altitude of High would have 4 rows (one each for Very Low, Low, Medium, and High altitude) each with 3 boxes. Always check hull hits off from the row of the highest remaining altitude. When that row of boxes is completely filled in, the ship's maximum altitude is reduced to the next lowest level. If the ship is at its maximum altitude when this happens, it automatically drops one altitude level in its next movement phase. This drop in altitude does not cost the ship movement points. When all of the hull boxes on a vessel are checked off, the ship crashes.

**Crew:** Each Crew hit causes crew casualties equal to half of the damage value of the firing gun which achieved the hit, rounding all fractions up. Crew losses are selected by the player who suffered the casualties and may be from any part or parts of the ship desired. However, the firing player also rolls an additional die, and if the die roll is a 6 then one of the casualties must be an officer or petty officer (owning player's choice). This die roll is made only

once in the phase when the ship suffers one or more crew casualties; it is not made separately for each casualty.

Gun crews are shown on the ship status sheet as small circles next to their respective guns. All other crew are shown below the deck diagram as boxes in one of four categories: Bridge, Deck, Maneuver, and Marines.

**Critical:** If a Critical hit is rolled, add together the numbers rolled on two dice and consult the Critical Hit table to determine the results. It is possible to inflict the following types of Critical hits:

**Magazine:** Each large gun is assumed to have its own magazine or shell locker, so detonation of a magazine will not necessarily destroy a ship. Detonating a magazine will do considerable violently explosive damage, however. The ship automatically loses one gun—determined randomly—with a damage value of 1 or greater. The gun is destroyed, and its crew is dead. The ship also takes hull hits equal to the damage value of the gun that was destroyed—not the gun that fired—and rolls for one additional Critical hit. The additional Critical hit is resolved as if caused by a gun with a damage value equal to that of the destroyed gun.

If there is no gun with a damage value greater than 1 mounted on the ship, treat this critical hit as a Fire result.

**Bridge:** Bridge crewmen are killed in an amount equal to half the damage value of the round that hit (round fractions up). In addition to this effect, the ship may not voluntarily change altitude or course in the next turn.



*Fire:* A fire is started on board the ship. The initial fire level is equal to the damage value of the firing gun. Once a fire has started it will eventually spread and consume the ship unless put out by the crew. At the beginning of each turn all fires presently burning are increased by 1 level except on kites. Fires burning on kites are increased by 2 levels. Any ship on fire receives an adverse die roll modification of -1 on all rolls to hit when firing weapons (including small arms fire) due to smoke interfering with the aim of the gunners. At the start of the friendly movement phase in which the level of the fire is greater than the vessel's hull size, the vessel takes one magazine critical hit. If the vessel has no magazines left it instead receives 1 die roll worth of hull hits.

Fires may be fought at the end of the player's friendly movement phase. Roll 1 die for each deckhand and each extra petty officer. For each die roll of 6 the fire is reduced one level. On steel ships the fire is reduced one level for every 5 or 6 rolled. In the basic game treat all British ships as being steel and all Martian ships as being wood.

*Fire/Boiler:* For ships which are not powered by steam treat this as a Fire result. Steam ships treat this as a Boiler hit. Roll a die. If the result is less than the damage value of the firing gun, the boiler blows up. If the boiler blows, the entire engine crew is killed, the ship's speed is permanently reduced to 0, and the ship suffers additional critical hits equal to the size of the boiler. All additional critical hits are resolved with a damage value of 1.

If the boiler does not blow, the ship's speed is reduced by the

damage value of the firing gun. However, this speed reduction is not permanent, and the amount of the reduction is reduced by 1 each subsequent turn (as the engine gang patches the boiler, wraps rags around split steam lines, etc.).

*Screw/Mast:* The air screw (propeller) and its driving chains are hit on a screw galley or steam ship, or the masts and rigging are damaged on a kite. A steam ship or screw galley has its speed permanently reduced by 1. A kite permanently subtracts 1 from its movement die roll. If a vessel has its movement allowance reduced to zero due to screw or mast hits it may jury-rig a mast or temporary propeller. To jury-rig a mast or propeller, roll a 6 during the repairs part of the movement phase. A jury-rig allows the vessel to move with a movement factor of 1. A vessel may not have more than one jury-rig at a time.

*Loss of Trim:* The ship's trim controls are damaged and the ship suffers a sudden loss of trim. The owning player immediately attempts to recover trim by rolling greater than the damage value of the firing gun on 1D6. (If the loss of trim was caused by a collision, the player recovers by rolling greater than half the difference in hull sizes, rounding fractions down.) If the trimman is dead, the captain makes the attempt, but with a die roll modifier of -1. If the captain is dead, any surviving officer or petty officer may make the attempt, but with a die roll modifier of -2. If all officers and petty officers are dead any crewman may make the attempt, but with a die roll modifier of -3. Ships with a hull size of 5 or larger have a +1 modification to the die roll. Ships

with a hull size of 10 or larger have a +2 modification, etc.

A roll of 6 will always recover trim, regardless of the damage value of the firing gun or the die roll modifier in use.

If the ship recovers trim it remains at its current altitude. If the ship does not recover trim, it immediately drops 1 altitude level and the attempt to recover is repeated. This procedure is repeated until either the ship recovers trim or it crashes. In either case the ship may not move, fire, fight fires, or change any crew assignments for the next two movement phases. (The crew is still stunned.) If boarded the crew may defend itself.

*Rudder Jammed:* The ship may not change course until the rudder is freed. To free the rudder, roll 1D6 for a number greater than the damage value of the firing gun.

If a ship with a rudder already jammed suffers another jammed rudder result, add the damage value of the new result to that already suffered to determine the number needed to free the jam. For example, if a ship already has a rudder jammed by a damage value of 2 and suffers one with a damage value of 1, the player must now roll greater than a 3 to free the rudder. However, a roll of 6 will always free the rudder, regardless of the damage value of the round. Attempts to free the rudder are made at the end of the movement phase, at the same time as all other repair attempts.

*Lifters Jammed:* The ship's large lifting panels are temporarily jammed in place; the ship may not change altitude until they are freed. Freeing jammed lifters is done the same as freeing a jammed rudder.

## ARMOR AND PENETRATION

2

EACH GUN also has a penetration value, which is important only against heavily protected targets, such as armored gunboats and stone fortresses. The listed value is the gun's penetration at all ranges.

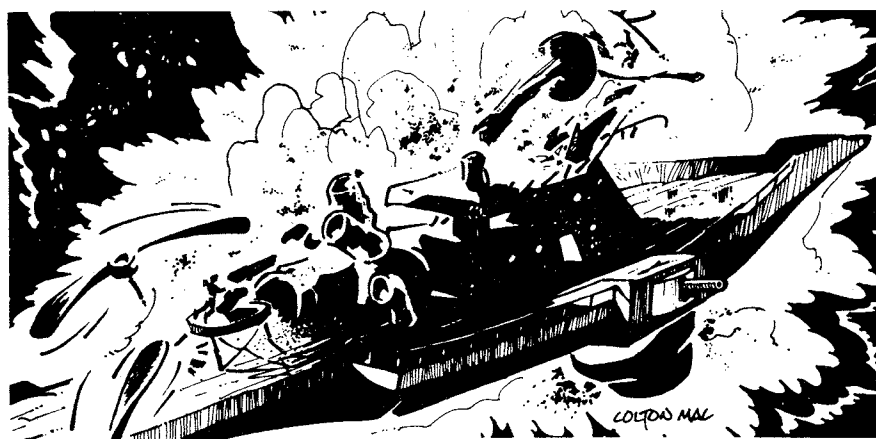
Each ship status sheet lists the armor value of the ship. The number in the hexagon in the upper left-hand corner of the sheet is the ship's armor rating. If the armor value of a target exceeds the penetration of the gun, halve the gun's damage value. If this results in fractional hits, roll a die to determine if the hit takes effect, with a roll of 1-3 having no effect and a roll of 4-6 causing a hit. For example, a gun with a normal damage value of 3 which hits armor thicker than its penetration, would have a damage value of 1 1/2. If it caused a result that called for one hit per damage value, it would cause 1 hit automatically and a second hit on

a die roll of 4-6.

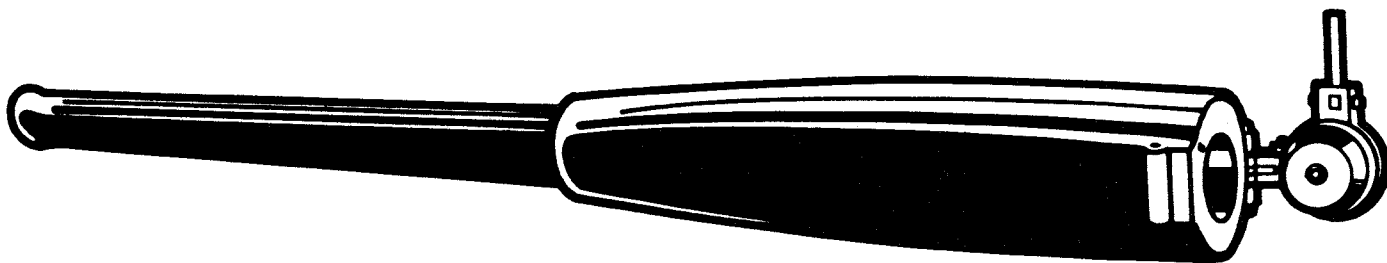
If the armor value of a target is more than twice the penetration of the firing gun, the gun has no effect. For example, a gun with a damage value of 3 would have a damage value of 1 1/2 against armor of 6, but would have no effect against armor of 7. Guns with a penetration of 0 do full damage against unprotected targets, half damage against targets

with an armor value of 1, and have no effect on targets with an armor value of 2 or more.

Not all parts of a ship are protected by armor. Armor protects the hull, magazines, bridge, trim controls, and boiler. In addition, some ships have some or all of their guns mounted under armor to protect them. Armored guns are represented on the ship status sheet by a large box drawn around the smaller gun box and the circles of the gun crew. Guns covered by armor receive the benefit of the armor. If there is a hexagon connected to the gun mount, the number in the hexagon is the armor value of the mount. In any other case, the gun mount has an armor value identical to the rest of the vessel.



HMS *Daring* hit by a 6" round from the *Hamburg*.



British 4" breech-loading naval gun

## SHIP'S CREW

THE SHIP is manned by officers, petty officers, and ratings (enlisted men) who carry out many functions.

### A. Officers

EACH SHIP has a limited number of senior officers who perform key leadership functions. A boarding party must include at least one officer. If all officers in a boarding party are killed, it will retreat to its own vessel. If all officers on a vessel are killed, it will attempt to withdraw from the battle and escape. If it is immobilized or boarded it will surrender.

Officers may take the place of a key petty officer (helmsman or master trimsmen) if no key petty officers remain alive to do so. An officer functioning as a helmsman or master trimsmen still counts as an officer on board.

The ship's captain is represented by the box labeled "C" in the bridge section. Additional officers are labeled "O" in that section.

### B. Petty Officers

EACH VESSEL will normally have at least two petty officers: the helmsman and the trimsmen. (In British service the helmsman is referred to as the quartermaster and the trimsmen is referred to as the bo'sun.) In addition on British ships there may be several extra petty of-

ficers among the deckhands. Casualties among key personnel (as a result of a bridge hit, for example) may only be replaced by extra petty officers or by the ship's officers.

The helmsman is represented by the box labeled "H" in the bridge crew and the trimsmen by the box labeled "T." All extra petty officers are represented by the boxes labeled "P" in the deck crew.

If there is no one at the helm of a vessel, it may not change course or speed (except as a result of additional combat damage or a collision). If for any reason there is no one at the trim station of a vessel, it may not voluntarily change altitude. In addition, roll 1D6 at the end of each maneuver phase. On a roll of 6 the vessel takes a loss of trim Critical hit result (and probably crashes). On any other result, it remains in trim.

### C. Gunners

EACH GUN mount has an assigned gun crew. The ship status sheet has one or more crew circles by each gun mount. As gun crew are killed, mark off crew boxes. Each casualty on a gun crew reduces its rate of fire by 1. For weapons with a rate of fire of 1 or less, each casualty adds 1 turn to the reload time.

### D. Maneuvering Crew

THE MANEUVERING crew are

those men assigned to man the boilers, masts, or crankshaft of a vessel. On a steam vessel these engineers are referred to as the "black gang." On a kite these are "topmen" who control the ship's rigging, masts and sails. On a screw galley these are called "turncranks." Each ship status sheet has a set of boxes representing the maneuvering crew of the ship. As crew casualties are taken, boxes are marked off. When a row of boxes is completely marked off the speed of the ship is reduced by 1. When the entire maneuvering crew is eliminated, the vessel's speed is reduced to 0. Each crewman lost on a steam vessel reduces the speed by 1.

### E. Signalman

EACH SHIP has one signalman, represented by the box labeled "S" in the bridge section. In the basic game he has no effect except to give the ship one extra crewman to use as the player wishes.

### F. Deckhands

DECKHANDS ARE all crewmen other than those noted above. In combat the deckhands are responsible for damage control, are drawn on to form boarding parties, and replace losses among crewmen in other positions. Most crew casualties can be taken against any crewman desired, so the owning player will usually want to mark off a deckhand—possibly representing another type of crewman being killed and one of the deckhands replacing him.

**This concludes  
the Basic Rules.  
Play Scenario 1 now.**



## RAMMING AND GRAPPLING

IN THE Initiative Phase, each player secretly records the number of his ships that will attempt to ram or grapple enemy vessels. These are then revealed, and whichever player has the most ships attempting to ram or grapple has the initiative. If neither player attempts to ram or grapple, or both players have the same number of ships making the attempt, each player rolls a die. The high die roll wins the initiative.

Ships may only attempt to ram or grapple during the First Player Movement Phase. Thus, if a player wishes to ram or grapple, and he has the initiative, he must choose to move first. Each ship attempting to ram or grapple is moved, and makes its ramming/grappling attempt separately.

Ships attempting to avoid a ram or grapple expend half of their movement points (round fractions up) to do so. Players need to remember this so that the ship moves only half of its movement in its own phase.

To attempt to ram an enemy vessel, a ship must either move through, or end its movement, in the same hex as the target vessel and be at the same altitude. The player making the attempt then rolls a die. On a roll of 4 or less the attempt is successful. If the enemy vessel was avoiding the attempt, add the number of movement points spent avoiding

the attempt from the number needed to ram.

If the target of the ramming attempt is immobilized due to battle damage, the ramming attempt is automatically successful.

For example, a ship moves into a hex containing an enemy vessel. The enemy vessel has a speed of 5 and maneuvers to avoid the ramming attempt. Avoiding the attempt uses half of the vessel's movement allowance rounded up, or 3 movement points. Normally the ramming vessel would roll for a 4 to ram, but this is reduced to a 1 because of the target's avoidance maneuver.

If a ram is successful, and the ramming ship was equipped with a ram, the effects are as follows: First, the rammed ship immediately suffers hull damage equal to half the hull size of the ramming ship (roll for odd numbers of hits, with a 1-3 having no effect and 4-6 causing a hit). The ramming ship suffers no damage itself. Second, the rammed ship may suffer a loss of trim. Roll the die. If the result is less than the number of hull damage points sustained, the rammed ship suffers a loss of trim. (See "Damage" for a description of the effects of loss of trim.) If the rammed ship does not suffer a loss of trim then the two ships are grappled (see below), and the rammer may send a boarding party across.

If the ram was successful, but the ramming vessel was not equipped with a ram, it is resolved the same as a collision, with two exceptions. First, if the ramming ship is smaller than the rammed ship, there is no chance of it losing trim. Second, if the rammed ship does not suffer a loss of trim then the two ships are grappled (see below), and the rammer may send a boarding party across.

To attempt to grapple an enemy vessel a ship must end its move in the same hex as an enemy vessel and be at the same altitude. Half the deck hands (round fractions up) may make grappling attempts. Roll a die for each attempt; it succeeds on a roll of 5 or 6. If grappled, a ship may be boarded immediately. It remains grappled as long as an attacking boarding party is on board. Once there is no attacking boarding party on board, the crew of the other ship may cut the grapple. The crew of the grappling ship may cut the grapple at any time, unless a hostile boarding party has boarded it. Grapples are cut during the Initiative Phase of the turn.

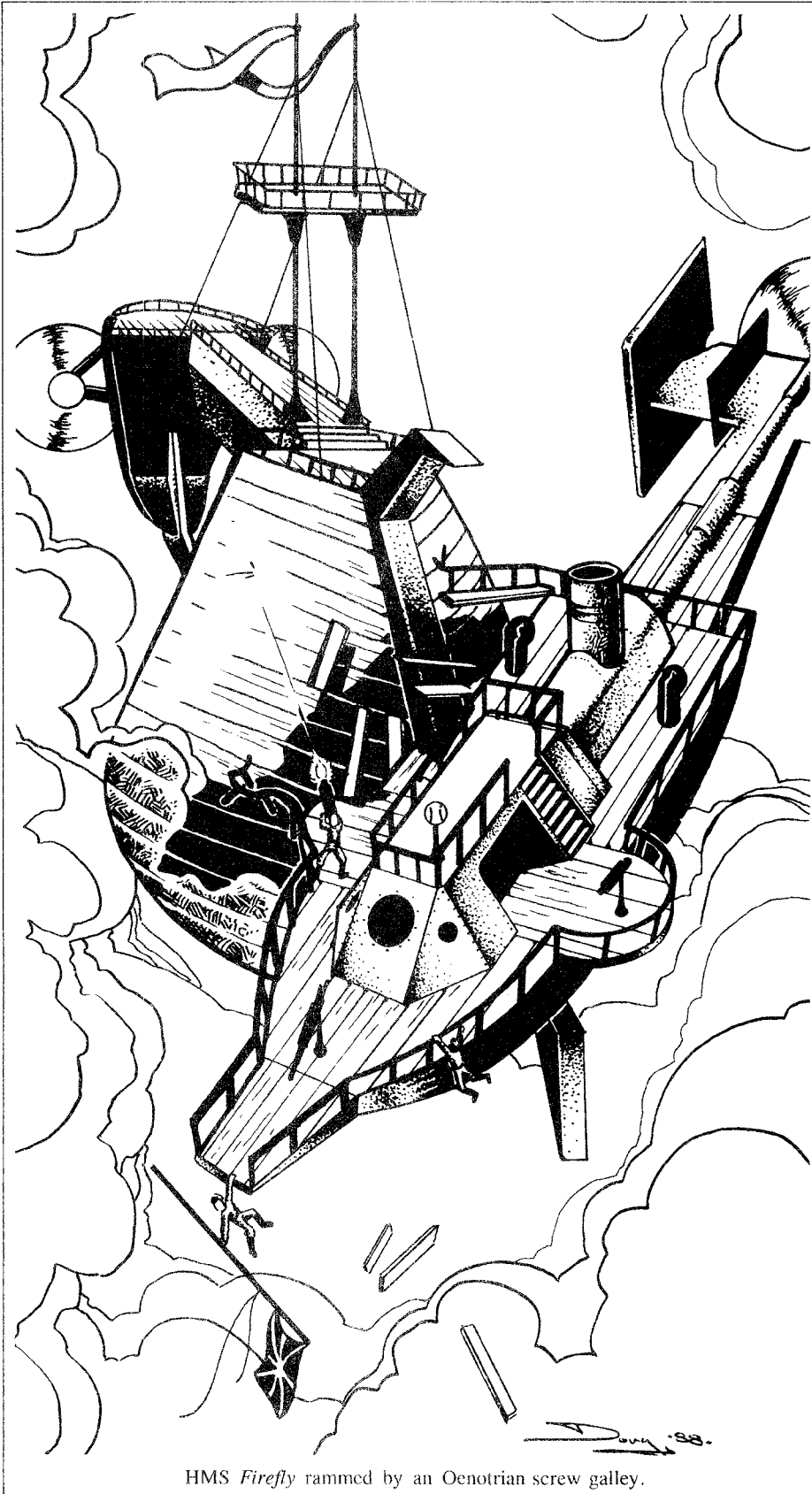
No vessel may move or change altitude while grappled to another. Grappled ships ignore any loss of trim Critical hits, and if they take battle damage which would normally force them to drop a level, they instead stay at the same height. They will drop an altitude if the enemy ship also suffers damage requiring it to drop an altitude or at such time as the grapple is cut. If a grappled ship suffers damage that would reduce its maximum altitude to 2 less than its current altitude, the grapple breaks, the vessel drops 2 levels, and it suffers a loss of trim Critical hit.

## TOWING

PLAYERS MAY want to tow captured enemy vessels or friendly vessels which have been immobilized by excessive battle damage. To do so, the two vessels must be grappled to join them together so that a tow cable can be established between them. A captured vessel will probably already be grappled. However, if a friendly vessel wishes to grapple another friendly vessel, it does so automatically by ending its movement in the same hex. (There is the normal risk of a collision.) Once two vessels are grappled, it takes one complete friendly movement phase for the crews to rig a tow cable. In the next friendly movement phase the player may begin towing.

All vessels which are towing another vessel have their movement allowance halved (rounding all fractions up). Kites halve their die roll, and if towing upwind, halve it again. In addition, divide the towed vessel's hull size by the hull size of the towing vessel, round all fractions down, and subtract the result from the towing vessel's speed to reflect the effect of the extra weight on the towing vessel's speed. For example, a towing vessel with a size-2 hull towing a ship with a size-5 hull would have its movement factor reduced by 2 ( $5/2=2.5$ , rounded down to 2) after it had already been halved. The same size-2 hull towing a size-3 hull would only have its movement factor halved.

A vessel being towed must have its trim station manned by an officer or a petty officer while it is in the process of being towed. Martians can man the trim station of a captured British vessel and vice versa.



HMS *Firefly* rammed by an Oenotrian screw galley.

## BOARDING ACTIONS

EACH PLAYER may form or disband a boarding party in the Initiative Phase of the turn. The player notes on his ship status sheet the composition of the boarding party (officers, petty officers, and other crewmen) and marks off crew boxes to correspond to them. For example, if the boarding party consisted of one officer and five crewmen, the player would have to mark off one officer box and five crew boxes from various positions in the ship, the same as if they were casualties. Note that crew formed into a boarding party cannot undertake any other action; they may not, for example, fight fires, man guns, or fire small arms.

If a boarding party is later disbanded, the survivors are distributed to various crew positions by erasing the correct number of crew casualty marks. Boarding parties are formed and disbanded during the Initiative Phase of each turn.

When two ships are grappled, the moving player may attempt to board the other ship. (A ship which already has enemy boarders on it cannot, in its own turn, board another enemy

ship.) A ship is boarded by sending an already-formed boarding party across onto the enemy ship.

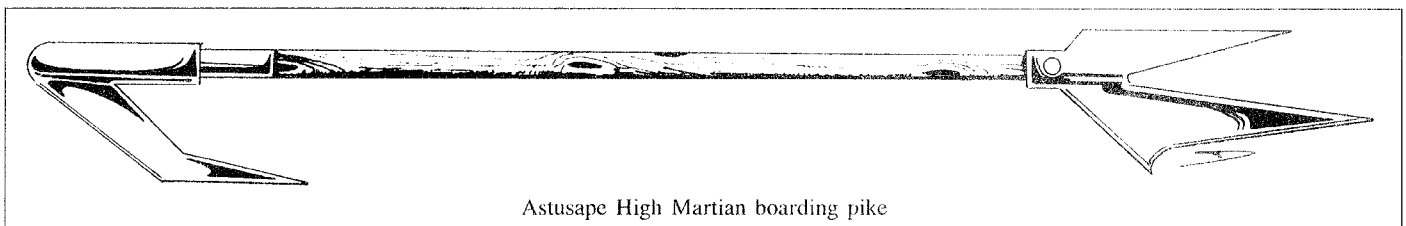
There are three restrictions on the number of boarders that may be sent from one ship to another in one phase. First, only crew already formed into a boarding party may board. Second, the maximum number of men that can cross in a phase is five times the hull size of the smaller of the two ships. Thus if a size-2 hull ship and a size-5 hull ship were grappled, the most men that could cross in a phase would be 10. If the boarding party is crossing its own bow or stern or that of the enemy, halve the number of allowed boarders (rounding fractions up). Third, any crew casualties suffered during the phase due to small arms fire, shrapnel, or grapeshot, are taken from the boarding party and reduce the number of men that cross that phase by that number. So in the above example if 10 men were crossing and their ship took six crew hits from small arms fire, shrapnel, or grape, six boarders would be killed and only four would be able to cross.

In the next friendly movement phase a total of 10 men would again be able to cross.

Attacking boarding parties fight with a defending ship's boarding party (if one is formed), and all deck hands, marines, and extra petty officers. If at the end of any round of boarding combat the deck of the vessel has been secured (all defenders killed), the remaining crew surrenders. (Note that in the Initiative Phase of the following turn the defending player could bring his entire crew on deck to fight the boarders, if he wished.)

Combat between boarding parties is resolved by rolling one die for each combatant. On a roll of 6, one opponent is killed. Officers and marines kill an opponent on a roll of 5 or 6. Boarding party combat is conducted in the movement phase of the boarding player. It is conducted after fire combat and before repairs. Both the attacking boarding party and the defenders are entitled to roll for enemy casualties. No casualties are removed until all rolls are completed.

When casualties are suffered by a boarding party, each player determines which of his own crewmen are casualties. However, each player also rolls a die, and if the die roll result is equal to or less than the total number of casualties suffered by the player, then one officer or petty officer (his choice) is one of the casualties. If a 1 is rolled exactly the casualty must be an officer. In both



Astusape High Martian boarding pike



cases, if no crewman of the required rank is available, the casualty is an ordinary seaman or marine.

If, at the end of combat, an attacking boarding party does not have an officer or petty officer alive, it must retreat to its own ship. If a defending ship does not have an officer or petty officer alive it surrenders. If a defending ship does not have an officer alive, it may not add any additional seamen to its defensive boarding party.

If a vessel is captured, the victorious player has several options. It can bring it in tow behind a friendly vessel which is grappled to it, it can crew the vessel and operate it, it can

defend it with its boarders, or it can abandon it and cripple its trim vanes, causing it to crash. In all cases one member of the boarding party is permanently detailed to guard the prisoners. This must be a marine if one is available. (Even if all of the crew have been "killed," some will actually have only been stunned and captured, or will be lightly wounded. The Martians seem barbaric, but do not generally execute prisoners taken in battle. Certainly no Englishman would!)

Martian crews may man any Martian vessels which they capture, but may not man a British ship. Likewise, British crews may man

any British ship they recapture (or any hostile European vessel), but may not man a Martian ship.

If the boarding party decides to abandon and destroy a ship, they must first withdraw their entire boarding party except for one officer. This is done in the friendly movement phase after the ship is captured. On the following friendly movement phase the officer returns to the friendly ship, and the captured vessel crashes. Roll a die. If the player rolls a 1, the officer slips and falls (or gets his coat caught) trying to get off the enemy ship and goes down with it to an almost certain death.



"Away boarders!"

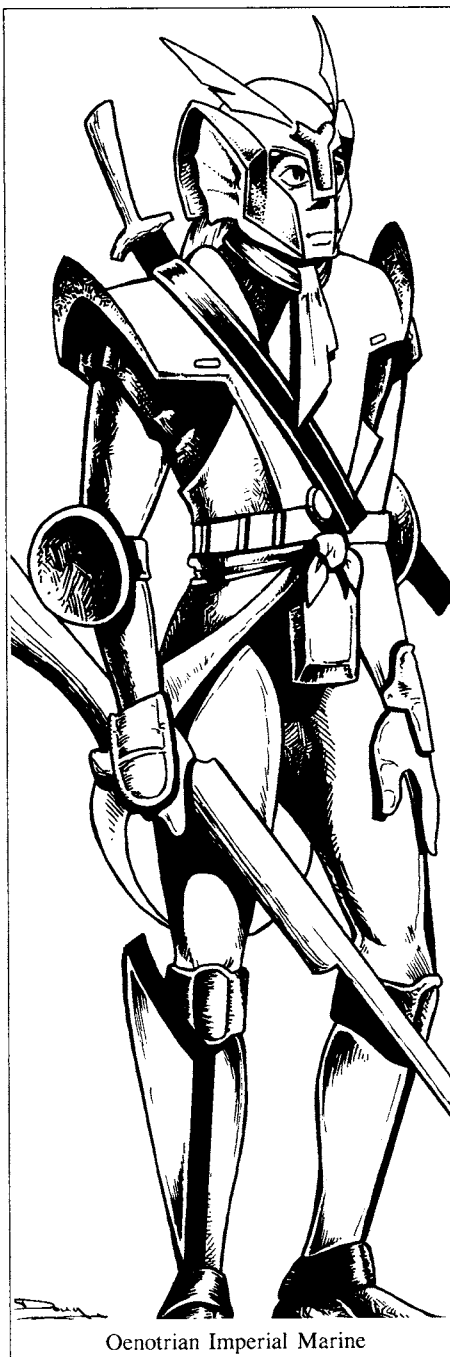
## SMALL ARMS FIRE

MARINES (see next rule) may conduct small arms fire. In addition, all guns with a penetration value of "P" affect only personnel, and are counted as small arms fire. Small arms fire only causes crew casualties; it never causes any structural damage to the target ship.

Small arms fire may never be directed against a target ship at higher altitude.

First, determine how many dice are rolled for hits. Guns (such as Sweepers and Nordenfelts) roll dice equal to their rate of fire. Thus a Nordenfelt will roll 5 dice for hits. Marines roll dice based upon the number of marines firing and the type of weapon they are equipped with. British marines are equipped with modern rifles while Martian marines are equipped with muskets unless otherwise noted. Some Martian marines in some of the advanced scenarios may be equipped with bows or with rifle-muskets. The number of dice thrown for hits is calculated as follows:

Modern Rifles:	1 die per 2 marines firing
Bows:	1 die per 3 marines firing
Muskets:	1 die per 3 marines firing
Rifle Muskets:	1 die per 4 marines firing



Oenotrian Imperial Marine

The number needed to cause a hit is based upon the range at which the weapon was fired. Each die causes a hit if a 5 or 6 is rolled at close range, or if a 6 is rolled at long range. Close and long ranges for the various weapons are as follows:

<i>Weapon</i>	<i>Close</i>	<i>Long</i>
Modern Rifle:	1	2
Bows:	0	—
Muskets:	0	1
Rifle Muskets:	1	2
Sweeper:	0	1
Nordenfelt:	1	2

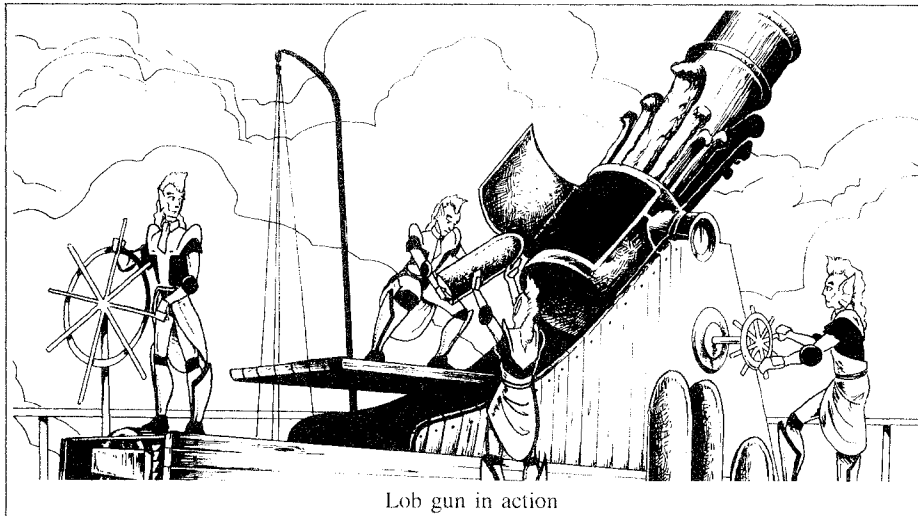
After the dice are rolled and the number of hits determined, the player who suffered the casualties makes a number of saving throw attempts. Saving throws represent the chance of a soldier or sailor being behind cover or taking an insignificant minor wound. The target player rolls dice equal to the number of hits suffered. Any rolls of 1 or 2 are saved (do not count as casualties).

If using the advanced rules, the roll is modified as follows based upon the troops firing (not those fired upon):

Bowmen:	—1
Green Troops:	—1
Marksmen:	+1

### MARINES

SOME VESSELS carry marines and their normal crew. Marines may not fill in for any crew function, but are capable of small arms fire and serve best in boarding parties. Vessels with many marines may also have a marine officer. A marine officer may lead a boarding party and will keep a ship from withdrawing or surrendering. He may not take over the helm or trim station.



Lob gun in action

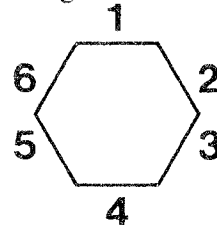
### MARTIAN LOB GUNS

**MOST LARGE** Martian ships have a lob gun. A lob gun is a high-trajectory, large-bore weapon, similar to bombards of the middle ages. Due to its considerable downward recoil, the lob gun is mounted on a turntable in the center of balance of a ship. It would destabilize the ship if mounted anywhere else. This is why each ship has only one. The turntable allows 360-degree fire. The lob gun fires very large, heavy boulders, usually banded with iron. Four exceptions to the normal rules cover lob guns: First, lob guns hit only on a die roll of 6 at all ranges. Second, any hit from a lob gun causes an automatic loss of trim Critical hit in addition to any other damage it does. This loss of trim is due to the impact of the shot, not due to damaging the trim controls. As a result, the target ship suffers the loss of trim even if its armor is more than twice the lob gun's penetration. Third, altitude has no effect on a lob gun. Fourth, lob guns may not fire on a target in the same hex.

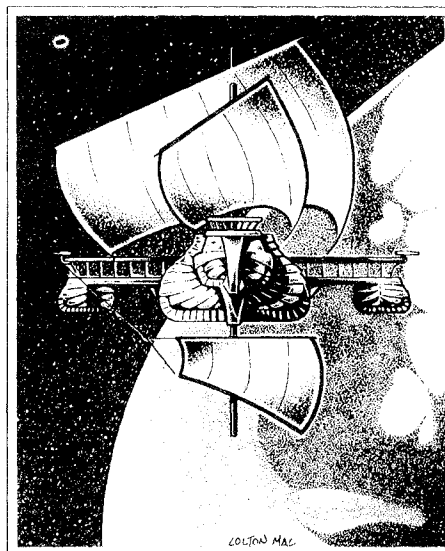
**Play Scenario 2 now.**

### WIND DIRECTION

**AT THE** start of each scenario, determine the direction of the wind. Roll the die and consult the following wind diagram.



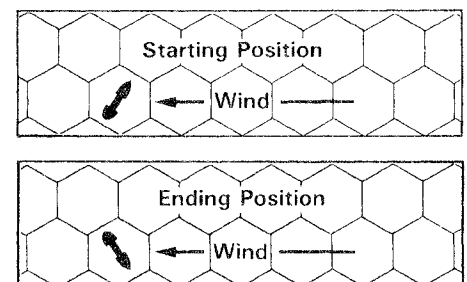
Wind direction affects the movement of Kites (sail-powered vessels) and can be important when using certain other advanced rules.



### KITES

**KITES** (wind-powered vessels) do not have a fixed movement allowance and follow special movement rules. Kites may either move downwind ("run") or upwind ("beat"). If facing toward one of the three downwind hexsides, the movement allowance of the kite is 1 plus a die roll. The die roll is made at the start of its movement phase. If a 4 were rolled, for example, the kite would have a movement allowance of 5 for that movement phase. If facing toward one of the two upwind hexsides adjacent to the exact direction of the wind, the kite has a movement allowance of one die roll halved, rounding fractions up. Kites may never move directly into the wind.

As with other ships, kites may change their facing by 1 hexside each hex they move. Kites also have the ability to execute a tack, which consists of changing the ship facing by 2 hexsides to avoid heading directly into the wind. There is no movement point cost to tack, but a kite may not make any other turns that movement phase.



Kites may change altitude by one level per turn at no movement point cost, but may never voluntarily change by more than one level.

**Play Scenario 3 Now.**



Astusape High Martian warrior

### CREW QUALITY

QUITE OFTEN the quality of a ship's crew is more important than how well designed or armed the ship is. To take this into account, crews are divided into three general levels: Green, Trained, and Crack. Trained crews are the majority of ship crews, and all game rules are written around their capabilities. Green and Crack crews differ, as noted below.

Green crews subtract 1 from their chance of hitting with gunfire (not small arms fire), from their chance of ramming or avoiding a ram, and from their chance of recovering from a loss of trim. In addition, the targets of small arms fire from green troops add 1 to their chance of making a successful saving throw.

Crack crews add 1 to their chances of hitting with gunfire (not small arms fire), their chances of ramming or avoiding a ram, and their chance of recovering from a loss of trim. In addition, a crack crew adds 1 to each die roll in boarding actions.

### HIGH MARTIANS

HIGH MARTIANS, or Flying Martians, have a number of unique characteristics. If a High Martian ship is ever in the same hex and at the same altitude as another ship, it may immediately board it. In addition, High Martians may form flying parties during the Initiative Phase of each turn. A flying party is formed during the Initiative Phase in the same manner and with the same restrictions as a boarding party. A flying party marker is placed on the map in the same hex as the vessel and at the same altitude.



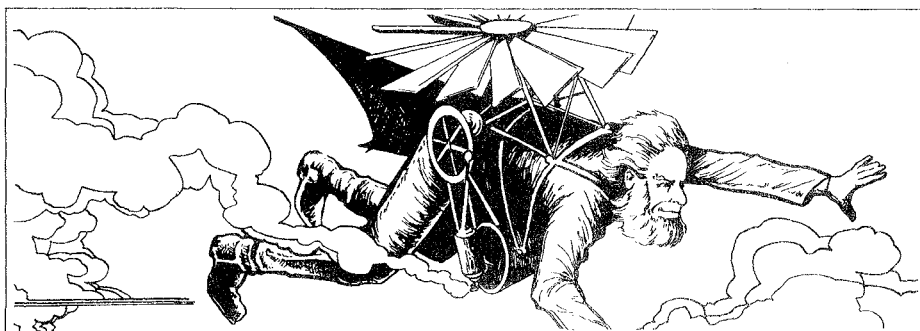
A flying party may move in any direction desired and has no particular facing. It has a movement allowance of 2 hexes, pays both movement points to climb one level, pays 1 movement point to descend a level, and may never descend more than 1 level per turn. If the flying party ends its move in the same hex and at the same altitude as a ship, it may board it. Flying parties may only be fired at with small arms fire. (*Exception:* See Shrapnel and Grapeshot rule.)

All High Martians are considered Green for all purposes except boarding actions, for which they are considered Trained or Crack. High Martian screw galleys are powered by slave turnscrews who may not be used for any other purpose.

### THROCKMORTON CONVEYORS



SMALL NUMBERS of Throckmorton Aerial Conveyors may be available to the British in a scenario. Throckmorton Conveyors are personal flying machines and may be used to outfit a flying party. The party is outfitted the same as for a flying party of High Martians and obeys all of the same rules regarding movement, fire, and boarding.



Professor Throckmorton's first prototype of the Aerial Conveyor is tested by his footman.

### SIGNAL COMMUNICATION

EACH SHIP has one additional member of the bridge crew: the signalman. The signalman hoists signal pennants, flares, or lanterns and reads signals from other ships. If the signalman is killed and not replaced by another crewman, the player running that vessel may not communicate with the other players on his side or be part of their planning. By the same token, no ship can make out the signals of a ship which is on fire and upwind of it. If one player on a side is unable to communicate due to a dead signalman or a fire on board, the remaining players on that side should instead communicate by writing.

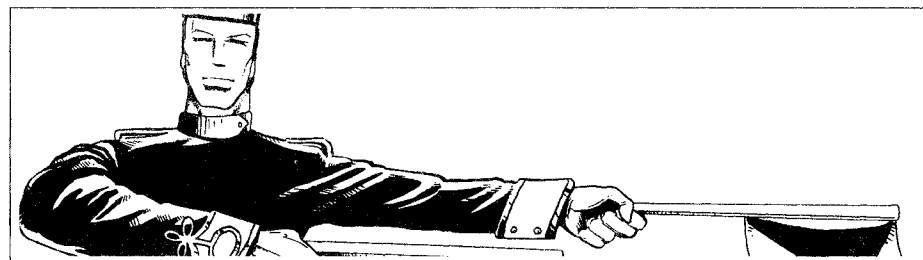
### SHRAPNEL AND GRAPESHOT

BRITISH NAVAL guns usually fire common shell or armor-piercing shell at enemy ships, but also carry

quantities of shrapnel shells which burst after a specified time and scatter fragments. Martian ships, by the same token, carry grapeshot, numerous small cannon balls loaded into a larger gun and designed to cause crew casualties. Grape may only be fired at close range; shrapnel may be fired at either close or long range. Regardless of the range, add 1 to the die roll to hit. All Hull hits and Critical hits have no effect. All Gun hits become Crew hits instead. All Crew hits (and Gun hits which convert to Crew hits) cause crew casualties equal to the full damage value of the gun, not half its damage value.

Shrapnel and grape may be fired at flying parties. The normal rules to hit are followed, but all hits are automatically treated as crew hits and the flying party is allowed to make saving throws as if the casualties were caused by small arms fire.

**Optional Signal Rule:** Each turn covers a very short period of time, and only a limited number of signals can be sent and read at a time. If players wish to simulate this, incorporate the following rule. Each player on a team may hoist (send) one six-word message per turn. In the Initiative Phase each player writes down his signal and then each reads it in turn. The six words may include a specific ship name, or may be addressed to all who can read it. Typical signals might read, "*Aphid* join action at once," "Form line to my stern," "Cease bombardment and break off action," etc. No ship may read signals from any ship on fire upwind of it, and in this case the written signal should be passed to those players who could read it. As naval codes were widely used, players may wish to allow friendly players only to read the signals.



### POWER GRAPNEL

A POWER GRAPNEL is essentially a large harpoon gun which fires a barbed, collapsing grapnel designed to forcibly pierce the side of a ship or become entangled in a ship's rigging or deck gear. It trails a strong steel cable which is held up by a series of small liftwood aerial buoys. The cable is attached to a power winch, and upon hitting a vessel with the grapnel, the winch is engaged and used to pull the two vessels together.

Many Martian screw galleys use a device similar in design to the above, but actually attach the line to the vessel's driving crankshaft and use their own turncranks to pull the vessels together.

A power grapnel is shown on the deck plan as a gun box with the letter "G" in it and no crew. A power grapnel is mounted like any other gun. It has a rate of fire of (2), meaning that it takes 2 turns of reloading between shots. It has a full crew of 2, but no crew is provided for it, and it is instead manned by deckhands or gunners from another weapon if required to fire. (It is so seldom used that there is no point in maintaining a permanent gun crew.) Power grapnels have an effective range of 0 (same hex) and a long range of 1. If the shot hits, the two vessels are grappled. If the hit is made at long range the smaller of the two ships is moved into the hex of the larger. If both have the same hull size, roll a die to determine which ship moves into the other's hex.

Power grapnels are treated as any other gun for purposes of taking gun hits. They have no magazine, however.



## SMUTTS DISCHARGERS



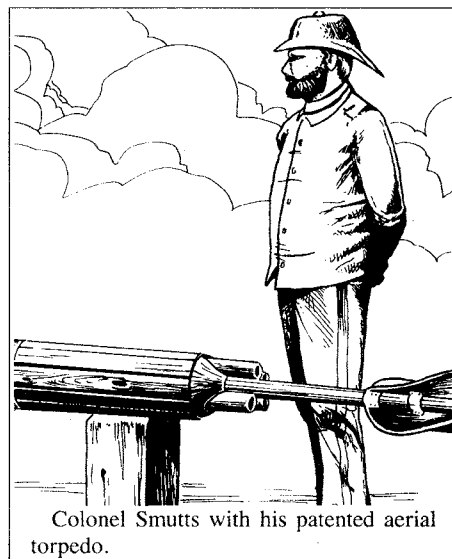
A SMUTTS DISCHARGER is a steam-powered pneumatic launcher for Smutts Patent Aerial Torpedoes. These dischargers are only mounted on British steam-powered vessels and are always oriented to fire directly forward.

The Smutts Patent Aerial Torpedo is a finned projectile filled with dynamite, held aloft by means of lift-wood vanes, and powered after launch by a propeller driven by a small flywheel. It also trails a cable with a small grapnel to snag vessels over which it passes.

On the turn it is launched, it will move directly forward from the firing ship 6 hexes, and does the same for the 4 subsequent turns. At the end of that time it detonates (to prevent capture by the enemy). If the Smutts

Torpedo passes through a hex containing any vessel at the same altitude or one level lower than the torpedo, it will collide with it on a roll of 2 or higher. The target vessel may attempt to avoid the collision in the same manner as avoiding a ramming attempt. If two vessels are in the same hex, roll randomly to determine which to check first for a collision. If the Smutts Torpedo misses that vessel, roll to see if it hits the other. If one or both attempts to evade the ram, there is a chance the vessels will collide with each other (the same as if a vessel turns in a hex with another). If they collide they do not receive the die roll modifier to avoid the ramming attempt.

If the Smutts Torpedo hits, it detonates. It has a penetration of 1 and a damage value of 12. In addition, the force of the detonation will

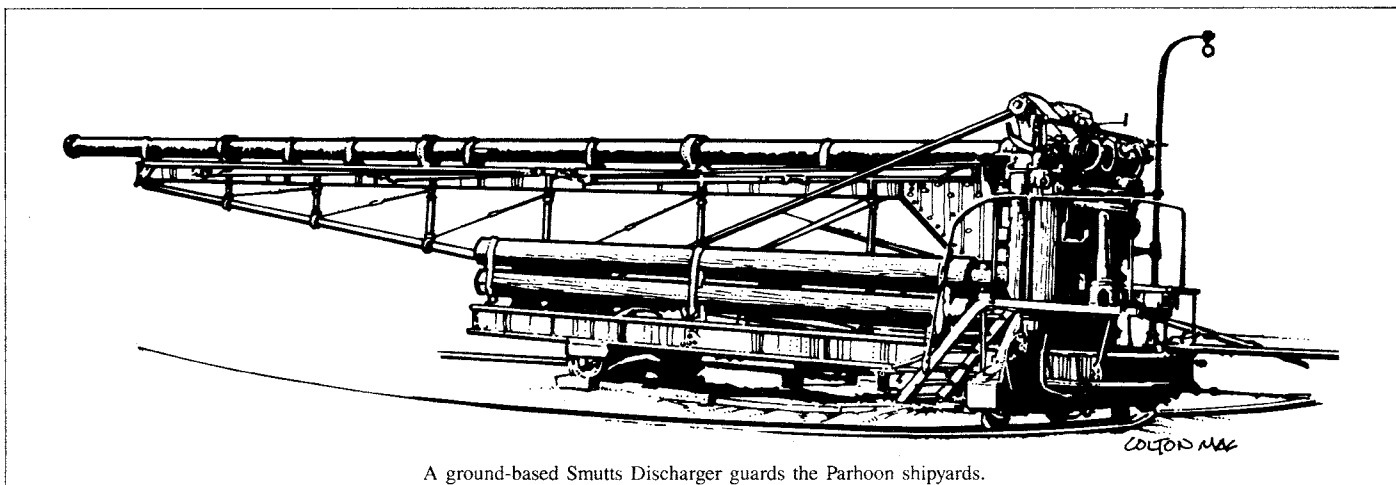


Colonel Smutts with his patented aerial torpedo.

cause an automatic loss of trim, the same as a hit from a lob gun.

Each ship carries a limited number of Smutts Aerial Torpedoes. When these have all been used the discharger may not be fired again. The Smutts Aerial Torpedoes are represented by small triangles on the ship deck plan.

The Smutts discharger is treated as any other gun for purposes of gun hits, and has a magazine. If the Smutts Discharger's magazine is detonated by a Critical hit, all remaining Smutts Aerial Torpedoes on board blow up. Roll for each torpedo separately for hit location.



A ground-based Smutts Discharger guards the Parhoon shipyards.

## TETHER MINES AND DROGUE TORPEDOES

### TETHER MINES



**TETHER MINES** are explosive charges equipped with contact detonators, attached to liftwood buoys, and tethered in place at a selected altitude by means of a cable. Tether mines are shown on the ship status sheet by a circle with a cross superimposed on it.

During the Initiative Phase of each turn players commanding ships with tether mines must state if they intend to raise or lower them that turn. If they are lowered they have no effect. If they are raised they are fully operational.

Ships with tether mines raised may not move any faster than 3 hexes per turn and may not avoid a ram. However, a player may announce at any time that he is cutting his mines loose and then is free to attempt to avoid a ram or move at any speed desired. Once cut free the tether mines are lost.

Tether mines are raised one altitude level higher than the owning vessel. If any ship enters the same hex as the mines, at the same altitude as the mines, or is already in the hex and drops to the same altitude as the mines, it automatically collides with them. If a vessel with tether mines raised moves into the same hex as another vessel which is at the same

altitude as the mines, or climbs so as to bring the tether mines to the same altitude as a ship already in the same hex, that ship collides with the tether mines on a roll of 6. If a ship begins its movement in the same hex and at the same altitude as raised tether mines it may leave the hex freely without colliding with the mine.

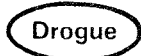
If a ship cuts its tether mines loose for any reason, they will collide with

any vessel in the same hex but at a higher altitude on a die roll of 6.

If a vessel collides with a tether mine, the mine detonates and is counted as a gun hit. Roll for hit location normally. All tether mines have a penetration of 0, but cause an automatic loss of trim critical hit in addition to any other damage, the same as a Martian lob gun. The damage value of the mine depends on the type being used. Martian tether mines have a damage value of 4; British tether mines have a damage value of 6.

Tether mines cannot be affected by anything except a magazine hit. If a magazine hit detonates the tether mines, each mine on board and not raised, explodes. Roll hit location for each mine separately.

### DROGUE TORPEDOES



A **DROGUE TORPEDO** is an explosive charge dangled below a ship on a cable and equipped with a contact detonator. Drogue Torpedoes are represented on the ship status sheet by long ovals.

During the Initiative Phase of each turn, players commanding ships with drogue torpedoes must state if they intend to raise or lower them that turn. If the drogue torpedoes are raised they have no effect. If they are lowered they are fully operational.

A ship with its drogue torpedo lowered has its movement allowance reduced by 1. The drogue torpedo hangs down one level below the ship, but in the same hex. Any ship which enters the same hex at the same altitude as the drogue torpedo, or changes altitude in the hex and arrives at the torpedo's altitude, collides with the torpedo on a roll of 5 or 6. Likewise, if the ship with the torpedo enters a hex or otherwise maneuvers so that another ship is in the same hex at the same altitude as the torpedo, it collides on a roll of 5 or 6.

Collision with a drogue torpedo has exactly the same effect as collision with a tether mine, except that all drogue torpedoes have a damage value of 10.

Drogue torpedoes cannot be affected by anything except a magazine hit. If a magazine hit detonates the drogue torpedoes, each torpedo on board which is not lowered, explodes. Roll hit location for each drogue torpedo separately.

## INFERNAL DEVICES

### HALE ROCKET BATTERIES



IT IS very difficult to fire ordnance at a steep upward or downward angle from an aerial gunboat since the angular recoil will destabilize the boat and cause a loss of trim. This is not a problem with rockets, however, since the thrust of the rocket can be vented in any direction required to maintain stability of the ship. The British often employ banks of Hale rockets on their aerial gunboats to fire at higher or lower targets.

Each Hale Rocket Battery on a vessel is a bank of rockets, all of which are fired in a single salvo at a target. As Hale rockets are scarcely more accurate than their ancestor, the Congreve rocket, lack of accuracy is compensated for by volume of fire. Each bank of rockets is faced to fire into one firing aspect and is angled either up or down. Batteries angled up may only fire at targets higher than the firing ship while those angled down may only fire at lower ones. Hale Rocket Batteries may only fire at targets if the range to the target is equal to or less than the difference in altitude. For example, a target 2 hexes away can only be fired at if the altitude difference is at least 2 levels. Hale rockets have a maximum range of 4 hexes.

Altitude does not count against the range of the rockets. Hale rockets may always fire at targets in the same hex, regardless of firing aspect, provided they are either above or below the ship (as required by the specific battery firing).

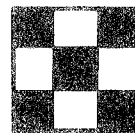
A Hale Rocket Battery is shown on the ship status sheet by a triangle with a tail. The triangle points in the direction the battery is faced. If the tail of the triangle is hollow, the battery is angled up; if it is filled in, the battery is angled down.

When a Hale Battery is fired, it is not necessary to see whether or not there was a hit. Instead, roll the die, and the number rolled is the number of rockets that hit. Hale rockets have a penetration of 0 and a damage value of 1. One crewman is required to fire the battery—normally a deckhand. Once fired the battery is empty. It may not be reloaded during the course of the game.

Hale Rocket Batteries can be destroyed as a result of a gun hit. For purposes of determining the chance of a gun hit being on a Hale Battery, count all Hale Batteries on board as a single gun. A hit destroys 1 Hale Battery. Hale Batteries can also suffer magazine hits. If a Hale Battery suffers a magazine hit, one battery detonates. Roll the die to see how many hits are suffered, and then roll hit location on each one separately.

### MARTIAN LIQUID FIRE

#### SOME VESSELS



are equipped with one or more racks of Martian liquid fire, a chemical compound

that ignites and burns fiercely once exposed to oxygen. It does burn damage to anything that it touches. Martian liquid fire is dropped from a ship at a higher altitude onto ships at a lower altitude as the firing ship passes overhead. This attack is carried out during movement, not at the end of movement. No die roll is made to see whether or not the liquid fire hits the target; instead a die is rolled to see *how much* of it does. Roll one die and subtract 1 for each difference in altitude between the two ships involved. That is, if the firing ship is 2 levels higher, subtract 2 from the die roll. If the firing ship leaves the target's hex by crossing the same hexside toward which the target is facing, add 1 to the die roll. The result of the die roll is the level of fire started on the target ship. A modified die roll of 0 or less has no effect.

Each rack of Martian fire may be used only once per game. Once a rack is dropped it is expended and may not be reloaded during the game. There is no required crew for the liquid fire racks; their release controls are on the bridge. Each liquid fire rack is represented on the ship status sheet by a quartered square (pictured above).

Liquid fire racks may be destroyed by gun hits, the same as Hale Batteries. If a magazine hit is made on a liquid fire rack, roll the die. The result is the level of fire that breaks out.

## MACHINEGUNS

### MAXIM GUNS

THE MAXIM GUN was just coming into use at this time. Although no governments had yet purchased it, a prototype had been used in combat two years earlier by a British colonial expedition and a small number of these revolutionary guns had been purchased privately by a few officers.

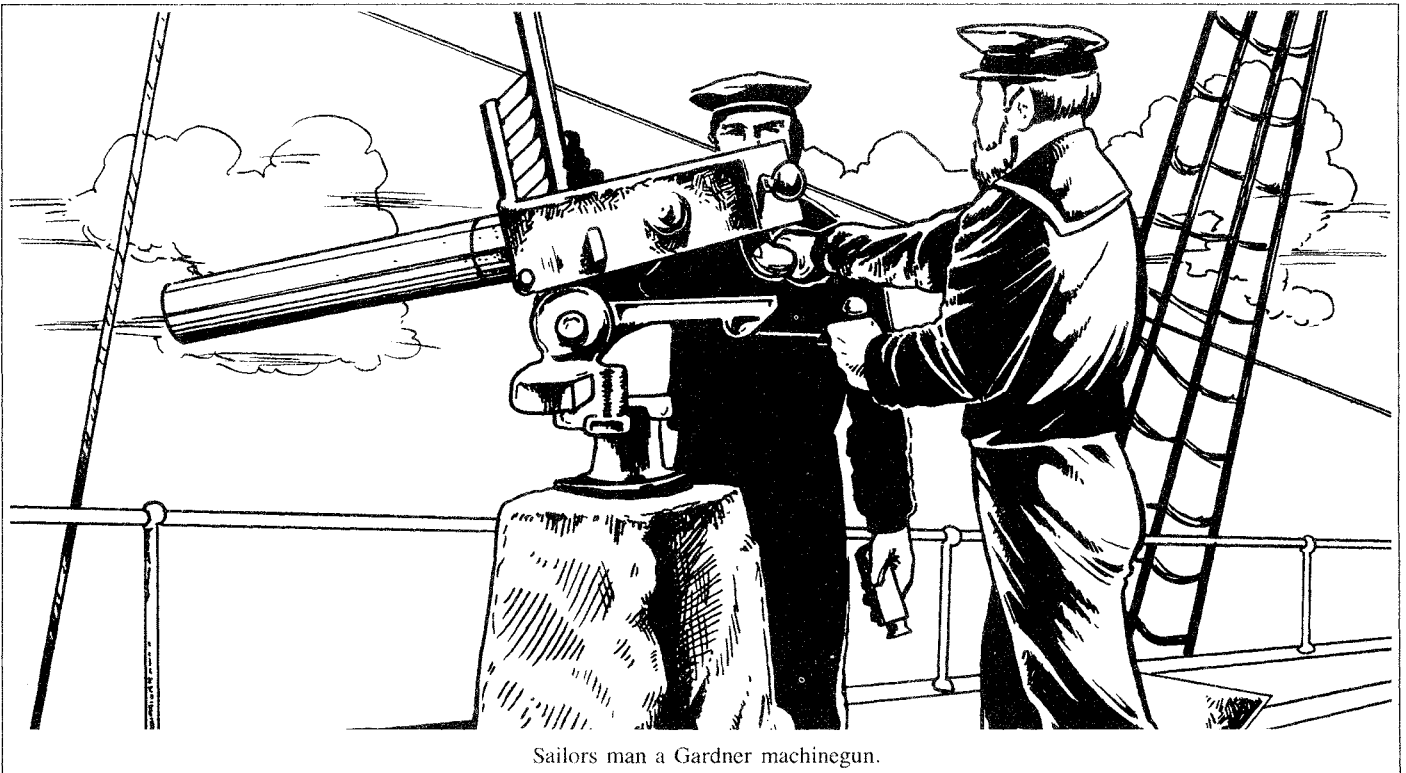
If a Maxim gun is present (and there will never be more than one in a scenario) it fires like a Nordenfelt, but rolls 6 dice instead of 5. Its main

advantage is that it is portable and may be moved about the ship. During the Initiative Phase of each turn the owning player may move his Maxim gun to fire out of any of the four firing aspects of his ship. The Maxim may not fire the turn it moves, but after that may fire out of the specified firing aspect. One member of the crew must be assigned as a gunner for the Maxim gun. The owning player should record which aspect the Maxim gun is trained on, but need never reveal this to his opponent until it fires.

### GARDNER GUNS

THE GARDNER GUN saw considerable service with the Royal Navy during this period (circa 1889). It was a lightweight, two-barrel, mechanical machinegun used for shore duty as well as shipboard work. The Gardner is portable and follows the same rules for movement on the ship as does a Maxim gun (see "Maxim Guns," above). However, the Gardner had a lower rate of fire and was prone to jamming if fired too fast.

The Gardner normally rolls 2 dice for small arms fire hits. If the player controlling the gun wishes, he may instead roll 3 dice, but if any one of the die roll results is a 1, then the gun jams. The gun may not fire until the jam is cleared. Each fire phase after the Gardner gun jams, the gunner may attempt to clear the jam by rolling a 4 or higher on the die.



Sailors man a Gardner machinegun.

## AERIAL BOMBARDMENT OF GROUND TARGETS

NAVAL FORCES are occasionally called upon to bombard ground targets, such as cities or fortresses. In the game this will be abstracted and will require the player to inflict a specified number of damage points on one or more hexes of a city or fortress. The hex must be fired at as if it were a ship. (Although the gun's shot will certainly come down somewhere in the hex, that is no guarantee that it will damage anything important.) If a hit is achieved, the gun's damage value is the number of damage points caused. Martian fire dropped on a hex causes damage points equal to the level of fire started.

### GROUND BATTERIES



GROUND BATTERIES have the advantage of being able to fire at high angles without having to worry about capsizing their cloud-ship. Heavy guns still require fairly elaborate carriages to allow them to fire at high angles, and not all guns

are so fitted. All batteries mentioned in the scenarios, however, are assumed to be mounted for high angle fire.

A ground battery may fire at any target above it, even if the difference in altitude is greater than the range. The battery is still limited by the range of the gun it is firing, and still counts each altitude level higher by adding 1 to the range.

Many ground batteries are built into fortifications and so may have considerable armor. A ground battery is fired upon in the same manner as a ship, but hull hits have no effect. The gun crew and gun are both considered protected by armor. If a critical hit is made, only fire and magazine hits affect the battery; all other results are treated as no effect. A magazine critical hit destroys the battery.

Fire, either as a result of a critical hit or Martian liquid fire dropped on the battery, puts it out of action temporarily. The level of the fire will automatically go down each turn instead of up, and once it goes out the battery will come back into action.

### NONEXPLODING ROUNDS (OPTIONAL)

OCCASIONALLY, SOME armor-piercing rounds may go completely through lightly armored or unarmored vessels without detonating. Likewise, Martian solid shot will do less damage if it just punches through both sides of a hull, than if it hits substantial resistance. To take this into account, use the following rule.

If a ship is hit by a gun which has a penetration more than twice the armor value of the ship, roll a die. On a result of 1-3 the hit is resolved normally. On a roll of 4-6 the round passes through the target without exploding. Hit location is still rolled and it causes damage, but is treated as if it has a damage value of 1, regardless of the size of the round. Note that rounds which already have a damage value of 1 are unaffected by this rule.



The aerial bombardment of Shastapsh by HMS *Reliant*.



## LINE OF SIGHT (OPTIONAL)

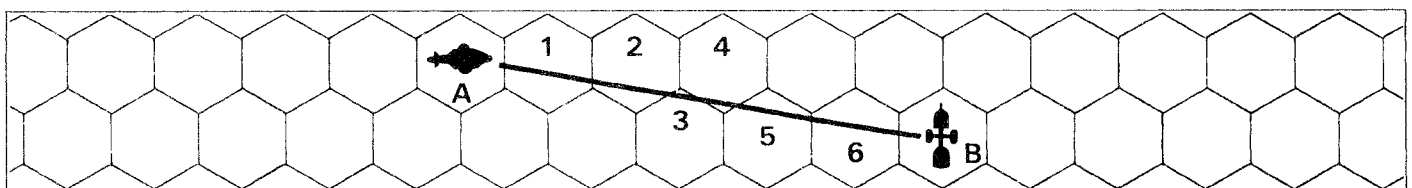
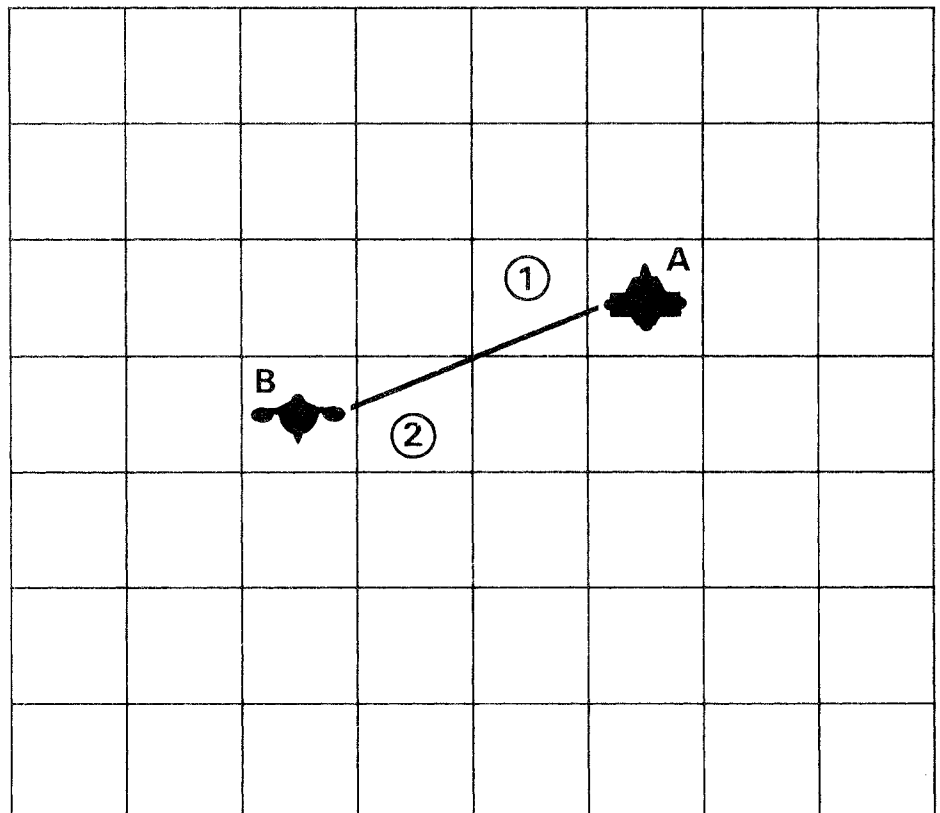
NO PROVISION is made in the basic rules for line of sight being blocked by another ship, but you obviously cannot shoot through an intervening vessel. In a three-dimensional game, however, defining line of sight often becomes difficult. Some cases are very easy, such as when the firing ship, target ship, and intervening ship are all at the same altitude. In this case the intervening ship blocks the line of sight if the line of sight passes through two nonadjacent hexsides of the hex the ship occupies. Alternatively, the line of sight is blocked if it passes through any part of any two hexes containing ships.

In the illustrated example Ship A is firing at Ship B. An intervening vessel in hexes 1, 2, 5, or 6 would block the line of sight, as it crosses two nonadjacent hexsides. A ship in hex 3 or 4, however, would not block the line of sight. Although the line of sight crosses two hexsides, they are adjacent hexsides. If both hexes 3 and 4 had vessels, the line of sight would be blocked, since it passed through two hexes containing ships.

If the vessels are at differing altitudes, use the altitude gauge printed on the Game Reference chart. Place the firing ship and the target ship at their respective altitudes and distance. Now plot the location of any ship which might block the line of sight. (Remember

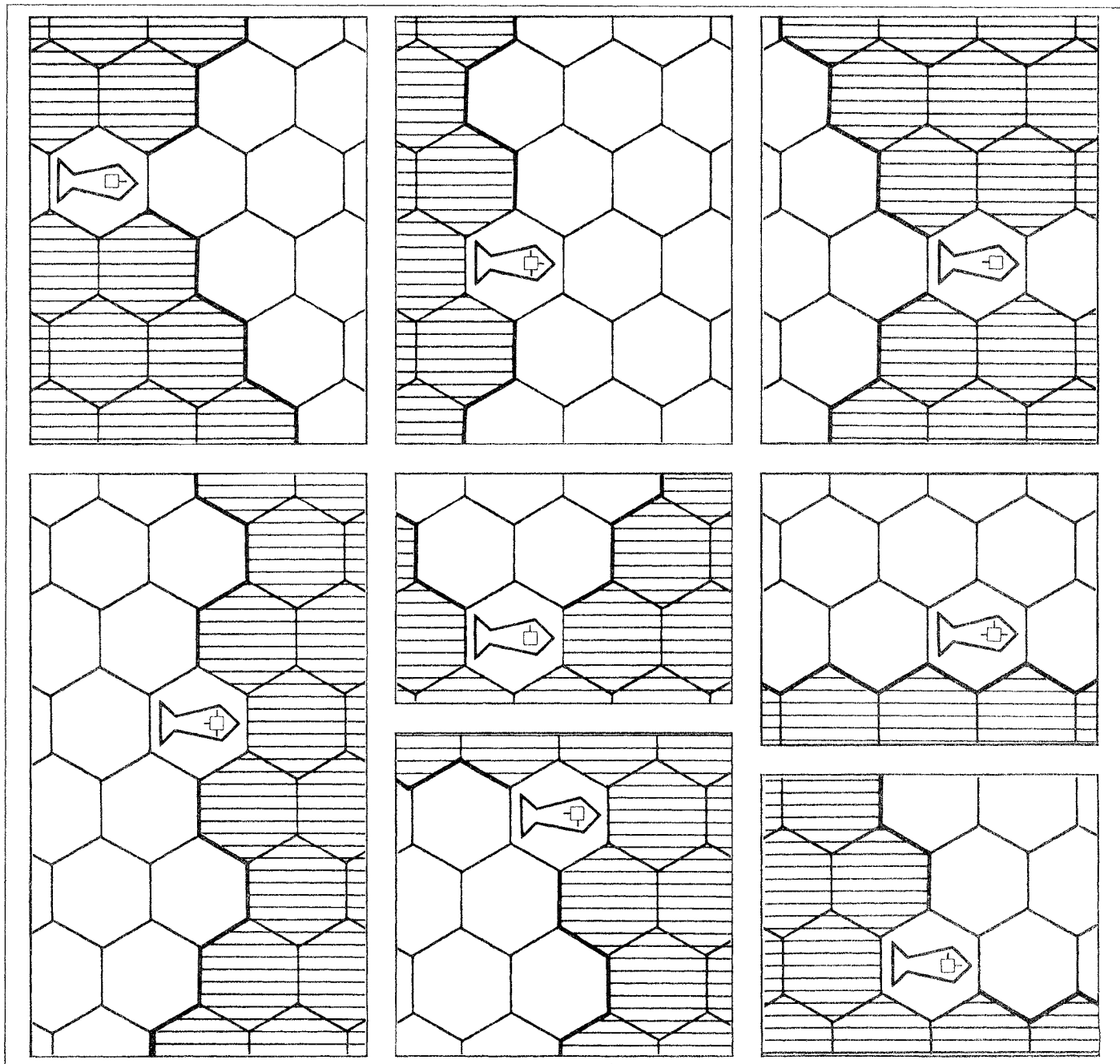
that to be blocked, the line of sight must pass through two nonadjacent hexsides.) After you plot the squares that all of the ships occupy, trace the line of sight between the firing and target ships. If the line of sight passes through the bottom half of a box containing an intervening ship, it is blocked.

For example, in the diagram below, ship A and ship B are exchanging fire. Any ship in position 1 would block the line of fire between the two ships, as the line of sight passes through the bottom half of its box. Any ship in position 2, however, would not block line of sight, as this condition does not exist.



## RESTRICTED FIRING ARCS (OPTIONAL)

THE FOUR simple firing aspects presented in the basic rules actually allow too much flexibility for most gun mountings. The typical arc of a gun in a well-placed mounting will be 180 degrees, but the basic game firing aspects allow a considerably wider traverse. For a more realistic portrayal of fields of fire, use the firing arcs illustrated below.



## SCENARIOS

### SCENARIO 1: Thieves Fall Out

THE CLOUD CAPTAINS of the Shistomik Mountains are a colorful, bloodthirsty company of pirates, brigands, and adventurers who generally observe a cautious truce among themselves, the better to predate upon others. In 1888, Armand Roquette, a French adventurer and Cloud Captain with a talent for diplomacy, managed to put together an organization of several captains, both human and Martian, and their ships, to raid some of the larger Umbran spice convoys bound for Syrtis Major. The first raid was successful beyond any of their expectations, and beyond any of their abilities to put aside their greed. Scarcely had the last of the merchant guards surrendered, when fighting broke out among the Cloud Captains.

**Map:** Use either map. The city is not present, and all terrain is at ground level.

**Ships:** Each player has a *Sky*

*Runner*-type screw galley. Find the ship record sheet for it and make sure that each player has a copy. Each player should pick a ship model to represent his ship.

**Set-up:** Each player rolls a die. The lowest die roll sets up first, and the other players follow in clockwise order around the table. No player may set up closer than 4 hexes from another player. Each player, as he puts his ship out, must clearly show its facing and place an altitude marker on it. Once set up is complete, start the game.

**Special Rule:** Since this is a multi-player scenario, the sequence of play is altered slightly. In the Initiative Phase, all players roll a die, with the high die roll winning the initiative. That player decides which player moves first. All other players take their turns in sequence after that player, in a clockwise order around the table.

**Victory:** The last captain flying wins.

### SCENARIO 2:

#### John Bull's Tyranny

FOR THREE years Liam O'Connor and his crew of Irish revolutionaries played a cat-and-mouse game with the Royal Navy along the trade routes north and east of Syrtis Major. Frequent raids on the ships of Britain's vassal princes proved embarrassing, but a daylight bombardment of the legation compound at Moeris Lacus was too much to tolerate. The Royal Navy redoubled its efforts to track down O'Connor and the crew of the *Fenian Ram*, and in April of 1887 they succeeded.

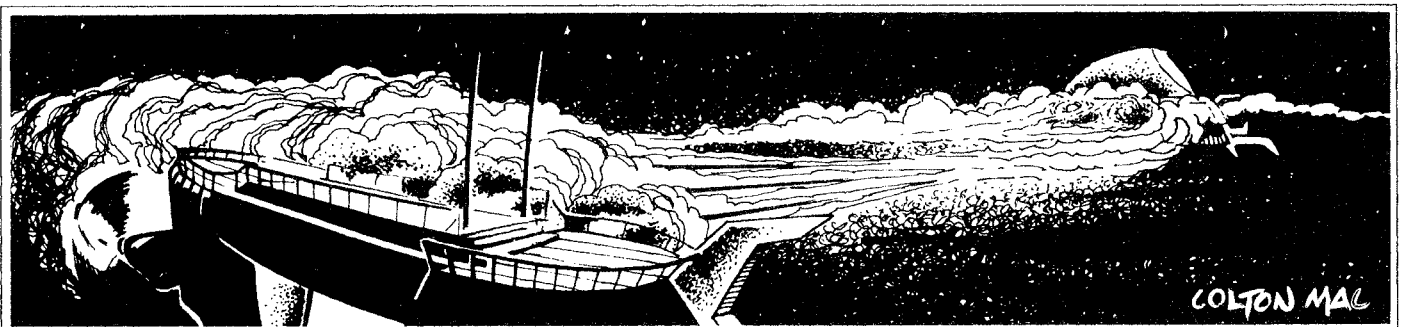
**Map:** Use either map. The city is not present and treat all terrain as being at ground level.

**Ships:** The Irish player has the *Fenian Ram*. The British player has one *Aphid*-class gunboat.

**Set-up:** The Irish player sets up in the middle of the map. The British may set up anywhere not within 5 hexes of the *Fenian Ram*. All ships start at medium altitude.

**Special Rules:** The Irish marines are armed with modern rifles.

**Victory:** The British must capture or destroy the *Fenian Ram*. The Irish must escape. To escape, the Irish must have damaged the *Aphid* so that it cannot pursue (either speed slower than the *Fenian Ram* or no guns left) and then exit the map.



**SCENARIO 3:****Diplomatic Incident**

DESPITE OUTWARDLY cordial relations between the United Kingdom and the Empire of Germany, Bismarck's policy of ruthless expansionism in the extraterrestrial colonies has brought the two countries to the brink of war more than once. When the German agricultural attache to the court of Zhatublaan III revealed (in return, it was said, for a considerable payment of cash) a German plot to break the bhotan spice monopoly, and thus destabilize the Boreosyrtsis League, German long-term ambitions in the northern polar region were dealt a crippling blow. Herr Roemer, the attache, immediately fled and sought protection from the British.

Anxious to exact revenge from Herr Roemer, who was now traveling under a British passport, the German colonial governor dispatched the newly assembled Luftkreuzer Hamburg to intercept the passenger ship on which Roemer was travelling, arrest him, and bring him back for trial. Unknown to the governor, however, Roemer's ship was accompanied by the two sister ships *Dauntless* and *Daring*.

**Map:** Use the canal map. The city is present and will inhibit play. Neither player may fire over or fly over the central island city. Players may fly over and fire over the city hexes not on the island. This is a neutral city and offending it will result in a major diplomatic setback.

**Ships:** The German player has the *Hamburg*, and uses a large British gunboat piece to represent it. The British have two *Dauntless*-class gunboats and one large kite. The kite

is an unarmed *Warm Winds* merchantman and carries, among its other passengers, Herr Roemer. Use the model of the *Aphid*-class gunboat to represent one of the *Dauntless*-class boats.

**Set-up:** The German sets up in the center of the map. The British enter from the middle of any board edge and must exit off the opposite side to win.

**Special Rules:** The kite is not a military vessel and will not offer any resistance. It will attempt to run so long as it has a chance of doing so successfully. As soon as it takes any damage, however, it will stop moving and surrender. It will not move again until the battle has finished. Note that, even though there is no formal state of war in effect, there are no restrictions on fire except for the need to avoid damaging the neutrals.

**Victory:** The German player must board the kite, spend one turn in undisputed possession of it, return to their own ship (having captured Herr Roemer) and exit off the board. The British must prevent this, probably by destroying the *Hamburg*.



Otto von Bismarck, Chancellor of the German Empire

**SCENARIO 4: Slash and Run**

ONE OF the most counterproductive of Britain's colonial policies was dubbed by its detractors "slash and run." It referred to the policy of launching strong punitive raids in response to an act of provocation, causing maximum damage and confusion, and then just leaving the natives to sort things out, more bitter and hostile than ever. Nevertheless, when the city-state of Shastapsh, one of the lesser trading centers of the Nepenthes-Thoth, refused to surrender six brigands accused of murdering two British subjects, the Colonial Office sent a gunboat squadron to "punish" the city.

**Map:** The canal map is used and the city is present.

**Ships:** The British have one *Reliant*-class gunboat. The Martians have two *Endtime*-type screw galleys, one *Bloodrunner*-type small gun kite, four Rod Gun ground batteries, two Lob Gun ground batteries, and four Tether bombs (mounted on the ground, on ships, or a combination, at the Martian player's option).

**Set-up:** All Martians start landing in the city. The British enter from any board edge at medium altitude.

**Special Rules:** The British should get on with it, not dither around trying to silence every gun in sight before beginning the bombardment. Keep track of the number of turns that the British do not have a ship over the city. For every 5 such turns the Martian receives another *Endtime*- or *Bloodrunner*-type ship, his choice.

**Victory:** The British must hit every city hex with at least 15 damage points, or else they lose.

**SCENARIO 5: Hearts of Oak**

THE VARIOUS High Martian petty kings of the Astusapes Highlands were always a menace to commerce and travel along the trace of the old Grand Canal running north toward Umbra. As the Umbran spice trade developed into a major source of revenue for English merchants, however, the Astusapes experienced a threat to their sovereignty heretofore unmatched in Martian history: a Motion before Parliament.

**Map:** Use the highland map. Each dark brown terrain outline is an elevation boundary. Thus, the highest point on the map is at High altitude. The fortress is ignored.

**Ships:** The British player controls one *Thunderer*-class aerial monitor. It has a Crack crew. The Martian controls two *Small Bird*-type small screw galleys and two *Glory Sled*-type large screw galleys. All Martians are High Martians, and are treated as Green crews for all purposes except boarding. For boarding they are treated as Trained.

**Set-up:** The British enter from one map edge, the Martians from the other.

**Special Rules:** All Martian marines are armed with bows.

**Victory:** The last player with a ship in the air wins.

**SCENARIO 6: The Great Raid**

IN FEBRUARY of 1888, the merchant kite *Summer Wind* was attacked and taken by vessels of King Hattabranx, the High Martian lord of Kraag Barrovaar. Each of the High Martian kings of the Astusapes Highlands rules from his personal kraag, a fortress-city carved from the heart of one of the sheer rock mesas that

stud the rocky region. Gradually made more elaborate over the course of generations, the kraags have generally been considered nearly perfect fortresses, and of them all, Kraag Barrovaar was the greatest.

The incident might have passed without notice except that the *Summer Wind*'s passenger manifest included the United States envoy to the Oenotrian Empire, Mr. Sidney Boynton, and his daughter Elizabeth, both of whom were taken hostage and confined in the dungeons of the sinister kraag. King Hattabranx, an unstable and murderous monarch in the best of times, and now heavily under the influence of the Cult of the Worm, finally declared his intent to murder the hostages unless the British met a lengthy (and impossible) list of demands.

The American government supported the British in their decision to make an unprecedented raid on the kraag and free the prisoners. After decoying the bulk of Hattabranx's fleet away, two small British vessels made the dash to Barrovaar.

**Map:** Use the highland map. Each dark brown terrain outline is an elevation boundary. Thus, the highest point on the map is at high altitude. The fortress is Kraag Barrovaar.

**Ships:** The British have one *Aphid*-class (the *Sandflea*) aerial gunboat and one *Dauntless*-class (the *Danger*) aerial gunboat. The Martian defenders have two *Small Bird*-type small screw galleys, four Rogue ground batteries (on top of the kraag), 10 Tether mines (on top of the kraag), and six flying parties of 10 High Martians each. All marines and flying parties are armed with bows. The ground batteries have an

armor value of 2.

**Set-up:** All Martians set up in the fortress hexes, on top of the fortress. The ships and flying parties are landed. The British enter from any map edge.

**Special Rules:** The landing party to rescue the prisoners must have a total of 10 men in it, must include one officer, and must have all of the surviving marines. Thus it is possible to take one or more marine casualties before making the landing, provided they are replaced by seamen.

The British land and recover their landing party by spending one complete turn stationary at Medium altitude in a hex adjacent to the High altitude hexes on top of the fortress. (This amounts to landing, as the hexes adjacent to the top of the fortress are themselves at Medium altitude.) The landing party will return to the same spot they were left at after several turns. They will be gone for at least 10 turns. After that, roll the die once per turn in the Initiative Phase. On a roll of 6 the landing party reappears in the same hex they were dropped at. Roll an additional die when they appear, and that is the number of men left in the landing party. Casualties will be heavy due to the necessity of fighting their way into and back out of the dungeon. The landing party will remain where they are, until picked up by a British ship or until overwhelmed by a flying party. The landing party may be picked up by the *Sandflea* or by the *Danger*.

**Victory:** The British win if there is one or more survivor of the landing party when it is picked up by a ship, and then that ship leaves the map.



### SCENARIO 7: Pitched Battle

LONG CONCERNED by the growth of British power to the north, the Oenotrian Empire received with near-panic the news of the raid on Kraag Barrovaar. While the Oenotrian oligarchs had no love for Hattabranx (whom they called the "Thug King") or his crazed, blood-smeared Worm Priests, the thought of any kraag being within the reach of British power meant that for the first time in living memory the High Martian strangle hold on the Liftwood groves might be loosening. That the Princes of the Canals had to go to the High Martian thugs for liftwood was humiliating, but that was the way of things. To go to the red off-worlders was unthinkable. If the red devils were to be stopped, it would have to be at once. The Oenotrian fleet massed for a Cleansing War.

**Map:** Use the canal map and ignore the city.

**Ships:** The British have one *Dauntless*- and one *Aphid*-class gunboat, as well as the *Triumph*, the first in a new class of aerial cruisers. All British crews are of Crack skill level. The Oenotrians have their fleet vanguard squadron, consisting of two *Clearsight*-type small screw galleys, three *Hullcutter*-type large screw galleys, two *Whisperdeath*-type large kites, and one *Swiftwood*-type small kite. All Martian crews are Trained, except for the crew of any one vessel, which is Crack. All marines are armed with muskets except for those on the vessel with the Crack crew. Those are armed with modern rifles.

**Set-up:** The Martians enter from one map edge at High altitude. The British enter from the opposite side at High altitude.

**Victory:** The first side to lose half

or more of its ships will withdraw. The other side wins. If the British lose the *Triumph*, they lose the game.

### ADDITIONAL SCENARIOS

THE SEVEN SCENARIOS presented here are merely a start. Using the ships provided for the scenarios above you can create a wide variety of totally new scenarios. When you have finished those, use the ship design rules to design your own ships to fight against each other. Match the British against High Martian pirate-kings or the lowland Canal Princes, or even against another European gunboat, perhaps of Germany or France. Alternatively, run two or more Martian ships against each other.

You will probably want to experiment with scenario balance. There are so many variables in design that it is difficult to give hard and fast rules. However, cost is usually the limiting variable for fleets, so try running fleets of similar cost against each other, with the Martians having up to 50 percent more money. When using previously designed ships a simple rule of thumb is that it will take at least twice the tonnage of Martian ships to give a British squadron a good fight.

Don't forget the men behind the machines. A squadron that is slightly outgunned can often make up the difference with crew quality—try running a large squadron with Green crews against a smaller one with Crack crews.

Finally, you may want to link your battles and form a continuing campaign, keeping track of the exploits of your ships, crews, and captains. Some suggestions for doing so are included in the next chapter.



The 4" gun mount of an *Aphid*-class gunboat brings an Oenotrian *Hullcutter*-class screw galley under fire.

## SKY GALLEONS OF MARS: CAMPAIGN RULES

### INTRODUCTION

GREAT BRITAIN'S meager colonial forces are locked in a war with the armies and fleets of the Oenotrian Empire. Although the British have won early victories in the air and have maintained the initiative, keeping aerial superiority requires skillful and continuous use of nearly all of their aerial gunboats. And aerial superiority is essential, as it is the only thing that keeps the Oenotrian host from crushing the handful of colonial troops and British battalions that hold the vital canal routes to Syrtis Major.

But while Britain's aerial squadrons are otherwise occupied, a renewed outbreak of piracy threatens the Umbran spice trade, forcing much of it to take the longer route through Alclyon. However, an uprising in Shastapsh, encouraged by the Oenotrians and possibly funded by the Germans, has destroyed the garrison there and closed the canal to traffic. This blockade has forced much of the spice trade to risk either pirates along the Nilosyrtis Valley or desert raiders along the old caravan trails across the Nepenthes-Thoth Steppe to Moeris Lacus, now the eastern-most outpost of British power on Mars. While hastily raised new squadrons of the Meepsoor Lancers are hurried east to guard the caravans, for protection of the skies

the British turn to the Red Captains.

You are newly mustered out of the navy and prepared to strike out on your own, following in the footsteps of Burnaby and the other great adventurers. You have a good working knowledge of Martian vessels, from the time spent attached to the Parhoon Squadron of the Royal Navy Auxiliary. And last, but not least, the current war has created an opportunity to establish yourself as a Red Captain and a chance to aid the Empire in an hour of need.

### GETTING STARTED

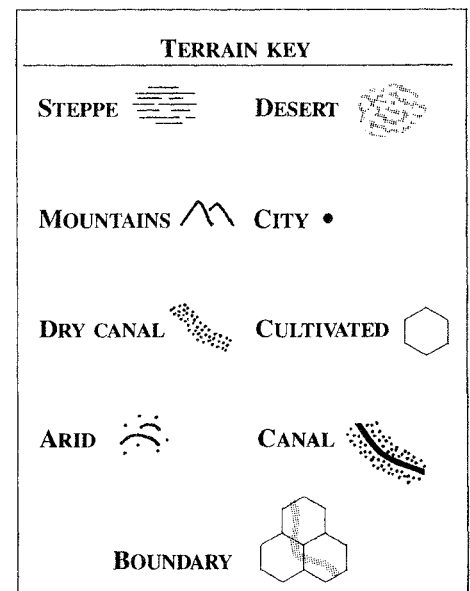
THE COLONIAL administration is offering auxiliary commissions for vessels outfitted to hunt down and destroy pirates, and letters of marque and reprisal to privateers willing to raid Oenotrian merchantmen. Furthermore, since you are an experienced officer of proven ability and loyalty, the administration is willing to front the funds to purchase and outfit a small vessel for this purpose. Unfortunately, the single naval yard at Syrtis Major is completely preoccupied with maintaining and repairing the British squadron, and there are no other yards on Mars capable of assembling armored steam vessels. Consequently, your ship must be of Martian construction from the Parhoon yards.

The colonial authorities advance

you £30,000 for the construction and outfitting of your ship. Unfortunately, due to the present naval emergency and heavy recruiting for the auxiliaries, the crew you assemble will be Green. You will begin in Parhoon with your ship and crew ready to go.

### THE MAP

THE STRATEGIC MAP provided to the right is a representation of the Martian territory around the British enclave at Syrtis Major, stretching from Polodar (one of the few cities on Mars that has substantial snow cover in the winter), to the equatorial city-states of the Oenotrian Empire. Each hex is 100 miles across from side to side, and the map covers an area 2000 miles by 2500 miles, or a total of approximately 5 million square miles. It takes months for the spice merchants to make their way by canal barge to Thoth and then overland by caravan to Moeris Lacus. But by aerial steam ship, or even kite for that matter, the trip from Umbra to Syrtis Major is only five days long, barring unforeseen mishaps.



### MOVEMENT

ALTHOUGH SCREW galleys are capable of speeds of around 20 knots, and steam ships 30 knots or more, both types cruise at much slower rates. Screw galleys would exhaust their rowers in a very short time, and so maintain a steady, slow speed over long distances and keep their crews rested and ready. As the turncranks of a screw galley turn a large flywheel (storing energy over time) that turns the propeller, the normal procedure is to have a half-watch of rowers crank up the flywheel once an hour and then run at low revolutions for the rest of the hour. This gives a cruising speed of about 8 knots. Likewise, steam vessels usually cruise at about 12-15 knots, since coal consumption is only about 20 percent as much as at top speed, and long-range endurance in the game is based on cruising speed, not top speed. Kites can run at their top speed almost continuously.

Action on the strategic map is resolved in days, each day representing a campaign turn. Your ship moves this distance in a day:

Steam Vessel (if you have one):	3 hexes
Screw Galley:	2 hexes
Kite, with the wind:	4 hexes
Kite, against the wind:	2 hexes

Prevailing winds are from the west to the east. Unlike in tactical movement, a kite can move directly upwind on the strategic map. (It is tacking back and forth several times in a single 100-mile hex.)

Your ship may, if you desire, stay in a hex and patrol. Patrolling increases your chance of an encounter.

### SHIP ENCOUNTERS

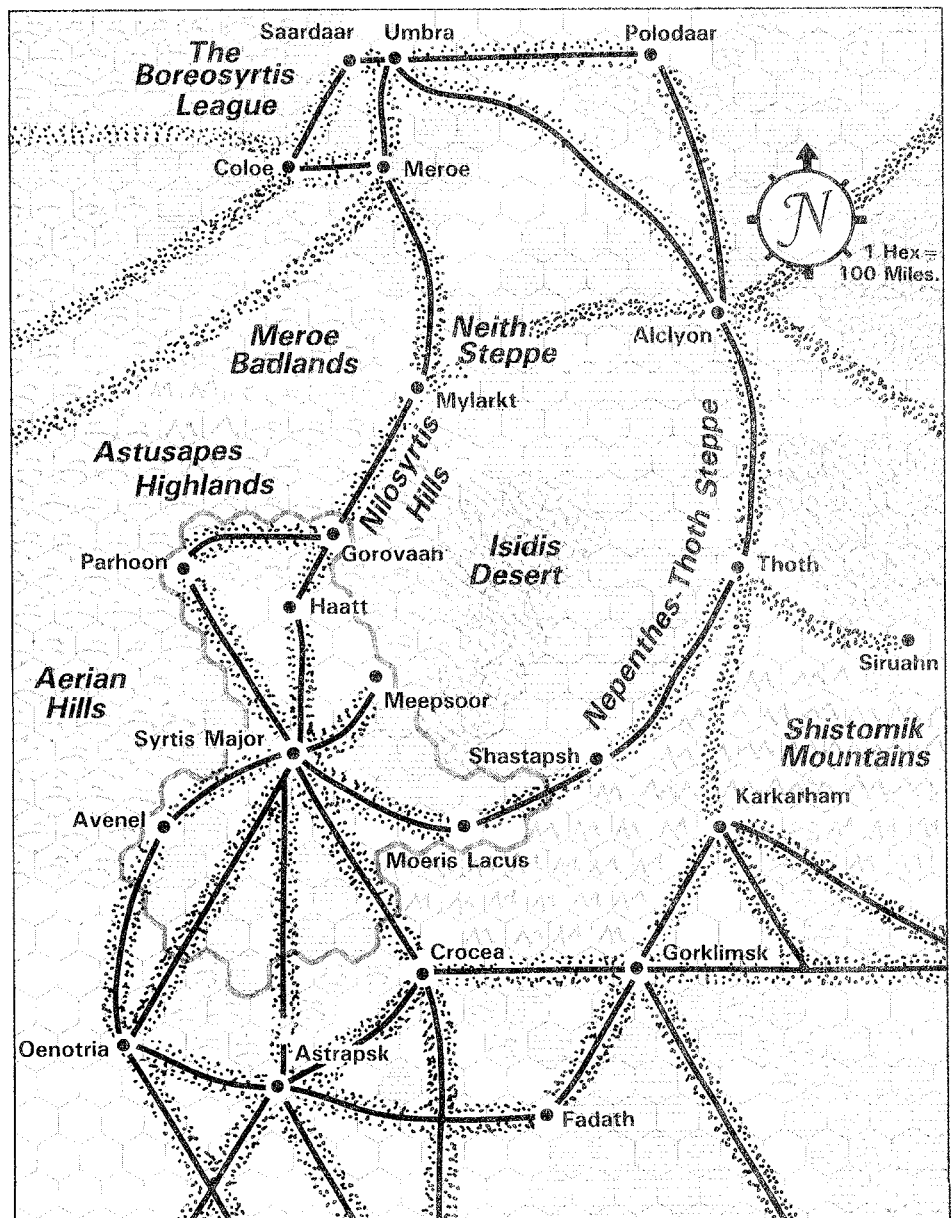
ENCOUNTERING OTHER ships depends on the territory you are in and whether you are moving through or patrolling.

**Determining the Encounter:** Consult the Encounter Map and find the specific hex your ship is moving through or patrolling in. Find the encounter numbers for the territory that hex is part of, and roll 1D6. If the ship is moving through the hex, and

the die roll is equal to or less than the *first* number, an encounter has occurred. If the ship is patrolling in the hex, and the die roll is equal to or less than the *second* number, an encounter has occurred.

Roll once per day for each ship, whether moving or patrolling. The hex determining encounters is the final hex the ship occupies at the end of the day.

For example, if moving through the Astusapes Highlands, you have



an encounter on a die roll of 1 or 2; if *patrolling* in the Astusapes Highlands, you have an encounter on a die roll of 1, 2, 3, 4, or 5.

**Find the Type of Encounter:** If an encounter occurs, roll 1D6 and use the table below to determine the specific ships encountered.

**Preparing for the Game:** Before the game, you should divide up the various ship designs included in the game among these categories. Add

in your own ships as well. Then when you have an encounter, draw a ship of the correct general type at random. (You may want to hold out the bigger ships for the first couple of voyages just to give yourself a chance.) Once you've drawn the vessels, fight out the campaign. If there are several of you in the campaign, have one of the other players run the enemy ships against yours when you have an encounter.

### SHIP ENCOUNTERS

#### 1/3 Neutral West

- 1—High Martian Pirate
- 2—High Martian Pirate
- 3—High Martian Pirate
- 4—Two High Martian Pirates
- 5—Two High Martian Pirates
- 6—High Martian Pirate with Prize Ship in tow

#### 1/2 Neutral Northeast

- 1—Pirate Ship
- 2—Pirate Ship
- 3—Cloud Captain
- 4—Pirate Ship with Prize Ship in tow
- 5—Cloud Captain with Prize Ship in tow
- 6—Enemy Merchantman

#### 1/2 Neutral Southeast

- 1—Warship
- 2—Warship
- 3—Warship
- 4—Warship escorting Enemy Merchantman
- 5—Enemy Merchantman
- 6—Enemy Merchantman

#### 2/5 Astusapes

- 1—High Martian Pirate with Prize Ship in tow
- 2—High Martian Pirate with Prize Ship in tow
- 3—High Martian Pirate with Prize Ship in tow
- 4—High Martian Pirate
- 5—Two High Martian Pirates
- 6—Three High Martian Pirates

#### 3/6 Shastapsh

- 1—Warship
- 2—Warship
- 3—Warship
- 4—Pirate Ship
- 5—Pirate Ship with Prize Ship in tow
- 6—Enemy Merchantman

#### 2/6 Oenotria

- 1—Warship
- 2—Warship
- 3—Two Warships escorting Enemy Merchantman
- 4—Warship escorting Enemy Merchantman
- 5—Two Enemy Merchantmen
- 6—Three Enemy Merchantmen

#### 1/3 Shistomik

- 1—Cloud Captain
- 2—Cloud Captain
- 3—Cloud Captain
- 4—Cloud Captain with Prize Ship in tow
- 5—Cloud Captain with Prize Ship in tow
- 6—Cloud Captain with Prize Ship in tow

#### ENCOUNTER SHIP TYPES

**High Martian Pirate:** A small, fast screw galley with High Martian crew. Use *Clearsight* and *Small Bird* classes.

**Pirate Ship:** A small, fast screw galley or a kite, with Trained crew. Use *Clearsight*, *Small Bird*, *Bloodrunner*, and *Swiftwood* classes.

**Cloud Captain:** An experienced pirate in a larger ship with a Crack crew. Use *Fentian Ram*, *Glory Sled*, *Endtime*, *Whisperdeath*, and *Hullcutter* classes.

**Warship:** A large screw galley or a large kite, heavily armed and carrying marines and a Trained crew. Use *Whisperdeath*, *Swiftwood*, *Hullcutter*, or *Endtime* classes.

**Enemy Merchantmen:** A merchant with light (or no) armament. Green crew, and fat with contraband goods. Use *Warm Winds* class.

**Prize Ship in Tow:** A merchant previously captured by the enemy and under escort. Use *Warm Winds* class.

### MONEY

**WHENEVER YOU** capture an enemy vessel and escort it back to a friendly city, it is auctioned off, and you receive a 10-percent share of the proceeds from the auction. (The rest is split among the British crown, your crew, and normal upkeep of your vessel.) With your share you must repair all damage to the ship. If any of the money is left, you can put it in the bank for later use or use it to buy additional equipment for your ship, or even a completely new ship.

The actual proceeds of the sale will amount to half of the original purchase price of the ship. If you have the cash available in the bank, you may purchase the prize ship outright and own it, and then still collect your 10 percent of the sale price. In most cases this option will be undesirable, however, as the ship will be fairly heavily damaged.

The cargo of the ship is also sold at auction, and you get a 10-percent share of that as well. The price of the cargo will be its weight in tons, times the roll of one die, times 100 (Weight in tons  $\times$  1D6  $\times$  100). Your share, then, will be its weight in tons times a die roll times 10 (Weight in tons  $\times$  1D6  $\times$  10).

All repairs and modifications to ships are done at the naval yard at Parhoon. Most repairs cost half of what the original component cost to install in the ship. Thus, a destroyed gun would cost half of its original price to replace. For hull hits, divide the original price of the hull by the total number of hits your hull can take, and then divide this number by 10 to find the cost to repair each hull hit.

## EXPERIENCE

EVERY TIME you return from a voyage with a prize ship taken in battle, your crew experience may go up. Actually, the experience of the crew that served with you will go up, but if you have taken heavy casualties you will recruit new men and that may dilute their experience enough to negate the effect.

Divide your original crew size by 6 and round fractions down. If you lost fewer than this, your experience automatically goes up. If you lost this number, roll a die. Your experience goes up unless you roll a 1. If you lost twice this number it goes up, except on a roll of 1 or 2, and so on. Once your crew quality is Crack it will not go up any higher.

If you return from a cruise without a prize vessel, there is a chance your crew quality will go down, as your best crewmen may want to ship out with a better (or just luckier) captain. If your crew quality is already Green, ignore this. If it is higher, then divide your original crew by 6, the same as described above. If you lost fewer than this number your experience stays the same. If you lost this number or more, it goes down on a roll of 1. If you lost twice this number, it goes down on a roll of 1 or 2. And so on.

## AN EPIC TREK

IF YOUR SHIP is destroyed, but you survive by making a crash landing, or if you are captured and put over the side, you must attempt to make your way back to friendly territory. If you are already in friendly territory, this will be comparatively easy. If you are not, it may prove to be nearly impossible. Nothing, of

course, is completely impossible.

Once you have landed, you will begin to roll dice for each hex you enter, starting with the one you landed in. The die roll will be compared to the Encounters table below to determine what happened to you and your men. Note that the table has different columns for "friendly," "neutral," and "hostile" versions of the same terrain. Friendly terrain is all terrain within the boundaries of British-controlled territory, as well as all grand canal hexes, clear hexes, and cities north of Gorovaan and Thoth, including those two cities. Hostile territory is all territory west and/or south of (but not including) the Syrtis Major-Crocea-Gorklimisk Canal (excluding all British territory and the Aerial Hills), all of the Astusapes Highlands, and the city of Shastapsh and six surrounding hexes. All other hexes are neutral.

If you can make it back to a friendly city, you and your surviving crew are safe.



**Results:** As you enter each hex, roll the die once to see the result. This may be Lost (abbreviated "L"), Found (abbreviated "F"), Passage (abbreviated "P"), Attacked (abbreviated "A"), or Captured (abbreviated "C").

*Lost:* A Lost result means that you have not found a path through the hex. In some cases, such as along a hostile canal, the way is obvious but the presence of enemy troops forces you to take time-consuming alternate routes. In any event, you must roll again for the hex.

*Found:* A Found result indicates that you have been found by a nonhostile party and will be taken to the nearest city along the canal you were found on. If you are in a neutral city a Found result indicates that you have contacted representatives of the British government and safe passage home for you has been arranged. You've succeeded.

*Passage:* A Passage result means that you have negotiated the hex without incident and may proceed to the next hex of your journey.

*Attacked:* An Attacked result means that you have been set upon by hostiles and will probably suffer losses. Losses are explained below. If you survive the attack you may proceed to the next hex of your journey.

*Captured:* A Captured result means you have been surrounded by overwhelming numbers of enemy troops and taken into captivity. You will probably be exchanged at a later date, but your days of sailing the clouds are at least temporarily ended.

If you make it back, you have survived an epic trek. The amount of terrain hex die rolls you made is how many weeks your journey took.

**Losses:** Some results on the table have a number after them which indicates the scale of losses your party takes due to the result. This may be due to hostile attacks, starvation, thirst, or other mishaps. The number shown is the number of men out of each six that are lost from your party. So if a 2 appears, it means that two men out of six are lost. If the size of your party is not evenly divisible by six, lose one man for every even set of six you have and roll the die once for each man extra. If you roll the loss number or less, that man is lost.

For example, if you are to lose two in every six and you have 15 men, you would lose two men immediately from the first 12 men in your party, and then roll three dice, one for each of the remaining three. You would lose one additional man for every 1 or 2 rolled.

Since you are the hero of this adventure, it is assumed that you will be the last of your party to perish.

### WINNING

THERE ARE no fixed criteria for winning, although money accumulated is as good a gauge to success as any other, given the nature of the campaign. If several players are involved, you may want to set a time limit in terms of the number of weeks of play, or perhaps set a certain monetary goal, and declare the first person to reach it the winner. Since fame is every bit as important as fortune, any player making a successful epic trek which lasts longer in weeks than the agreed time limit of the game should be declared the true winner, as his exploits will probably occupy the pages of the *Times* for months.

## ENCOUNTERS



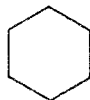
### GRAND CANAL

Die	Friendly	Neutral	Hostile
1	P	P	P
2	F	P	P
3	F	P	L
4	F	F	L
5	F	F	A:3
6	A:1	A:1	C



### DRY CANAL

Die	Friendly	Neutral	Hostile
1	—	P	—
2	—	P	—
3	—	F	—
4	—	F	—
5	—	A:1	—
6	—	A:1	—



### CLEAR

Die	Friendly	Neutral	Hostile
1	P	P	P
2	P	P	P
3	P	P	L
4	P	L	L
5	P	L	A:2
6	A:1	A:1	C



### HILL

Die	Friendly	Neutral	Hostile
1	P	P	P
2	P	P	P
3	L	L	L
4	L	L	L
5	L	L:1	L:1
6	A:2	A:1	A:1



### MOUNTAIN

Die	Friendly	Neutral	Hostile
1	—	P	P
2	—	L	L
3	—	L	L:1
4	—	L:1	L:1
5	—	A:1	A:1
6	—	A:2	A:3



### STEPPE

Die	Friendly	Neutral	Hostile
1	P	P	P
2	P	P	P
3	P	P	P
4	L	L	L
5	L	A:1	A:1
6	A:1	A:2	A:2



### DESERT

Die	Friendly	Neutral	Hostile
1	—	P	—
2	—	L	—
3	—	L:1	—
4	—	L:1	—
5	—	L:1	—
6	—	A:1	—



### CITY

Die	Friendly	Neutral	Hostile
1	—	P	P
2	—	P	A:3
3	—	P	C
4	—	F	C
5	—	A:1	C
6	—	A:2	C

**Note:** L: Lost. You are lost; roll again for the hex. If a number is given, you lose that amount of men out of every six men that you have to exposure, thirst, etc. (See "Losses" for further explanation.) F: Found. You are found by a nonhostile party and taken to the nearest city along the canal you were found on. In a Neutral City hex, Found means that you have obtained safe passage home and succeeded in your trek. P: Passage. You have passed through the hex without incident. Proceed to next hex. A: Attacked. You are attacked by a hostile party. The number given indicates the amount of men out of every six men that you have that are lost to the attack. ("A:1" means lose one man out of every six that you have. See text for further explanation.) C: Captured. You have been taken into captivity. Your days of sailing the clouds are at least temporarily ended. *Length of Journey:* The number of terrain hex die rolls you make equals the number of weeks your trek took.



## PART I: Basic Design

SHIP DESIGN consists of two general procedures: basic design and ship rating. The basic design sequence is a simple six-step procedure that provides all the necessary raw information about your ship. Evaluation (rating) enables you to determine the performance of the ship in game terms.

The six steps involved in generating the ship's basic design determine its characteristics and performance. Before beginning the design, however, you must decide whether the ship is to be built in a British or Martian shipyard, as this affects the availability and price of the various components.

The price of a ship depends on whether it is constructed in a British or a Martian shipyard. All construction prices are listed in Pounds Sterling, although in a Martian shipyard the indicated amount would actually be paid in the equivalent amount of local currency.

### 1. Hull Size

SELECT A hull size (Hs). Hull size is any whole number. The size of the hull indicates how much liftwood is used in its construction and thus how much weight it may lift. Usually ships weigh about 100 tons per hull size number, but may weigh up to 160 tons per hull size number. It is a good idea to keep a running

tally of the weight of your other components as you build your ship to make sure it isn't overloaded.

When the hull is selected, the designer also decides whether it will be fitted with a ram. If so, the ram weighs 10 tons per hull size.

Wooden hulls cost 5000 pounds per hull size in Martian yards and 8000 pounds per hull size in British yards. Wooden hulls may not be armored. Steel hulls cost 10,000 pounds per hull size in British yards and are not available in Martian yards. Rams cost 1000 pounds per hull size at all yards.

### 2. Propulsion

FOR STEAM-POWERED vessels, select an engine size (Es). The size of the engine times 10 is its weight in tons. Multiply the engine size by 6 and divide the result by the hull size to determine Speed ( $S = 6Es/Hs$ ). If the calculated speed of the ship is greater than 6, reduce it by half the amount by which it exceeds 6, rounding fractional speeds down. For example, a calculated speed of 7 would reduce to  $6 \frac{1}{2}$ , rounded down to 6. A calculated speed of 9 would reduce to  $7 \frac{1}{2}$ , rounded down to 7. Starting in 1885, steam engines of a new variety came into use, called *forced-draught* engines. These are more compact and efficient than conventional

engines, but are also more expensive. If building a vessel with forced-draught engines, all calculations are the same except that the weight of the engine is only 5 times its size number.

For screw galleys, select a number of turncranks (crewmen who turn the central crankshaft, much like rowers on an oar-powered ship). Each turncrank position weighs 10 tons (including all associated machinery). Speed is equal to the number of turncranks divided by hull size. However, the maximum efficient speed for screw galleys is 4.

For kites, rigging weighs 10 tons per hull size number. All kites have a speed of  $1 + 1D6$  with the wind and a speed of  $1D6/2$  (round up) against the wind.

Conventional steam engines cost 1000 pounds per size number in British yards. Forced-draught steam engines cost twice this amount in British yards. Neither type are available in Martian yards. Screw galley machinery costs 100 pounds per turncrank position in Martian yards and twice this in British yards. Kite rigging costs 600 pounds per hull size in Martian and British shipyards.

### 3. Coal Bunker

FOR STEAM-POWERED vessels, select a coal Bunker Size (Bs). The size of the bunker times 10 is its weight in tons. Multiply the bunker size by 10 and divide by the engine size to determine endurance in days ( $E = 10Bs/Es$ ). (For purposes of this game, all ships should have a fuel bunker at least twice the size of their engine.)

The coal bunker does not cost anything to install.

#### 4. Armor

SELECT AN armor value (Av) for the ship. The armor value is any whole number. An armor value of 0 is allowed and indicates no armor affixed to the ship's basic structure. Determine the weight of the armor (Aw) in tons by multiplying the armor value by 10 times the hull size ( $Aw = 10AvHs$ ).

As metal is extremely scarce on Mars, armored vessels are not constructed. Some vessels are built, however, with extremely thick hulls or with double hulls incorporating brickwork or rock waste in between. While this provides a measure of protection, it is much bulkier and heavier than steel or iron armor plate. These Martian ships are called "protected ships" rather than "armored ships," but the effects are much the same. Martian protected ships may be of any armor value desired. Determine the weight of the protection (Pw) in tons by multiplying the armor value by 20 times the hull size ( $Pw = 20AvHs$ ).

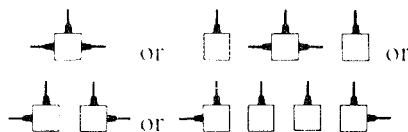
Armor plate costs 10 pounds per ton of weight in British yards and is not available in Martian yards. A protected hull costs 50 pounds per ton of weight in a Martian yard and is not routinely built in British yards.

#### 5. Armament

SELECT ONE or more weapons from the tables provided below. At the same time determine placement of the weapon and its field of fire. Each ship may have one forward mount, one stern tower mount, and two wing mount gun positions. The forward mount may fire forward and to either broadside. The stern tower may fire to the stern and to either

broadside. The wing mounts may fire to one broadside and both forward and to stern. (Port wing mounts fire to port, bow, and stern. Starboard wing mounts fire to starboard, bow, and stern.)

Each 180-degree pivot position listed above may be replaced by two side-by-side 90-degree pivot mounts. For example, the bow could have two gun mounts, one of which fires to bow and port, the other to bow and starboard. All additional guns, beyond the pivot mounts listed above, fire only to a single broadside. See the illustrations below.



If desired, the weapon may be placed in an enclosed armored mount (turret or sponson). This does not increase the weight of the gun if the gun fires only to one aspect. If the gun fires to more than one aspect (that is, it is in a pivot mount) it increases the weight of the gun by 10 percent per level of armor protection. The turrets may be a different armor value than the rest of the ship. A gun normally in a pivot position may be placed under armor at no extra weight if it is placed in a fixed mount. In this case the designer chooses which aspect the weapon will always fire into when the ship is designed. Guns with a rate of fire greater than 1 (including Nordenfelts) must be placed in pivot-type mounts if they are to receive armor protection, even if they are sited to fire into only one firing aspect.

Martian vessels may place fixed firing guns to fire out of gunports from the protected hull, but may not

construct protected pivoting gun mounts.

Prices on the Weapon Characteristics tables list the prices in their respective shipyards. A ship built in a British shipyard may be equipped with Martian weapons at the same price as at a Martian shipyard. Ships built at a Martian shipyard may not be equipped with British weapons. Mounting a weapon in an armored turret or sponson increases the cost of the weapon by 20 percent.

#### 6. Exotic Weaponry

A PLAYER may install a variety of exotic weaponry, the use of which is described in the advanced rules. Several restrictions should be observed, however.

First, due to limitations on deck space, no ship may have more Hale Rocket Batteries or liquid fire racks than its hull size number. Hale Rockets may not be mounted in wooden ships.

Second, due to the limitations of internal space, no ship may have more Smutts Torpedoes or tether bombs, or a combination of the two, than its hull size number. Only one Smutts Discharger may be mounted per ship, and it fires only into the bow firing aspect. Only one Lob Gun may be mounted per ship, and it fires into all firing aspects.

#### 7. Additional Crew

EACH ADDITIONAL crew member requires 2.5 tons of quarters and provisions. For game purposes, only Marines are considered as additional crew. (However, this will be important for designing passenger vessels.)

The quarters for each additional crewman cost 20 pounds.

## PART II: Rating

### 1. Altitude

THE LIFT of a hull is determined by its hull size. The extent to which the hull is overloaded or underloaded will determine its maximum altitude. To determine lift value (LV) divide hull capacity (100Hs) by total weight in tons ( $LV = 100Hs/T$ ). If the lift value is 1.2 or higher, the craft's maximum altitude is Very High. If the lift value is 1 or higher, its maximum altitude is High. If the lift value is 0.8 or higher the maximum altitude is Medium. If the lift value is 0.6 or higher the maximum altitude is Low. Craft with a lift value of less than 0.6 may not fly.

### 2. Speed

FOR STEAM-POWERED vessels, multiply the engine size by 6 and divide the result by the hull size to determine Speed ( $S = 6Es/Hs$ ). If the result is greater than six, reduce the excess by half (rounding fractions down). Thus a speed of 7 would reduce to 6, a speed of 8 or 9 would reduce to 7, a speed of 10 or 11 would reduce to 8, etc.

For screw galleys, speed is equal to the number of turncranks divided by hull size. If the result is greater than four, reduce the excess by half (rounding fractions down). Thus a speed of 6 or 7 would reduce to 5, etc.

All kites have a speed of  $1 + 1D6$  with the wind and  $1D6/2$  (round up) against the wind.

### 3. Hull Hits

EACH TIME that a ship takes total hull hits equal to its hull size, its maximum altitude is reduced by 1 level. When its maximum altitude is reduced below Very Low, it crashes.

### 4. Crew

QUARTERS FOR a majority of the crew are built into the weights and costs of the facilities they man. Thus, a ship normally has the following crewmen for which no extra provision need be made:

**Gunners:** Total the gun crew requirements of the various guns mounted on the ship to determine the number of gunners in the crew.

**Engineers:** Each steam ship has one engineer per engine size.

**Turncrank:** Each screw galley has one turncrank per turncrank position.

**Topmen:** Each kite has one topman per hull size.

**Bridge Crew:** Each ship has a bridge crew of four men: the captain, the helmsman, the trimsmen, and the signalman. The captain is an officer, while the helmsman and trimsmen are petty officers.

**Deckhands:** All ships have one deckhand per hull size.

**Additional Officers:** Total the above crew and divide by 15, rounding fractions down. The result is the number of additional officers in the ship's company.

**Additional Petty Officers:** Only British ships have additional petty officers. Divide the crew (excluding officers) by 10, rounding fractions down, to determine the number of additional petty officers.

In addition to the normal ship's complement, additional quarters may allow the ship to carry marines or other passengers. If marines are carried, every tenth marine is a marine officer.

### 5. Maneuvering Crew Hits

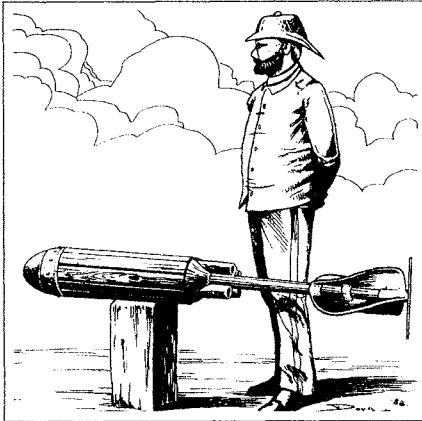
Losses among the maneuvering crew of a ship (engineers, topmen, or turncranks) can cause a loss of speed. For steam vessels, each engineer lost causes a reduction in speed of one. For screw galleys and kites the procedure is different. Make a number of crew hit boxes equal to the total number of turncranks or topmen on board. Divide this up into a number of rows equal to the maximum speed of the galley, or into three rows for all kites. Each row should have boxes equal to the hull size, with all excess boxes being added to the top row.

For example, a ship with a size-4 hull, a top speed of 3, and 14 turncranks, would have 3 rows, each of 4 boxes. The top row would have the two extra boxes added to it.

Each casualty is marked off the top row until the row is gone. Then casualties are marked on the next row, etc. The ship's speed is reduced by 1 for every row completely marked off. When all boxes are marked off the ship may not move.

## 6. Background Data

These statistics are not necessary for game purposes, but are sometimes handy to know. To determine the speed of the vessel in knots, multiply its speed number by 5. To determine the horsepower of the vessel's engine, multiply its engine size by 125.



### Table Notes

1. *Weight*: Weight includes weight of weapon, mount, crew, and magazine.

2. *Pen*: Penetration (Pen) is the value of armor the round will penetrate. Weapons with a penetration value of "P" are considered to be small arms fire and affect personnel (crew) only.

3. *DV*: "DV" is the gun's damage value.

4. *Range (Rng)*: The first number under range is the weapon's effective range; the second is its long range.

5. *ROF*: Rate of fire (ROF) is the number of shots the gun may take per turn. Weapons with a ROF of (1) may fire every other turn. For every crew position short a gun mount is, it takes one turn longer to reload. Thus weapons with an ROF of (1) and short 1 crewman would have an effective ROF of (2).

### WEAPON CHARACTERISTICS: Martian Cannon

<i>Weapon</i>	<i>Weight</i>	<i>Pen</i>	<i>DV</i>	<i>ROF</i>	<i>Crew</i>	<i>Rng</i>	<i>Cost</i>
Sweeper	10	P	—	2	1	0/1	200
Light	20	0	1	1	2	1/2	400
Rod Gun	30	3	1	(1)	2	3/6	800
Heavy	40	1	2	1	2	2/4	1000
Rogue	60	2	3	(1)	3	3/6	2000
Lob Gun	200	2	4	(1)	3	—/3	2000

### WEAPON CHARACTERISTICS: Other Martian Ordnance

<i>Weapon</i>	<i>Weight</i>	<i>Pen</i>	<i>DV</i>	<i>ROF</i>	<i>Crew</i>	<i>Rng</i>	<i>Cost</i>
Tether Mine	—	0	4	—	—	—	200
Drogue Torpedo	10	0	10	—	—	—	20
Power Grapnel	20	—	—	(2)	(2)	0/1	200
Liquid Fire	20	—	—	—	—	—	200

### WEAPON CHARACTERISTICS: Royal Navy Shell Guns

<i>Weapon</i>	<i>Weight</i>	<i>Pen</i>	<i>DV</i>	<i>ROF</i>	<i>Crew</i>	<i>Rng</i>	<i>Cost</i>
1-pdr HRC	10	0	1	3	1	2/4	160
3-pdr HRC	10	1	1	3	1	2/4	180
6-pdr HRC	15	1	1	3	1	3/6	220
4" short	30	2	2	1	2	3/6	300
4" long	40	3	2	1	2	4/8	400
5"	80	4	4	1	2	4/8	800
6"	100	5	6	1	2	5/10	1000
8"	300	9	8	(1)	3	6/12	3000
10"	600	10	10	(1)	4	7/14	6000
12"	900	12	12	(1)	5	8/16	9000
14"	1300	14	14	(1)	6	9/18	12,000
16"	2250	16	16	(1)	6	10/20	24,000

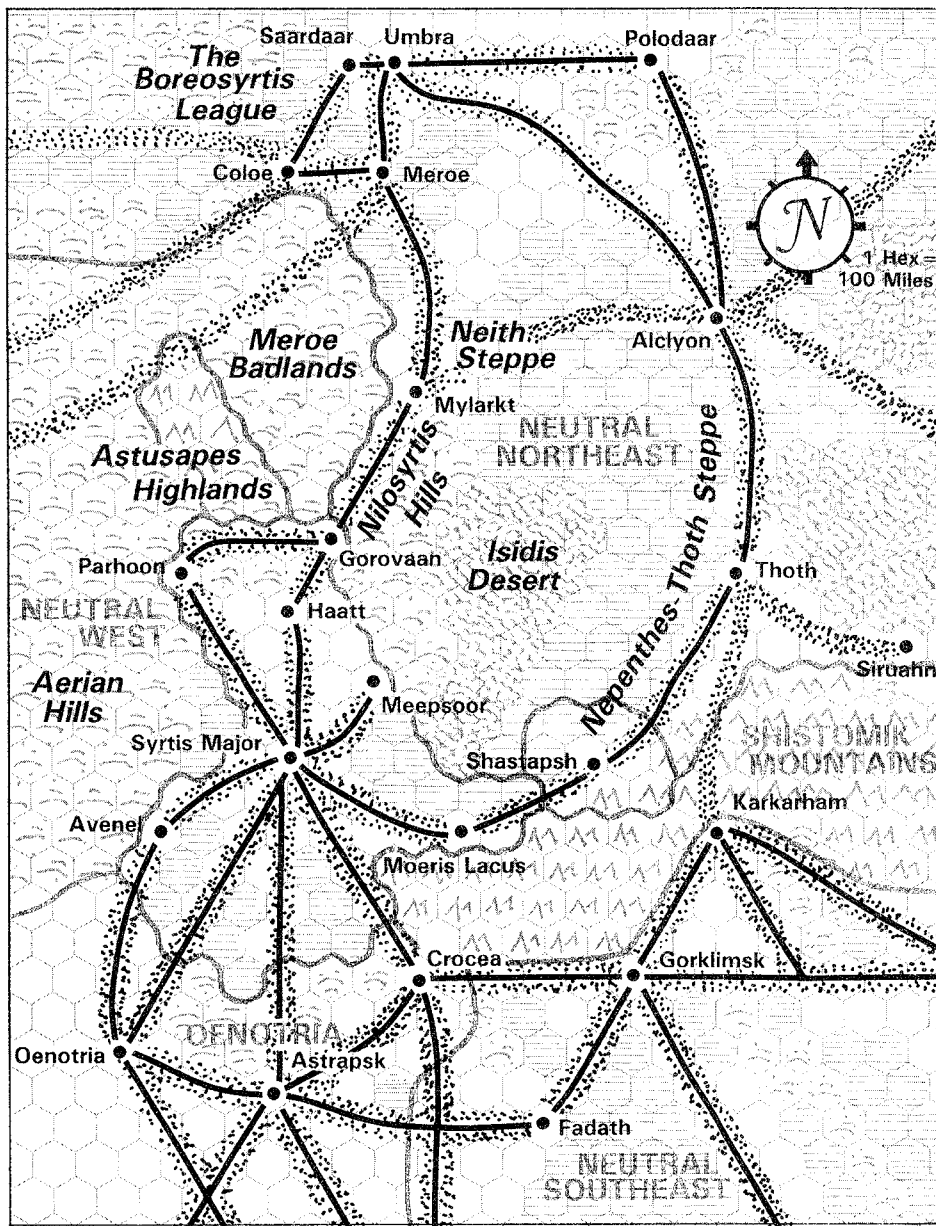
*Note*: HRC=Hotchkiss Rotating Cannon.

### WEAPON CHARACTERISTICS: Other Royal Navy Ordnance

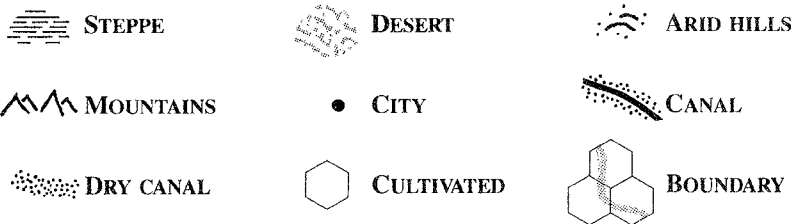
<i>Weapon</i>	<i>Weight</i>	<i>Pen</i>	<i>DV</i>	<i>ROF</i>	<i>Crew</i>	<i>Rng</i>	<i>Cost</i>
Nordenfelt	5	P	—	5	1	1/2	100
Hale Rockets	5	0	1	6	(1)	—/4	100
Tether Mine	—	0	6	—	—	—	200
Drogue Torpedo	10	0	10	—	—	—	20
Smutts Discharger	200	—	—	(1)	3	—	1000
Smutts Torpedo	—	1	12	—	—	30	500
Power Grapnel	20	—	—	(2)	(2)	0/1	200

# SYRTIS MAJOR

## British Holdings on Mars



### TERRAIN KEY



### SHIP ENCOUNTERS

#### 1/3 Neutral West

- 1—High Martian Pirate
- 2—High Martian Pirate
- 3—High Martian Pirate
- 4—Two High Martian Pirates
- 5—Two High Martian Pirates
- 6—High Martian Pirate with Prize Ship in tow

#### 1/2 Neutral Northeast

- 1—Pirate Ship
- 2—Pirate Ship
- 3—Cloud Captain
- 4—Pirate Ship with Prize Ship in tow
- 5—Cloud Captain with Prize Ship in tow
- 6—Enemy Merchantman

#### 1/2 Neutral Southeast

- 1—Warship
- 2—Warship
- 3—Warship
- 4—Warship escorting Enemy Merchantman
- 5—Enemy Merchantman
- 6—Enemy Merchantman

#### 2/5 Astusapes

- 1—High Martian Pirate with Prize Ship in tow
- 2—High Martian Pirate with Prize Ship in tow
- 3—High Martian Pirate with Prize Ship in tow
- 4—High Martian Pirate
- 5—Two High Martian Pirates
- 6—Three High Martian Pirates

#### 3/6 Shastapsh

- 1—Warship
- 2—Warship
- 3—Warship
- 4—Pirate Ship
- 5—Pirate Ship with Prize Ship in tow
- 6—Enemy Merchantman

#### 2/6 Oenotria

- 1—Warship
- 2—Warship
- 3—Two Warships escorting Enemy Merchantman
- 4—Warship escorting Enemy Merchantman
- 5—Two Enemy Merchantmen
- 6—Three Enemy Merchantmen

#### 1/3 Shistomik

- 1—Cloud Captain
- 2—Cloud Captain
- 3—Cloud Captain
- 4—Cloud Captain with Prize Ship in tow
- 5—Cloud Captain with Prize Ship in tow
- 6—Cloud Captain with Prize Ship in tow

# Sky Galleons of Mars:

## Errata, Clarifications & Variants

### Originally Published in *Challenge* #43

#### by Frank Chadwick

The following errata, clarifications and variants are based on gamer feedback and suggestions we have received since publication of *Sky Galleons of Mars (Space: 1889)*. Intended to be a consolidation of all errata and changes published to date, this article also includes new modifications to the game. The article is divided into three parts: **Ship Design**, **Ship Combat**, and **Variants**. The first two sections should be considered official, while the third is optional.

#### SHIP DESIGN

Official modifications to *Sky Galleons of Mars* are as follows.

**Balanced Armament:** Due to stability requirements on the vessel, all armament must be balanced (by weight) on each side. That is, if 40 tons of weapons are mounted on the port side, 40 tons must also be mounted on the starboard side.

**Allowed Numbers of Marines:** Due to limitations on deck size, a maximum of five marines may be carried per hull size. Any troops in addition to this are carried as passengers belowdeck and may not participate in combat.

#### SHIP COMBAT

Official modifications to *Sky Galleons of Mars* are as follows.

**Collisions:** A ship may maneuver to avoid a collision in the same manner in which it maneuvers to avoid a ram. If the ship has already moved for this turn, the movement expended to avoid the collision is subtracted from its next turn's allowance.

**Boarding Actions:** No ship may fire at another ship which has a friendly boarding party on it.

**Damage:** When rolling to recover from a trim critical hit, the ship recovers if the player rolls higher than the damage value of the damage—or, if the damage value is 6 or more, if he rolls a 6. The favorable modification due to hull size is made to the die roll, not the damage value. For example, a ship with a hull value of 5 which suffers a trim critical with a damage value of 7 recovers on a roll of 5 or 6, not just a 6.

**Small Arms Fire:** When firing at armored ships, add the armor value of the ship to the small arms save number. A 6, however, never saves, regardless of the armor value of the ship. Armor also does not protect boarding parties.

**Throckmorton Conveyors:** A maximum of one Throckmorton conveyor may take off from a ship per hull size number per turn.

**Tether Mines:** If a ship has more than one tether mine raised, make only one roll for hits; if one mine hits, all mines detonate. This counts as a single hit, but the damage values of all the mines are added together. If tether mines are released, roll separately for each mine to see if it hits.

**Drogue Torpedoes:** If a ship has more than one drogue torpedo deployed, make only one roll for hits; if one hits, all the torpedoes deployed detonate. This counts as a single hit, but the damage values of all the torpedoes are added together. A drogue torpedo may be released and used as a bomb (see below). When using a drogue torpedo as a bomb, the same procedure is followed as when determining a bomb hit, but one hit is scored with any positive number. The drogue retains its own penetration and damage values.

**Bomb Racks:** Bombs are carried in racks and dropped on targets below the vessel. Normally these will consist of fortresses, cities, ships at anchor, or aerial vessels on the ground. Bombs may be dropped, however, on aerial or naval vessels either moving or stationary. Bombs are dropped during movement in the same manner as Martian liquid fire; roll one die per rack of bombs and subtract the difference in altitude between the ship and its target. If the target is moving, subtract its current movement (the number of movement points most recently expended) as well. The result is the number of bomb hits scored. Each



bomb hit has a penetration of 1 and a damage value of 2.

**Spike Droppers:** Invented by Martians but soon copied by European powers, the spike dropper is little more than a hopperfull of short, metal, finned spikes ordarts. Attacks with spike droppers are made in exactly the same way as liquid fire racks, with the one exception that all hits scored are crew casualties.

Each hopper of spikes may be used only once per game. Once dropped, the hopper is expended and may not be reloaded during the game. No crewmembers need to man the spike dropper; its release controls are on the bridge. Each spike dropper is represented on the ship status sheet by a rectangle containing several spikes.

If spike droppers are located on a ship, count them as guns for hit location rolls.

## VARIANTS (OPTIONAL)

A number of players have commented that with sequential movement there is little emphasis in the game on maneuvering. Both players can do pretty much whatever they like based on absolute knowledge of their opponents' position. I think there is some truth to this charge. The correction commonly suggested is to use plotted simultaneous movement, as in games such as Avalon Hill's *Wooden Ships and Iron Men*, or Yaquinto's *Ironclads*. There are difficulties with this system, however.

First, with different altitudes—as well as changes in course and speed—available, deliberate ramming becomes virtually impossible.

Second, captains usually had some ability to respond to an enemy's maneuver, but in plotted movement it becomes almost en-

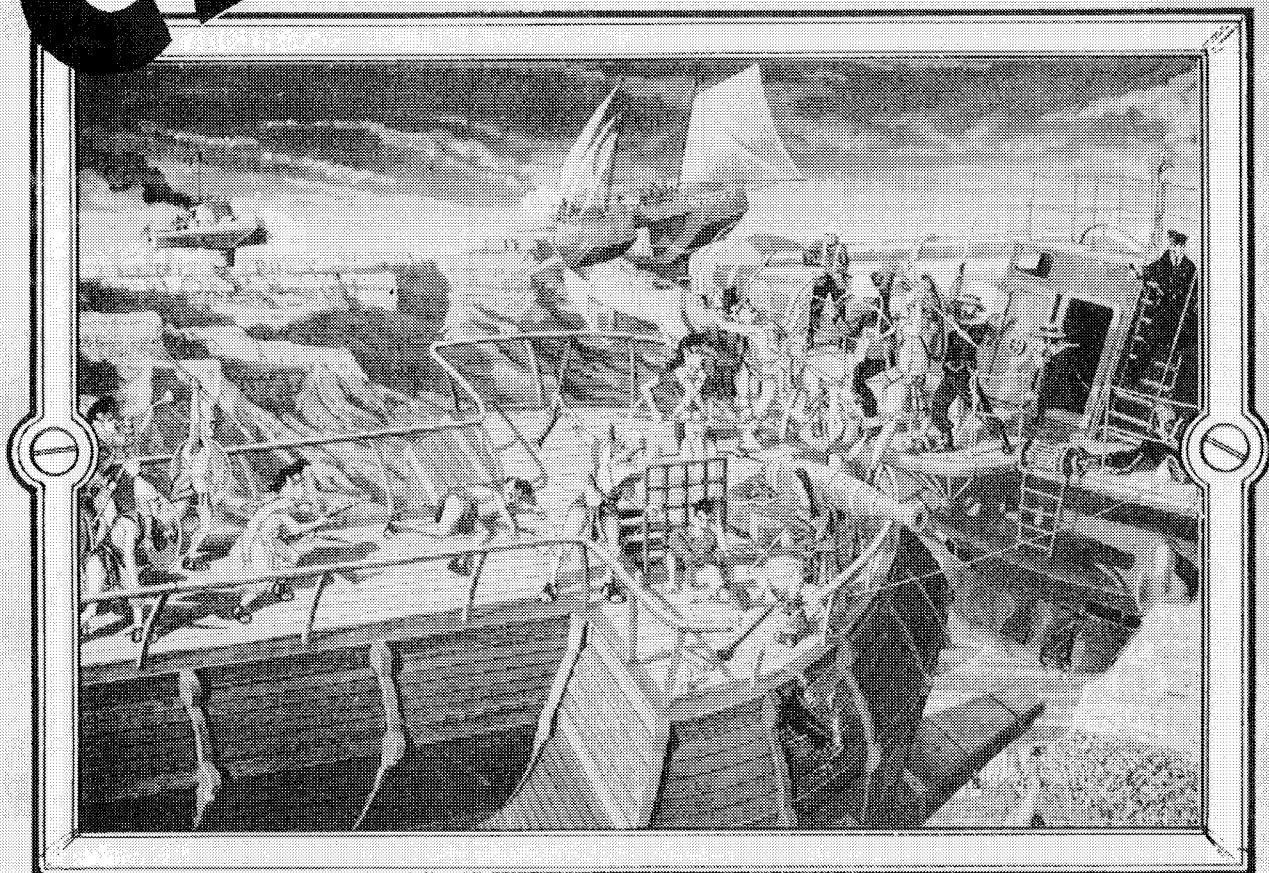
tirely a guessing game, with ships sometimes steaming off in entirely different directions.

The variant which is presented below may provide a compromise.

**Plotted Movement:** Both players must plot half their movement (in terms of movement points) in the Initiative Phase of each turn, at the same time that crew assignments are changed. A player may plot less than half his total movement allowance, but this will reduce his total allowed movement for the turn.

After initiative is determined, both players move their vessels exactly as plotted at the start of the turn. Play now proceeds normally, except that each player may not expend more movement points in his own Movement Phase than he did in the plotted portion of his move.

# CLOUDSHIPS & GUNBOATS



## Rules Manual

SPACE  
1889

GDW



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## ACKNOWLEDGEMENTS

THE *SPIKE DROPPER* was originally proposed by Marcus L. Rowland in his article "Darkness Falls From The Air" in **Challenge** 36.

The concept of the *U.S.S. Ranger* was originally suggested to the author in a letter from Kenneth P. Harn of Clearwater, Florida.

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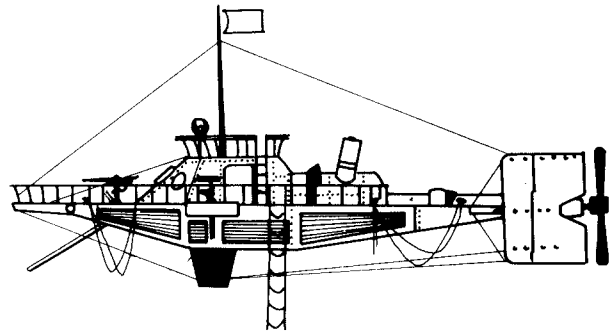


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# Table of Contents

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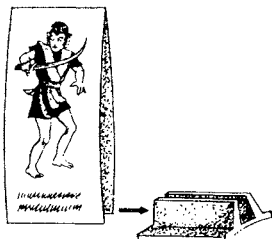
<b>Part I: Game Rules</b> .....	4	Drogue Torpedoes .....	7	<b>Part III: Gunboats</b> .....	26
Game Components .....	4	Machineguns .....	7	Great Britain .....	26
Introduction .....	4	Rocket Batteries .....	8	Russia .....	35
Gun Ratings .....	4	Martian Liquid Fire .....	8	Germany .....	36
Corrections .....	5	Spike Droppers .....	8	France .....	38
Penetration .....	5	Bomb Racks .....	9	U.S.A. ....	40
Shrapnel .....	5	Nonexploding Rounds .....	9	Japan .....	42
Grapeshot .....	5	Restricted Firing Arcs .....	9	Belgium .....	44
Howitzers .....	5	Ship Design .....	10		
Old Earth Smoothbores .....	5	Part I: Basic Design .....	10	<b>Firing Charts</b> .....	46
Marines with Shotguns .....	5	Part II: Rating .....	12	Consolidated Gun List .....	46
Exotic Weapons .....	6			Martian Guns .....	46
Power Grapnel .....	6	<b>Part II: Cloudships</b> .....	14	Exotic Martian Weapons .....	47
Smutts Discharger .....	6	Kites .....	14	Exotic British Weapons .....	47
Tether Mines .....	6	Screw Galleys .....	20	Machineguns .....	47

## Part I: Game Rules

### GAME COMPONENTS

IN ADDITION TO this rules booklet, **Cloudships and Gunboats** includes one booklet of ship record forms, six full-color deck plans, two sheets of stand-up character cards, and sufficient plastic stands to mount 30 character cards at one time.

**Character Cards:** Each character card should be carefully cut out and folded in half. Then the base of the character card should be inserted into the plastic stand, as shown in the accompanying diagram.



**Deck Plans:** The color deck plans included show overhead views of several British gunboats and Martian cloudships. Each deck plan has a one-inch grid superimposed on it, which corresponds to the two-yard tactical grid of the role-playing game. These deck plans may be used with either the stand-up playing pieces provided or 25mm miniatures. Some of the deck plan sheets have more than one ship on them. These sheets should be carefully cut apart so that each ship is on its own sheet of paper.

**Rules Booklet:** This rules booklet contains three parts. Part I has a small section of advanced and optional rules which can be used with either **Sky Galleons of Mars** or the **Space:1889** role-playing game, as well as the complete design sequence rules for building your own gunboats and cloudships. Part II examines a large number of Martian cloudships in detail. This section mostly covers ships of the Oenotrian Empire, but those vessels are representative of similar types found all over Mars. Part III is a detailed look at every class of aerial combat vessel in service with the nations of Earth.

**Ship Forms:** The ship form record booklet includes filled-out ship forms for every ship in the rules booklet.

### INTRODUCTION

THE RULES included in **Cloudships and Gunboats** are intended to bridge the gap between the board-game **Sky Galleons of Mars** and the role-playing game **Space: 1889**. It includes the rules for designing your own aerial vessels, the ratings for a number of completely new ships, and a number of additions to both the design rules and the ship combat system. The rules in this product should be considered authoritative, and supercede any conflicting parts of either **Sky Galleons of Mars** or the basic role-playing game.

### GUN RATINGS

THE BASIC RULES book for the role-playing game rates a variety of naval guns for the ship combat rules and field guns for the basic combat system, but it gives very little guidance as to firing field guns at aerial vessels or vice versa. The Consolidated Gun List rectifies that omission and adds a number of new weapons to the game.

The Consolidated Gun List includes all modern European field guns and naval guns in one table, and lists their firing statistics for the naval combat system as well as for the personal combat system. Guns' designs, weights, costs, and crew requirements are also provided for use with the ship design rules. Note that the weight of a field gun is always considerably less than that of a naval gun, as the weight of the naval gun includes the structural members of the ship supporting the gun mount, the physical weight of the gun crew and quarters, the weapon's magazine, shell hoists, food and water storage for the crew, and all other associated tonnage.

Some naval weapons have the notation "—" in the weight and cost columns of the field gun portion of the table. These are very large guns which are not available on wheeled field carriages; these guns are only available on naval or fixed fortress mounts.

Some weapons have two identifications (such as 12-pdr/3''). This notation indicates that the gun is referred to as two different designations. Usually the inch measurement is used for naval guns, while the weight of shot measurement is used for field guns.

## CORRECTIONS

SOME CHARACTERISTICS of weapons are noted on the chart with an asterisk. These are different from those characteristics listed in **Space: 1889** and/or **Sky Galleons of Mars**. The characteristics in the chart here should be treated as authoritative. In most cases these only amount to a slight reduction in the cost of field guns, but there is also an increase in range for the five-inch naval gun.

## PENETRATION

IN BOTH THE role-playing game and **Sky Galleons of Mars**, a gun's penetration is always the same. Actually, penetration tends to fall off with range, but for simplicity that has been ignored. Adding decreased penetration at longer ranges is recommended, and it makes the game more interesting at a tactical level. On the Consolidated Gun List, all weapons have two penetration numbers separated by a slash. The first number is the penetration at close range, while the second is the penetration at long range. If players wish to ignore this rule, then they should just use the first number at all ranges.

## SHRAPNEL

THE DESCRIPTION of the burst area of shrapnel is incorrect. The affected area is twice the burst area in width and four times the burst area in length.

## GRAPESHOT

THE DESCRIPTION of the effective area of grapeshot is incorrect in the role-playing game. The grapeshot affected area is two times the weapon's burst size and is half the weapon's close range in length. For ex-

ample, the area affected by the grapeshot of a Martian light gun is a total of eight yards (four tactical grid squares) wide and 100 yards (50 tactical grid squares) long.

## HOWITZERS

TWO HOWITZERS are listed in the role-playing game (the 7-pounder mountain howitzer and the five-inch howitzer), but no specific rules are given for their use. Howitzers tend to have short barrels, and they lob shells in high trajectories to plunge down onto the target. As a result, they are able to fire over intervening obstacles but are somewhat less accurate than other weapons.

Howitzers may only fire shells and grapeshot. Howitzers fire shells as any other weapon does, but treat close range as medium and medium range as long. Unlike other guns, howitzers may fire shells over the heads of friendly or enemy troops, provided the crew can observe the target. They may fire over any obstruction at an unobserved target (provided they are aware of its approximate location) at one higher difficulty level.

When firing at naval targets, howitzers are always treated as firing at long range.

## OLD EARTH

### SMOOTHBORE CANNONS

MOST EARTH NAVIES have long since made the transition from smoothbore cannons to rifled guns, and then to rifled breech-loading guns. One exception to this general rule is the navy of the United States of America, which still has some sailing vessels in service from before the Civil War and has only recently deactivated a large number of simi-

larly old ships. This has resulted in a fairly large number of surplus, heavy, smoothbore guns in the hands of American arms merchants, and these are now being sold at bargain prices to various Martian princes as a superior alternative to their native ordnance.

Old American smoothbore guns are listed on the Martian ordnance table. They are identified by their bore diameter (in inches) followed by the notation "SB" for smoothbore. None of these weapons are available on field gun mounts.

## MARINES WITH SHOTGUNS

PLAYERS MAY encounter situations in which a ship has marines on board armed with shotguns. These are easily handled by the role-playing rules; however, if you are playing with the small arms fire and boarding rules from **Sky Galleons of Mars**, use the following additional rule.

Marines armed with shotguns may not conduct normal small arms fire. Instead, shotgun fire is considered a special case in boarding parties. Each shotgun-armed marine makes two attacks (die rolls) in the first combat round of a boarding party, instead of one. This is only done on the first boarding action attack the marine participates in; thereafter, he fights normally.

If a boarding action is concluded due to the defeat or withdrawal of one side, then all shotgun-armed marines are allowed to reload their shotguns and then again conduct a double attack (if they are later involved in another boarding action).

A marine who is armed with a lever action shotgun always makes two attacks in boarding action combat.



### POWER GRAPNEL

A **POWER GRAPNEL** is essentially a large harpoon gun which fires a barbed, collapsing grapnel designed to pierce the side of a ship or become entangled in its rigging or deck gear. It trails a strong steel cable held up by a series of small liftwood aerial buoys. The cable is attached to a power winch, and upon hitting a vessel with the grapnel, the winch is engaged and used to pull the two vessels together.

Many Martian screw galleys use a similar device, but they attach the line to the vessel's driving crankshaft and use their own turncranks to pull the vessels together. Kites occasionally mount power grapnels as well, in which case the line is rigged to a capstan, and the entire deck crew is used to pull the vessels together.

A power grapnel is shown on the deck plan as a gun box with the letter "G" in it, and it has no crew. A power grapnel is mounted like any other gun. It has a rate of fire of (2), meaning that it takes two turns of reloading between shots. It has a full crew of two, but no crew is provided for it. It is, instead, manned by deckhands or gunners from another weapon, if required to fire. (It is so seldom used that there is no point in maintaining a permanent gun crew.) Power grapnels have an effective range of 0 (same hex) and a long range of 1. If the shot hits, the two vessels are grappled. If the hit is made at long range, the smaller of the two ships is moved into the hex of the larger. If both have the same hull size, roll a die to determine which ship moves into the other's hex.

Power grapnels are treated as any

other gun for purposes of taking gun hits. They have no magazine, however.

### SMUTTS DISCHARGER



A **SMUTTS** discharger is a steam-powered pneumatic launcher for Smutts Patent Aerial Torpedoes. They are only mounted on British steam-powered vessels and are always oriented to fire directly forward. An improved version of the Smutts discharger has recently been developed for use on aerial vessels. While considerably more expensive than earlier versions, it is only half the weight.

The Smutts Patent Aerial Torpedo is a finned projectile filled with dynamite, held aloft by means of liftwood vanes, and powered after launch by a propeller driven by a small flywheel. It also trails a cable with a small grapnel to snag the vessels which it passes over.

On the turn it is launched, it will move directly forward from the firing ship six hexes, and it does the same for the four subsequent turns. At the end of that time, it detonates (to prevent capture by the enemy). If the Smutts torpedo passes through a hex containing any vessel at the same altitude or one level lower than the torpedo, it has the same chance of colliding with that vessel as if it were attempting to ram. The target vessel may attempt to avoid the collision the same as avoiding a ramming attempt. If two vessels are in the same hex, roll randomly to determine which vessel to check first for a collision. If the Smutts torpedo misses that vessel, roll to see if it hits the other. If one or both attempt to evade the ram, there is a chance the

vessels will collide with each other (the same as if a vessel turns in a hex with another). If they collide, they do not receive the die roll modifier to avoid the ramming attempt.

If the Smutts torpedo hits, it detonates. It has a penetration of 1 and a damage value of 12. In addition, the force of the detonation will cause an automatic loss of trim, the same as a hit from a lob gun.

Each ship carries a limited number of Smutts aerial torpedoes. When these have all been used, the discharger may not be fired again. The Smutts aerial torpedoes are represented by small triangles on the ship deck plan.

The Smutts discharger is treated as another gun for purposes of gun hits, and has a magazine. If the Smutts discharger's magazine is detonated by a critical hit, all remaining Smutts aerial torpedoes on board blow up. Roll for each torpedo separately to determine hit location.

### TETHER MINES



**TETHER MINES** are explosive charges equipped with contact detonators, attached to liftwood buoys, and tethered in place at a selected altitude by means of a cable. Tether mines are represented on the ship status sheet by a circle with a cross superimposed on it.

During the initiative phase of each turn, players commanding ships with tether mines must state if they intend to raise or lower them that turn. If they are lowered, they have no effect. If they are raised, they are fully operational.

Ships with tether mines raised may not move any faster than three hexes per turn and may not avoid a ram.

However, a player may announce at any time that he is cutting his mines loose, and then he is free to attempt to avoid a ram or move at any speed desired. Once cut free, the tether mines are lost.

Tether mines are raised one altitude level higher than the owning vessel. If any ship enters the same hex at the same altitude as the mines, or is already in the hex and drops to the same altitude as the mines, it automatically collides with them. If a vessel with tether mines raised moves into the same hex as another vessel which is at the same altitude as the mines, or climbs so as to bring the tether mines to the same altitude as a ship already in the same hex, that ship collides with the tether mines on a roll of 6. If a ship begins its movement in the same hex and at the same altitude as raised tether mines, it may leave the hex freely without colliding with the mines.

If a ship cuts its tether mines loose for any reason, they will collide with any vessel in the same hex but at a higher altitude on a die roll of 6.

If a vessel collides with a tether mine, the mine detonates and is counted as a gun hit. Roll for hit location normally. All tether mines have a penetration of 0 but cause an automatic loss of trim critical hit in addition to any other damage (the same as a Martian lob gun). The damage value of the mine depends on the type being used. Martian mines have a damage value of 4; British mines have a damage value of 6.

Tether mines cannot be affected by anything except a magazine hit. If a magazine hit detonates the tether mines, each mine that is on board and not raised explodes. Roll hit location for each mine separately.

## DROGUE TORPEDOES

### Drogue

A DROGUE torpedo is an explosive charge dangled on a cable below a ship and equipped with a contact detonator. Drogue torpedoes are represented on the ship status sheet by long ovals.

During the initiative phase of each turn, players commanding ships with drogue torpedoes must state if they intend to raise or lower them that turn. If they are raised, they have no effect. If they are lowered, they are fully operational.

A ship with its drogue torpedo lowered has its movement allowance reduced by 1. The drogue torpedo hangs down one level below the ship but in the same hex. Any ship which enters the same hex at the same altitude as the drogue torpedo, or changes altitude in the hex and arrives at the torpedo's altitude, collides with the torpedo on a roll of 6. Likewise, if the ship with the torpedo enters a hex or otherwise maneuvers so that another ship is in the same hex at the same altitude as the torpedo, it collides on a roll of 6.

Collision with a drogue torpedo has exactly the same effect as a collision with a tether mine, except that all drogue torpedoes have a damage value of 10.

Drogue torpedoes cannot be affected by anything except a magazine hit. If a magazine hit detonates the drogue torpedoes, each torpedo on board and not lowered explodes. Roll to determine the hit location for each torpedo separately.

## MACHINEGUNS

WHEN PLAYING with the *Sky Galleons of Mars* small arms fire

rules, the special rules which are described below apply to machineguns.

**Jams:** Some machineguns (the Gardner and the two Gatlings) have two numbers for a rate of fire. The first number is the normal rate of fire; the second is the maximum rate of fire. The gun may fire at the normal rate of fire without fear of jamming. If a player wishes, however, he may fire the weapon at the higher rate of fire. If he does so, he rolls the indicated number of dice, but if any one of the dice rolled is a 1, the gun jams. The gun may not fire until the jam is cleared. Each fire phase after it jams, the gunner may attempt to clear the jam by rolling a 4 or higher on the die.

**Green Crews (Optional):** Green crews always fire machineguns at their maximum rate of fire.

**Portable Machineguns:** Maxims, Gardners, and 1-Barrel Nordenfelts count as portable machineguns. They have a parenthetical crew requirement, indicating that a crewman is required, but purchase of the gun does not include crew quarters for the gunner. Instead, the weapon is manned by some other crewman already on board (usually a deckhand or marine). The main advantage of portable machineguns is that they may be moved about the ship. During the initiative phase of each turn, the owning player may move his portable guns to fire out of any of the four firing aspects of his ship. The gun may not fire the turn it moves, but after that may fire out of the specified firing aspect. The owning player should record which aspect the gun is trained on, but need never reveal this to his opponent until he fires it.

### ROCKET BATTERIES



IT IS VERY difficult to fire ordnance at a steep upward or downward angle from an aerial gunboat, since the angular recoil will destabilize the boat and cause a loss of trim. This is not a problem with rockets, however, since the thrust of the rocket can be vented in any direction required to maintain stability of the ship. The British often employ banks of Hale rockets on their aerial gunboats to fire at higher or lower targets.

Each rocket battery on a vessel is a bank of rockets, all of which are fired in a single salvo at a target. As Hale rockets are scarcely more accurate than their ancestor, the Congreve rocket, lack of accuracy is compensated for by volume of fire. Each bank of rockets is faced to fire into one firing aspect and is angled either upward or downward. Batteries angled up may only fire at targets higher than the firing ship, while those angled down may only fire at lower ones. Rocket batteries may only fire at targets if the range to the target is equal to or less than the difference in altitude. For example, a target two hexes away can only be fired at if the altitude difference is at least two levels. Rockets have a maximum range of four hexes. Altitude does not count against the range of the rockets. Rockets may always fire at targets in the same hex, regardless of firing aspect, provided they are either above or below the ship (as required by the specific rocket battery firing).

A rocket battery is represented on the ship status sheet by a triangle with a tail. The triangle points in the

direction the battery is facing. If the tail of the triangle is hollow, the battery is angled up; if it is filled in, the battery is angled down.

When a rocket battery is fired, it is not necessary to see whether or not there was a hit. Instead, roll the die; the number rolled is the number of rockets that hit. Rockets have a penetration of 0 and a damage value of 1. One crewman is required to fire the battery, but this is normally a deckhand. Once fired, the battery is empty and may not be reloaded during the remainder of the current battle.

Rocket batteries can be destroyed as a result of a gun hit. For purposes of determining the chance of a gun hit being on a rocket battery, count all rocket batteries on board as a single gun. A hit destroys one rocket battery. Rocket batteries can also suffer magazine hits. If a rocket battery suffers a magazine hit, one battery detonates. Roll the die to see how many hits are suffered, and then roll hit location on each one separately.

### MARTIAN LIQUID FIRE



SOME vessels are equipped with one or more racks of Martian liquid fire, a chemical compound that ignites and burns fiercely once exposed to oxygen. Martian liquid fire is dropped on ships at lower altitudes as the firing ship passes overhead. This attack is carried out during movement, not at the end of movement. No die roll is made to see whether or not it hits the target; instead, a die is rolled to see how much of it does. Roll one die and subtract 1 for each difference in altitude between the two ships. That is, if the firing ship is two levels

higher, subtract two from the die roll. If the firing ship leaves the target's hex by crossing the same hexside which the target is facing toward, add 1 to the die roll. The result is the level of fire started on the target ship. A modified die roll of 0 or less has no effect.

Each rack of Martian fire may be used only once per game. Once dropped, it is expended and may not be reloaded during the game. There is no required crew for the liquid fire racks; their release controls are on the bridge. Each liquid fire rack is represented on the ship status sheet by a quartered square.

Liquid fire racks may be destroyed by gun hits, the same as Hale batteries. If a magazine hit is made on a liquid fire rack, roll the die. The result is the level of fire that breaks out.

### SPIKE DROPPERS

INVENTED BY Martians but soon copied by European powers, the spike dropper is little more than a hopper full of short metal spikes or darts. Attacks with spike droppers are made in exactly the same way as liquid fire racks, with the one exception being that all hits scored are crew casualties.

Each hopper of spikes may be used only once per game. Once dropped, the hopper is expended and may not be reloaded during the game. There is no required crew for the spike dropper; its release controls are on the bridge. Each spike dropper is represented on the ship status sheet by a rectangle containing several spikes.

If spike droppers are mounted on a ship, count them as guns for hit location rolls.

**BOMB RACKS**

BOMBS ARE CARRIED in racks and dropped on stationary targets below the vessel. Normally these will consist of fortresses, cities, ships at anchor, or aerial vessels on the ground. Bombs may be dropped, however, on aerial vessels which are not moving (either due to a loss of trim or other immobilizing battle damage). They are dropped during movement in the same manner as Martian liquid fire; roll one die per rack of bombs and subtract the difference in altitude between the ship and its target. The result is the number of bomb hits scored. Each bomb hit has a penetration of 1 and a damage value of 2.

A ship may carry more loads of bombs than bomb racks, and four deckhands may reload an empty rack from extra loads carried in five turns.

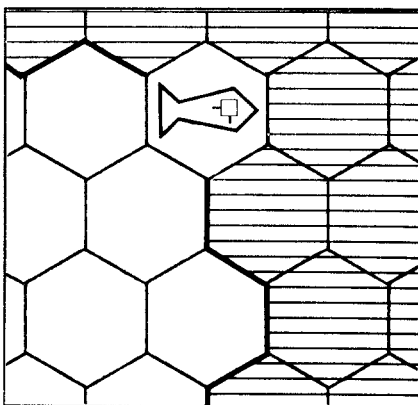
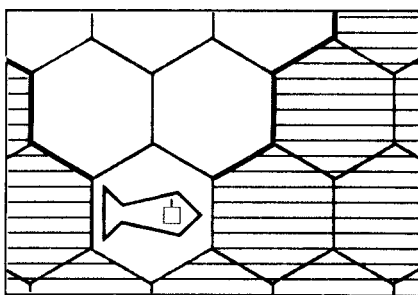
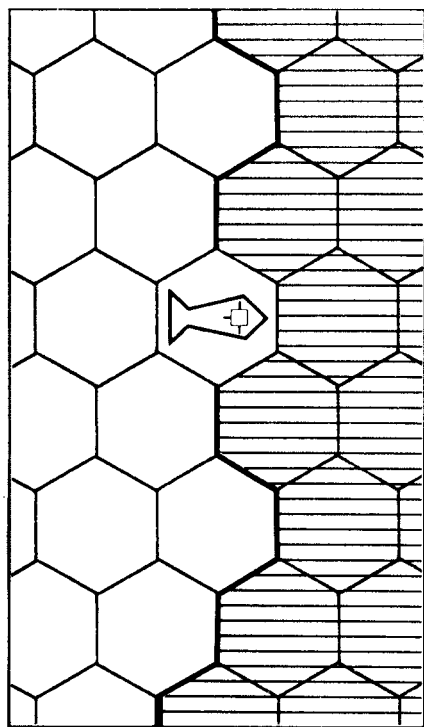
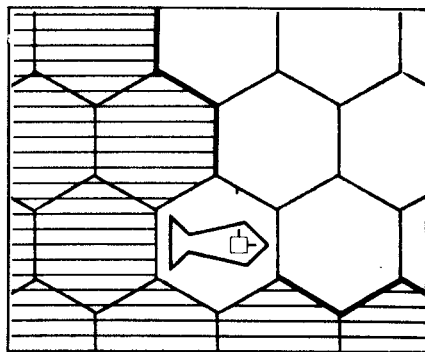
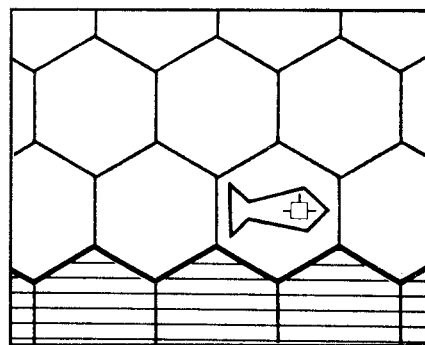
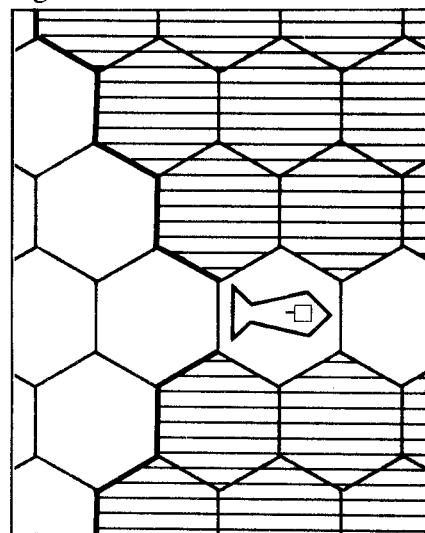
**NONEXPLODING ROUNDS: OPTIONAL**

SOME armor-piercing rounds may go completely through lightly armored or unarmored vessels without detonating. Likewise, Martian solid shot will do less damage if it just punches through both sides of a hull than if it hits more substantial resistance. To take this into account, use the following rule.

If a ship is hit by a gun which has a penetration more than twice the armor value of the ship, roll a die. On a result of 1-3, the hit is resolved normally. On a roll of 4-6, the round passes through the target without exploding. Hit location is still rolled and still causes damage, but it is treated as if it has a damage value of 1, regardless of the size of the round. Note that rounds which already have a damage value of 1 are unaffected.

**RESTRICTED FIRING ARCS: OPTIONAL**

THE FOUR simple firing aspects presented in the basic rules actually allow too much flexibility for most gun mountings. The typical arc of a gun in a well placed mounting will be 180 degrees, but the basic game firing aspects allow a considerably wider traverse. For a more realistic portrayal of fields of fire, use the firing arcs illustrated below.



## SHIP DESIGN

RULES FOR designing aerial vessels were included in *Sky Gal- leons of Mars*. For those players who do not have that game, however, they are repeated here, along with a number of additional embellishments. These embellishments for the most part add new equipment and design components to the ships—the uses of which are covered in the additional combat rules section of this booklet.

Ship design consists of two general procedures: basic design and ship rating. The basic design is a simple six-step procedure that provides all the raw information about your ship. Evaluation enables you to determine the performance of the ship in game terms.

### PART I: BASIC DESIGN

THE SIX STEPS of the ship's basic design determine its characteristics and performance. Before beginning the design, however, you must decide whether the ship is to be built in a British or Martian shipyard—as this affects the availability and price of the various components.

Price depends on whether the ship was built in a British or a Martian shipyard. All prices are listed in pounds sterling (£), although in a Martian yard this would actually be paid in the equivalent local currency.

#### 1. Hull Size

SELECT A hull size (HS). Hull size is any whole number. The size of the hull indicates how much lift-wood is used in its construction, thus indicating how much weight it may lift. Usually ships weigh about 100 tons per hull size number but may

weigh up to 160 tons per hull size number. It is a good idea to keep a running tally of the weight of your other components as you build your ship to make sure it isn't overloaded.

When the hull is selected, the designer also decides whether it will be fitted with a ram. If so, the ram weighs 10 tons per hull size.

Wooden hulls cost £5000 per hull size in Martian yards and £8000 per hull size in British yards. Wooden hulls may not be armored. Steel hulls cost £10,000 per hull size in British yards and are not available in Martian yards. Rams cost £1,000 per hull size at all yards.

#### 2. Propulsion

FOR STEAM-POWERED vessels, select an engine size (ES). The size of the engine times 10 is its weight in tons. Multiply the engine size by six and divide the result by the hull size to determine the speed (S) ( $S = 6ES \div HS$ ). Starting in about 1885, steam engines of a new and more modern variety came into use, called forced draught engines. These are much more compact and efficient than conventional engines, but are also more expensive. For a vessel with a forced draught engine, all calculations are the same except that the weight of the engine is only five times its size number.

For screw galleys, select a number of turncranks (crewmen who turn the central crankshaft, much like rowers on an oar-powered ship). Each turncrank position weighs 10 tons (including all associated machinery). The speed is equal to the number of turncranks divided by hull size. However, the maximum speed for screw galleys is 4.

For kites, rigging weighs 10 tons

per hull size number. All kites have a speed of  $1 + 1D6$  with the wind and  $1 + 1D6 \div 2$  (round down) against the wind.

Conventional steam engines cost £1000 per size number in British yards. Forced draught steam engines cost twice this in British yards. Neither type is available in Martian yards. Screw galley machinery costs £100 per turncrank position in Martian yards and twice that in British yards. Kite rigging costs £600 per hull size in Martian and British yards. Coal bunkers do not cost anything.

#### 3. Coal Bunker

FOR STEAM-POWERED vessels, select a coal bunker size (BS). The size of the bunker times 10 is its weight in tons. Multiply the bunker size by 10 and divide by the engine size to determine its endurance (E) in days ( $E = 10BS \div ES$ ).

The coal bunker does not cost anything to install.

#### 4. Armor

SELECT AN armor value (AV) for the ship. The armor value is any whole number. An armor value of 0 is allowed and indicates that no armor is affixed to the ship's basic structure. Determine the weight of the armor (AW) in tons by multiplying the armor value by 10 times the hull size ( $AW = 10AVHS$ ).

As metal is extremely scarce on Mars, armored vessels are not constructed. Some vessels are built, however, with extremely thick hulls or with double hulls incorporating brickwork or rock waste in between. While this provides a measure of protection, it is much bulkier and heavier than steel or iron armor

plate. These Martian ships are called "protected ships" rather than "armored ships," but the effects are much the same. Martian protected ships may be of any armor value desired. Determine the weight of the protection (PW) in tons by multiplying the armor value by 20 times the hull size ( $PW = 20AVHS$ ).

Armor plate costs £10 per ton of weight in British yards and is not available in Martian yards. A protected hull costs £50 per ton of weight in a Martian yard and is not routinely built in British yards.

### 5. Armament

SELECT ONE OR more weapons from the tables provided below. At the same time determine placement of the weapon and its field of fire. Each ship may have one forward mount, one stern tower mount, and two wing mount gun positions. The forward mount may fire forward and to either broadside. The stern tower may fire to the stern and to either broadside. The wing mounts may fire to one broadside, and to the forward and stern. (Port wing mount fires to port, bow, and stern. Starboard wing mount fires to starboard, bow, and stern.)

Each 180-degree pivot position listed above may be replaced by two side-by-side 90-degree pivot mounts. For example, the bow could have two gun mounts, one of which fires to bow and port, the other to bow and starboard. All additional guns beyond the pivot mounts listed above fire only to a single broadside. See the illustrations to the right.

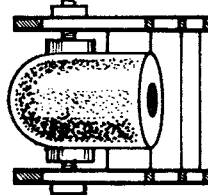
If desired, the weapon may be placed in an enclosed armored mount (turret or sponson). This does not increase the weight of the gun if the

gun fires only to one aspect. If the gun fires to more than one aspect (that is, it is in a pivot mount), it increases the weight of the gun by 10 percent per level of armor protection. The turrets may be a different armor value than the rest of the ship. A gun normally in a pivot position may be placed under armor at no extra weight if it is placed in a fixed mount. In this case the designer chooses which aspect the weapon will always fire into when the ship is designed. Guns with a rate of fire greater than 1 (including Nordenfelts) must be placed in pivot-type mounts if they are to receive armor protection, even if they are sighted to fire into only one firing aspect.

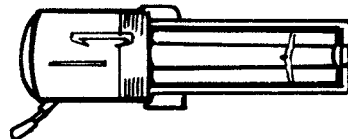
*Sweeper*



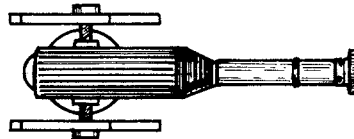
*Lob Gun*



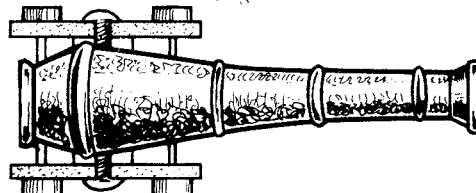
*Hotchkiss Revolving Cannon  
3-pounder*



*Rod*



*Rogue*



Martian vessels may place guns to fire out of gunports from the protected hull but may not construct protected pivoting gun mounts.

Armament prices on the weapon table list the prices in their respective shipyards. A ship built in a British shipyard may be equipped with Martian weapons at the same price as in a Martian shipyard. Ships built at a Martian shipyard may not be equipped with British weapons. Mounting a weapon in an armored turret or sponson increases the cost of the weapon by 20 percent.

### 6. Exotic Weaponry

A PLAYER MAY install a variety of exotic weaponry, the use of which is described in the advanced rules. The numbers of exotic weapons installed are limited, however, by available deck space or internal space. The available deck space and internal space on all ships is determined by their hull numbers. Thus, a ship with a hull size of 5 has five deck spaces and five internal spaces for exotic weapons. Weapons which take internal space do not count against deck space and vice versa.

Hale rockets, liquid fire racks, bomb racks, and spike droppers each take one deck space. Smutts torpedoes and tether bombs each take one internal space.

### 7. Additional Crew

EACH ADDITIONAL crewmember requires 2.5 tons of quarters and provisions. For game purposes, only marines are considered as additional crew. (However, this will be important for designing passenger vessels.)

The quarters for each additional crewmember cost £20.



## PART II: RATING

ONCE YOU have finished designing a ship, you need to evaluate it in terms of game statistics in order to apply its capabilities to the game. This is called "rating" the ship

### 1. Altitude

THE LIFT OF a hull is determined by its hull size. The extent to which the hull is overloaded or underloaded will determine its maximum altitude. To determine lift value (LV), divide hull capacity (HC) by total weight in tons ( $LV = HC \div T$ ). If the lift value is 1.2 or higher, the craft's maximum altitude is Very High. If the lift value is 1 or higher, its maximum altitude is High. If the lift value is 0.8 or higher, the maximum altitude is Medium. If the lift value is 0.6, or higher the maximum altitude is Low. Craft with a lift value of less than 0.6 may not fly.

### 2. Speed

FOR STEAM-POWERED vessels, multiply the engine size by six and divide the result by the hull size to determine Speed ( $S = 6ES \div HS$ ). If the result is greater than six, reduce the excess by half (rounding fractions down). Thus a speed of 7 would reduce to 6; a speed of 8 or 9 would reduce to 7; a speed of 10 or 11 would reduce to 8, etc.

For screw galleys, speed is equal to the number of turncranks divided by hull size. If the result is greater than four, reduce the excess by half (rounding fractions down). Thus a speed of 6 or 7 would reduce to 5, etc.

All kites have a speed of  $1 + 1D6$  with the wind and  $1 + 1D6 \div 2$  (round down) against the wind.

### 3. Hull Hits

EACH TIME a ship takes total hull hits equal to its hull size, its maximum altitude is reduced by one level. When its maximum altitude is reduced below Very Low, it crashes.

### 4. Crew

QUARTERS FOR a majority of the crew are built into the weights and costs of the facilities they man. Thus, a ship normally has the following crewmen for which no extra provision need be made.

**Gunners:** Total the gun crew requirements of the various guns mounted on the ship to determine the number of gunners in the crew.

**Engineers:** Each steamship has one engineer per engine size.

**Turncranks:** Each screw galley has one turncrank per turncrank position.

**Topmen:** Each kite has one topman per hull size.

**Bridge Crew:** Each ship has a bridge crew of three men: the captain, the helmsman, and the trimsmen. The captain is an officer, while the other two are petty officers.

**Deckhands:** All ships have one deckhand per hull size.

**Additional Officers:** Total the above crew and divide by 15, rounding fractions down. The result is the number of additional officers in the ship's company.

**Additional Petty Officers:** Only British ships have additional petty officers. Divide the crew (excluding officers) by 10, rounding fractions down, to determine the number of additional petty officers.

In addition to the normal ship's complement, additional quarters may allow the ship to carry marines or

other passengers. If marines are carried, every 10th marine is a marine officer.

### 5. Maneuvering Crew Hits

LOSSES AMONG the maneuvering crew of a ship (engineers, topmen, or turncranks) can cause a loss of speed. For steam vessels and kites, each topman or engineer lost causes a reduction in speed of one. For screw galleys the procedure is different. Make a number of crew hit boxes equal to the total number of turncranks on board. Divide this up into a number of rows equal to the maximum speed of the ship. Each row should have boxes equal to the hull size, with all excess boxes being added to the top row.

For example, a ship with a size-4 hull, a top speed of 3, and 14 turncranks would have three rows, each with four boxes. The top row would have the two extra boxes added to it.

Each turncrank casualty is marked off of the top row until the row is completely gone. Then casualties are marked on the next row, etc. The screw galley's speed is reduced by one for every row which is completely marked off.

### 6. Background Data

BACKGROUND DATA consists of information not directly used in the play of the game, but which helps more accurately and vividly describe the vessel and its capabilities. This data is not necessary for game purposes but is sometimes handy for players or the referee to know. To determine the speed of the vessel in knots, multiply its speed number by five. To determine the horsepower of the vessel's engine, multiply its engine size by 125.

## APHID-Class

## Aerial Gunboat

Bridge 

C	H	T	S	O	O
---	---	---	---	---	---

**Deck**

[illegible][illegible]

### Marines


## APHID-Class

## Aerial Gunboat

Bridge C H T S O O

[illegible][illegible]

Hull
Hits
VH
H
M
L
VL

### Marines


### ***FENIAN RAM-Class***

## Screw Galley

Bridge C H T S O O

**Deck**

[illegible][illegible]

### Marines


### ***FENIAN RAM-Class***

## Screw Galley

£

TONS

Bridge C H T S O O

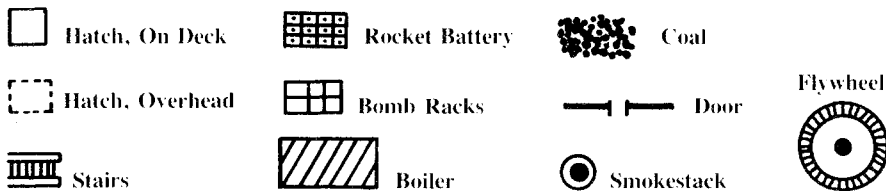
Deck

[illegible]

Hull
Hits
VH
H
M
L
VL

### Marines


## KEY TO SHIP PLANS:



## Part II: Cloudships

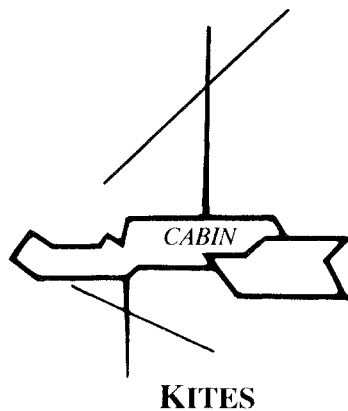
THE MARTIANS have been building cloudships for hundreds of years, although their design has changed little until quite recently. Most cloudships have traditionally been "kites," large sail-powered vessels which are fast but dependent on the wind for propulsion.

Screw galleys saw limited use near cities and in the mountains where the winds can often be treacherous and unreliable. Early screw galleys consisted of a long crankshaft through the center of the hull turning a large air screw at the stern. Turncranks sat to either side of the crankshaft along its length and drove the ship by sheer muscle power. Many ships used efficient gear arrangements to achieve a high revolution rate but still suffered from one basic problem—continuous turning was necessary to sustain motion.

In 1871, Prince Jinma of Parhoon (heir apparent to the Parhoon throne), produced the first modern screw galley incorporating a flywheel energy storage system. This is a much more energy efficient system, even after allowances are made for the extra weight of the flywheel mechanism. Eighteen years later, virtually all military screw galleys are of this type. Only in the comparatively isolated and tradition-bound Mare Sirenum basin and the arid and poor Mesogaea and Mem-

nonia regions to its north are the older screw galleys still found in any numbers. Only the more modern types are covered in this ship listing.

The following listing concentrates on the fleet of the Six Cities League, which is almost universally called the Oenotrian Empire. Nominally a confederation of six sovereign city-states (Oenotria, Astrapsk, Crocea, Delton, Iapygia, and Skorosia), the leadership councils are, in fact, completely dominated by the Oenotrian oligarchs. Most of the Oenotrian naval vessels are built in the famous shipyards of Crocea, the liftwood coming from the looming Shistomik Mountains to the north.

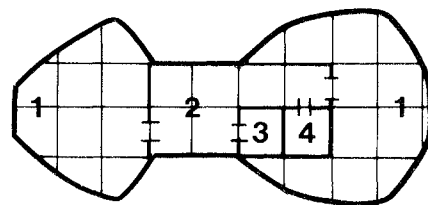


THE FOLLOWING vessels are the major varieties of kites employed by the Oenotrian empire and other lesser city-states in the Syrtis Major region. They are representative of similar vessels employed in all regions of Mars.

### Bloodrunner

THE BLOODRUNNER is a very small kite which might best be categorized as an armed yacht. Its armament of two heavy guns is impressive for a ship this small, but it has virtually no ability to absorb damage, so it is used mainly as a scouting or courier vessel.

### BLOODRUNNER



1. Heavy Gun Mount
2. Crew's Quarters
3. Galley
4. Captain's Quarters

### Technical Specifications

**Armor:** 0

**Hull:** 1

**Speed:** K

**Altitude:** High

**Tonnage:** 100

**Price:** 7600

**Crew:** 1 + 2 + 7

*Bridge:* C,H,T,S

*Deck:* 1

*Maneuver:* 1

*Gunners:* 4

**Armament:**

2 heavy guns, 1 forward, 1 aft

**Swiftwood**

1. Flying Bridge
2. Bridge
3. Officers' Quarters
4. Chart Room
5. Captain's Cabin
6. Dining Room
7. Captain's Gallery
8. Marines' Quarters
9. Magazine
10. Crew's Quarters
11. Mess Hall
12. Master Seamen's Quarters
13. Galley
14. Ship's Stores
15. Rogue Gun Mount
16. Light Gun Mount
17. Sweeper Gun Mount
18. Power Grapnel
19. Winch

THE *SWIFTWOOD* is a popular ship in Martian service, although vessels of this type have suffered heavily whenever they have been matched against British ships. The rogue is a powerful weapon, but its low rate of fire means that the ship relies heavily on its secondary armament, two light guns which are nearly useless against any sort of armored vessel. When employed against wooden-hulled vessels, however, they are much more effective.

*Technical Specifications***Armor:** 0**Hull:** 3 (ram)**Speed:** K**Altitude:** Very High**Tonnage:** 250**Price:** 20,140**Crew:** 4 + 2 + 34

Bridge: C,H,T,S,O

Deck: 3

Maneuver: 3

Gunners: 9

Marines: 2 + 18

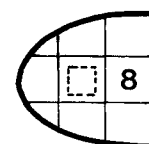
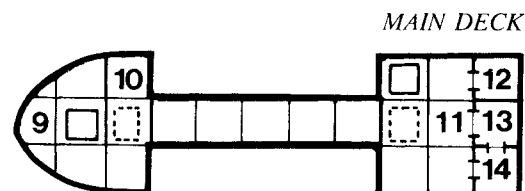
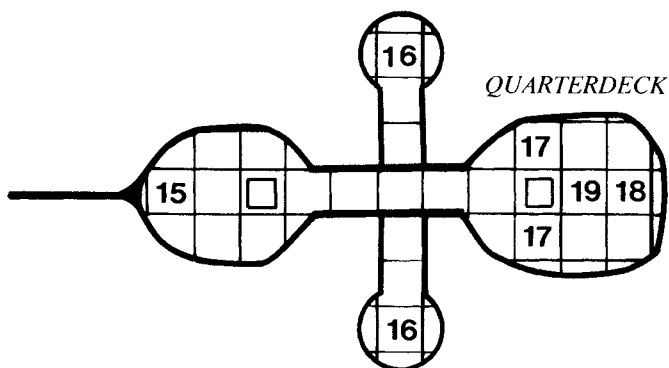
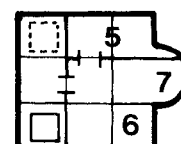
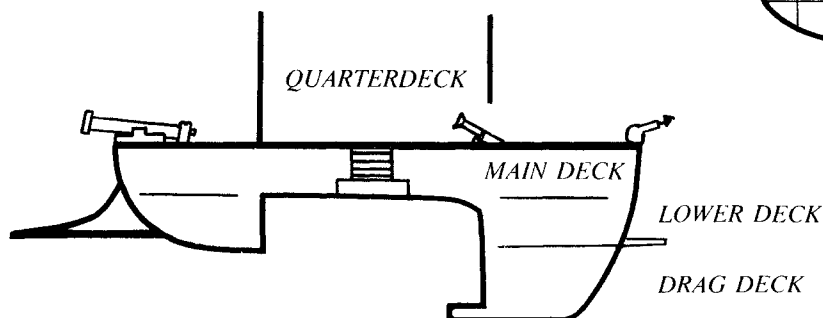
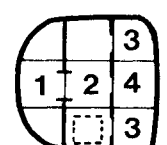
**Armament:**

1 rogue gun, forward

2 light guns, wing mounts

2 sweepers, broadside

1 power grapnel, aft

**SWIFTWOOD****LOWER DECK****DRAG DECK**

### Technical Specifications

**Armor:** 2

**Hull:** 7 (ram)

**Speed:** K

**Altitude:** High

**Tonnage:** 695

**Price:** 59,340

**Crew:** 3 + 2 + 34

**Bridge:** C,H,T,S,O

**Deck:** 7

**Maneuver:** 7

**Gunners:** 10

**Marines:** 1 + 9

### Armament:

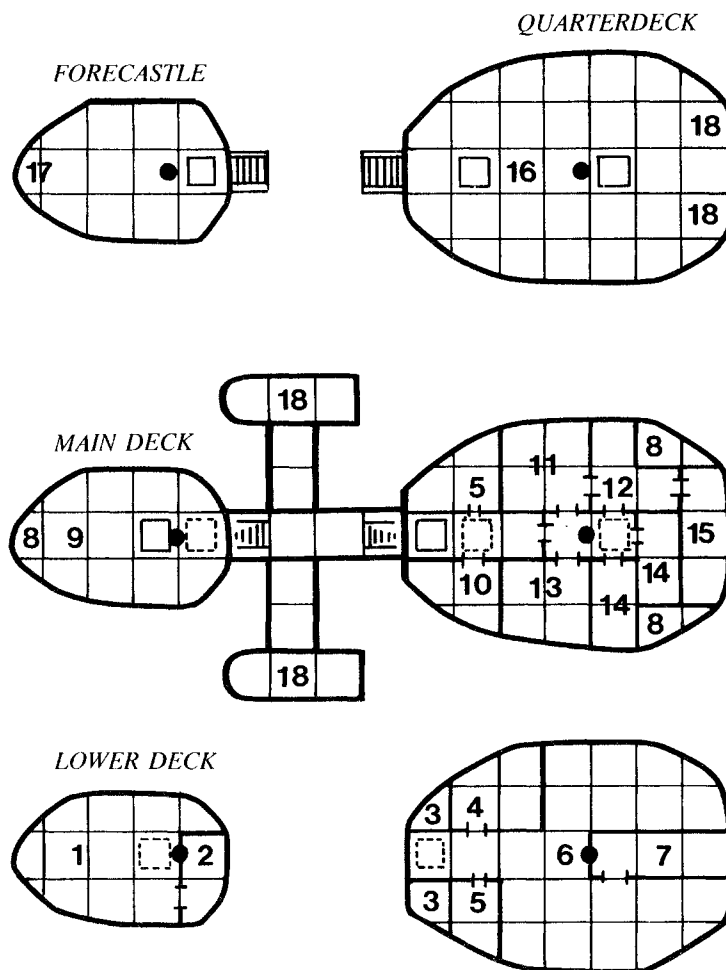
- 1 rod gun, forward
- 2 heavy guns, aft
- 2 heavy guns, wing mounts
- 2 drogue torpedoes
- 2 Martian fire racks

### Whisperdeath

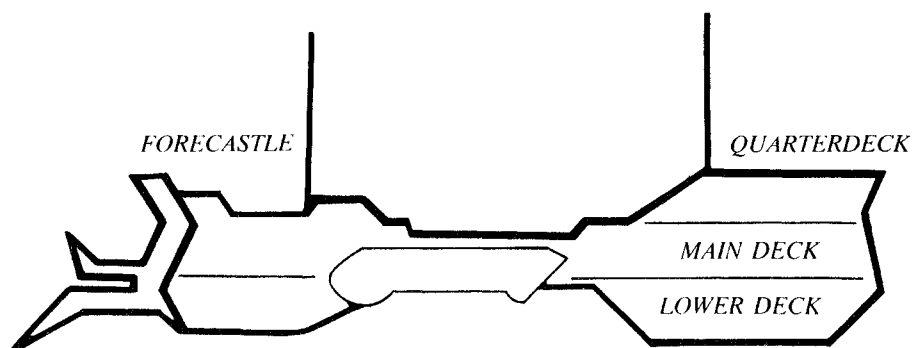
**WHISPERDEATH-CLASS** gun kites form the heavy fighting core of most Oenotrian battle squadrons. Although not as heavily armed as the

*Hullcutter-class* screw galleys, the *Whisperdeath* has a double hull with a brick lining which gives the ship considerable protection and shows off the ability of kites to lift an impressive payload.

### WHISPERDEATH



1. Hold
2. Brig
3. Liquid Fire Tank
4. Master Seamen's Quarters
5. Shower and Head
6. Crew's Quarters and Mess
7. Drogue Torpedo Bay
8. Powder Magazine
9. Marines' Quarters
10. Galley
11. Captain's Quarters
12. Captain's Dining Room
13. Wardroom
14. Officers' Quarters
15. Stern Gallery
16. Bridge
17. Rod Gun Mount
18. Heavy Gun Mount

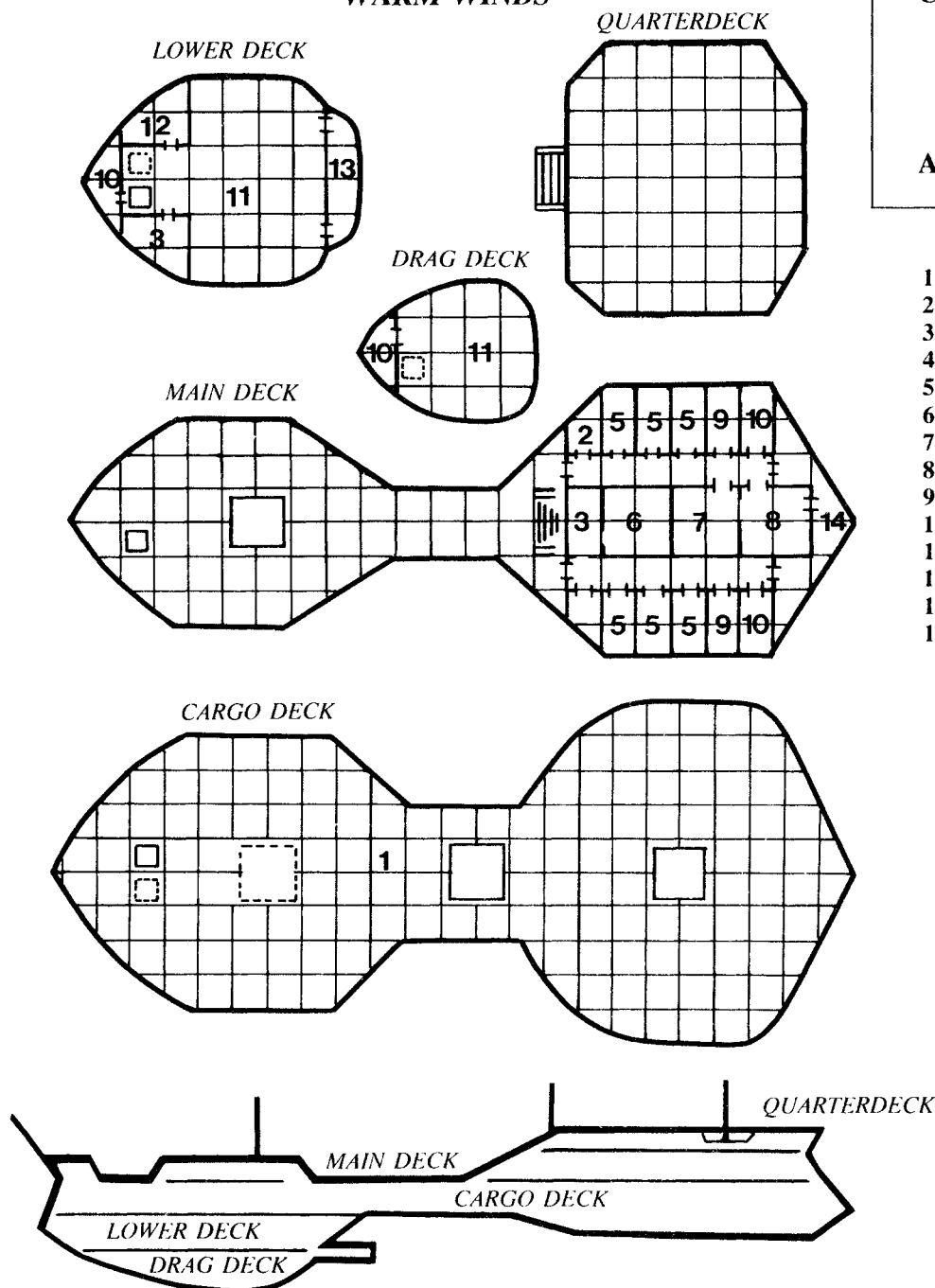


### Warm Winds

MERCHANT KITES are found in a variety of configurations and sizes. The *Warm Winds* is typical of the larger types of merchant ships in service. In a time of increasing tension, disorder, and war, these large vessels are now increasingly felt to be too

vulnerable to pirates and privateers, and most merchants are tending to rely on smaller but more numerous merchantmen. It is also not uncommon to find many merchantmen reducing their cargo capacity in favor of defensive armament, as navies can no longer be relied upon to patrol the trade lanes.

#### WARM WINDS



#### Technical Specifications

**Armor:** 0

**Hull:** 20

**Speed:** K

**Altitude:** Medium

**Tonnage:** 1950

**Price:** 112,600

**Crew:** 3 + 2 + 41

*Bridge:* C,H,T,S,2 × O

*Deck:* 20

*Maneuver:* 20

*Gunners:* 0

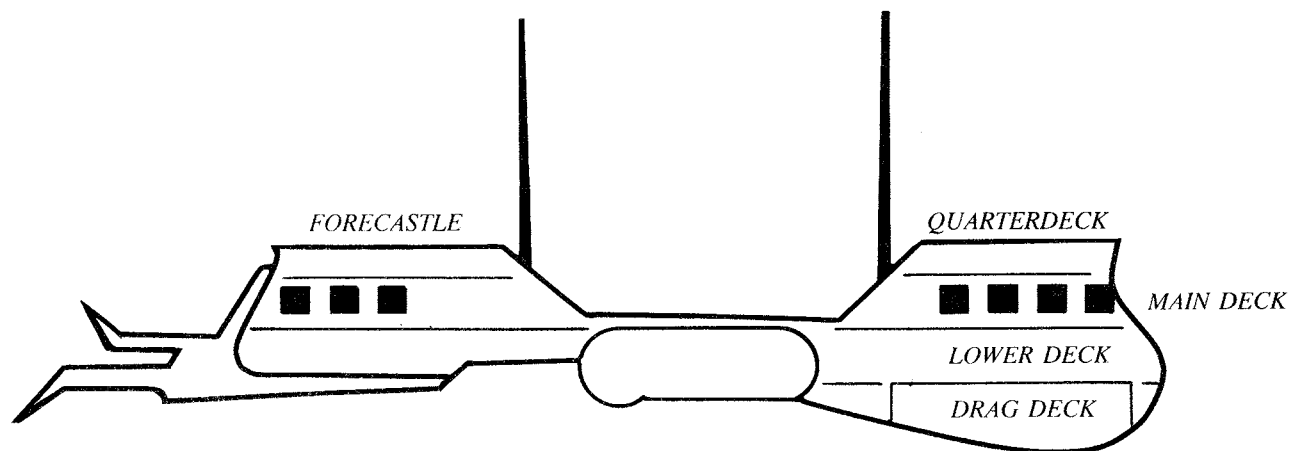
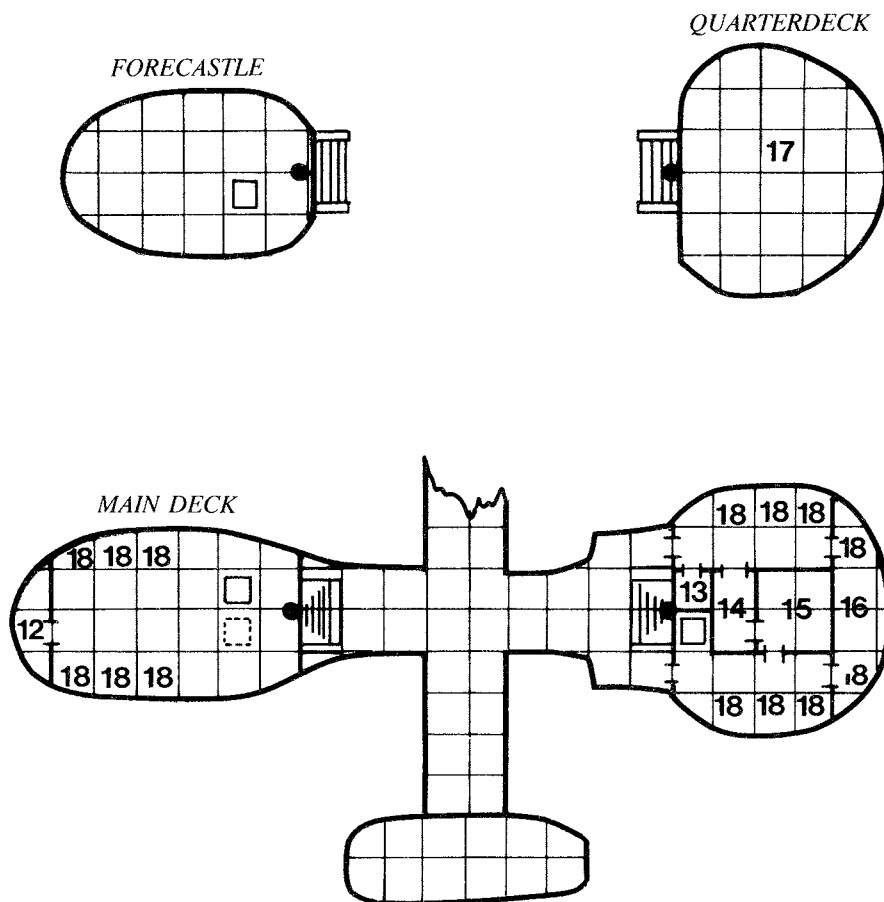
**Armament:** None

1. Cargo Hold
2. Brig
3. Galley
4. Armory
5. Passenger Cabin
6. Wardroom
7. Dining Room
8. Captain's Quarters
9. Officers' Quarters
10. Shower and Head
11. Crew's Quarters
12. Master Seamen's Quarters
13. Cargo Loading Platform
14. Stern Gallery

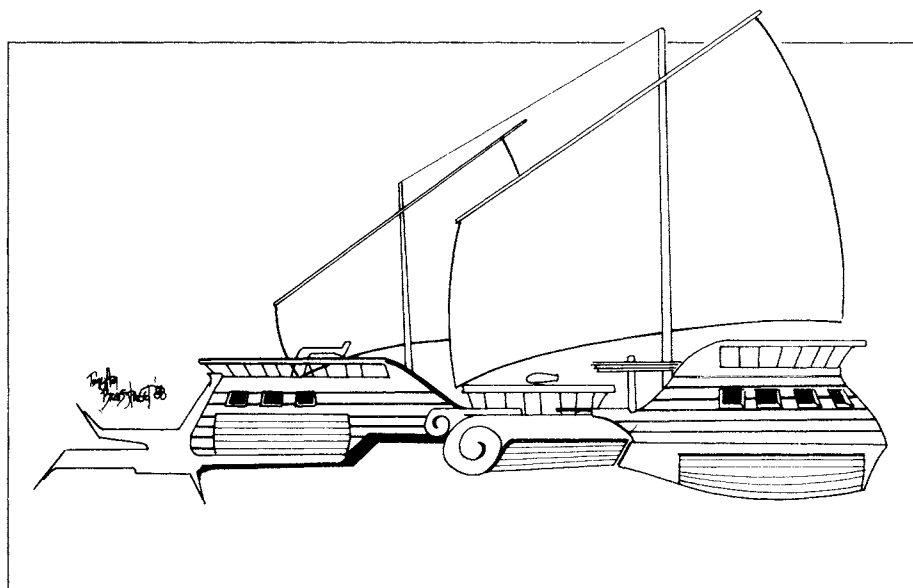
*Skylord*

REALLY LARGE armored kites form the core of several fleets in the wealthy and populous Mare Erythraeum basin, but Oenotria had never employed one until the recent launch of the *Skylord*. Like the *Whisperdeath* class, the *Skylord* is equipped with a ram bow and a masonry-filled double hull. But unlike the *Whisperdeath*, the *Skylord's* armament is located below the main deck and fires through gunports, thus providing the guncrews with the considerable protection of the hull. While this limits the arc of fire of the guns (and apparently leaves the ship without any firepower to the front), the large number of guns mounted still gives it an intimidating broadside.

Admiral Utaamaan, the newly appointed commander of the Oenotrian Combined Imperial Fleet, is now known to have moved his flag to the *Skylord*. As Utaamaan is himself one of the more fanatical members of the Ground Cleansing cult, this seems to indicate an imminent renewal of major naval confrontation between Oenotria and Britain.

**SKYLORD**





The *Skylord* is very similar in appearance to the *Whisperdeath* (pictured above). Its distinguishing characteristics are detailed in the accompanying text.

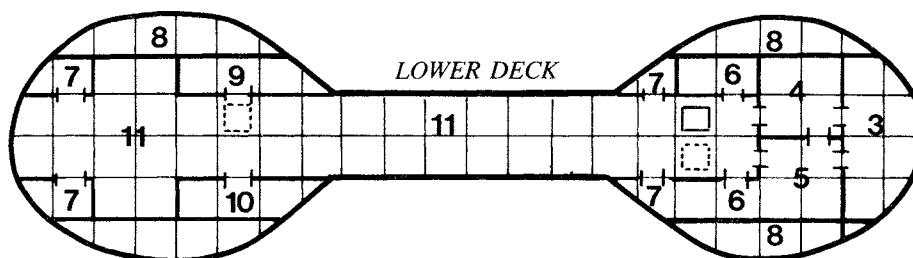
### Technical Specifications

**Armor:** 2  
**Hull:** 14 (ram)  
**Speed:** K  
**Altitude:** High  
**Tonnage:** 1400  
**Price:** 1,032,000  
**Crew:** 5 + 59  
*Bridge:* C,H,T,S,4 × O  
*Deck:* 14  
*Maneuver:* 14  
*Gunners:* 28

### Armament:

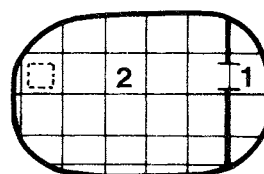
12 heavy guns, broadside, behind protected bulkheads  
 2 heavy guns, aft, behind protected bulkheads

## SKYLORD



1. Brig
2. Cargo
3. Lower Stern Gallery
4. Admiral's Quarters
5. Wardroom
6. Officers' Quarters
7. Head
8. Powder Magazine
9. Galley
10. Master Seamen's Quarters
11. Crew's Quarters
12. Armory
13. Chart Room
14. Captain's Cabin
15. Captain's Dining Room
16. Upper Stern Gallery
17. Bridge
18. Heavy Gun

### DRAG DECK



## SCREW GALLEYS

ALTHOUGH THEY do not have the sustained cruising speed of a kite, modern screw galleys are capable of impressive high speeds for reasonably long stretches of time (up to an hour). This gives them a maneuvering edge over kites, which are dependent on wind speed and direction. The screw galleys which are listed on the following pages are typical of those found in the Syrtis Major area, particularly in the Oenotrian navy.

### Technical Specifications

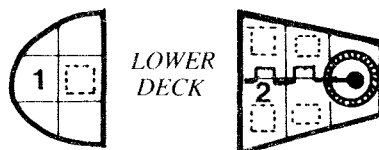
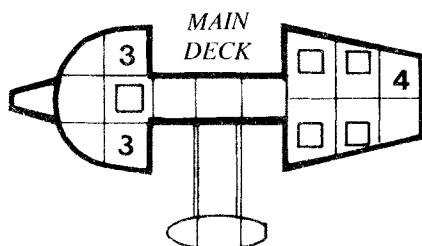
**Armor:** 0  
**Hull:** 1  
**Speed:** 5  
**Altitude:** Very High  
**Tonnage:** 80  
**Price:** 6000  
**Crew:** 1 + 12  
*Bridge:* C,H,T,S  
*Deck:* 1  
*Maneuver:* 6  
*Gunners:* 2  
**Armament:**  
 2 sweepers, wing mounts

1. Quarters and Hold
2. Crankshaft
3. Sweeper Gun Mounts
4. Helm and Trim Stations

## Fleetfoot

THE *FLEETFOOT* is hardly a warship at all, its principal fleet function being as a dispatch boat. It is fairly common as an unarmed royal barge or mail runner, and its distinct asymmetrical layout has caused it to appear in many engravings published on Earth. All screw galleys need to overcome the torque of their spinning airscrew (or risk rolling over and plummeting). Most accomplish this by having twin screws rotate in opposite directions. The *Fleetfoot* has an ingenious outrigger, with a lift panel controlled by the same gears as those which drive the airscrew. As the rotational speed of the airscrew increases, the lifter provides more lift to the outrigger, which counteracts the torque of the screw. Fine adjustments are still the responsibility of the trimsmen, but the ship will stay in gross trim automatically and at any speed using this device.

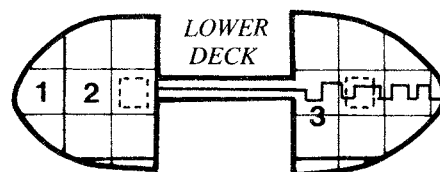
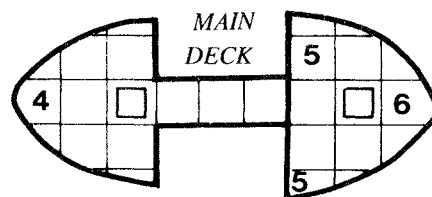
## FLEETFOOT



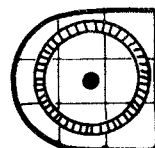
## Small Bird

THE *SMALL BIRD* is most often used for local defense of a city or for an aerial bombardment. Although it will occasionally be found with a fleet, its slow speed makes it unsuited for general naval actions. Instead, it is intended merely as a means to carry a rogue gun to high altitude and thus complement ground-based fixed batteries. Alternatively, it can be used to bombard cities from high altitude and from a distance, thus standing well out of range of the fixed defenses of the city, without tying down a valuable fleet unit.

## SMALL BIRD



LOWER DECK



DRAG DECK

## Technical Specifications

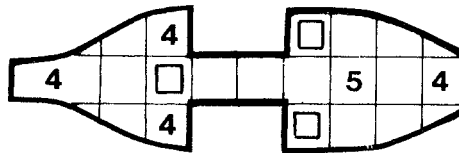
**Armor:** 0  
**Hull:** 2  
**Speed:** 3  
**Altitude:** Very High  
**Tonnage:** 140  
**Price:** 13,000  
**Crew:** 1+2+14  
*Bridge:* C,H,T,S  
*Deck:* 2  
*Maneuver:* 6  
*Gunners:* 5

### Armament:

- 1 rogue, forward
- 2 sweepers, wing mounts

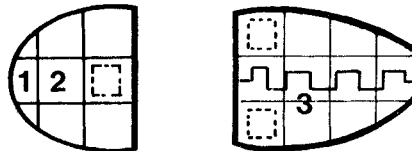
## CLEARLIGHT

### MAIN DECK

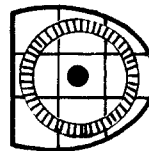


- 1. Magazine
- 2. Quarters
- 3. Crankshaft and Hold
- 4. Light Gun Mount
- 5. Helm and Trim Stations

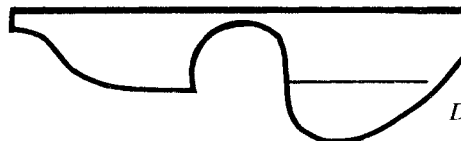
### LOWER DECK



### DRAG DECK



### MAIN DECK



### LOWER DECK

### DRAG DECK

## Clearsight

- 1. Magazine
- 2. Quarters and Hold
- 3. Crankshaft
- 4. Rogue Gun
- 5. Sweeper Gun Mounts
- 6. Helm and Trim Stations

REAR ADMIRAL Braidwood, who commanded the Parhoon Squadron from '86 through '88, had the opportunity to inspect an Oenotrian *Clearsight*-class galley in more peaceful times and damned it with the following verdict: "Not fit for anything but carrying home news of the defeat." Actually, the *Clearsight*'s speed and fair number of guns give it some tactical utility if fighting other wooden ships. Against an armored vessel, however, it is practically useless. By 1888 all remaining Oenotrian *Clearsight*-class galleys were sold as surplus to various navies, mostly to the High Martians of the Astusapes.

## Technical Specifications

**Armor:** 0  
**Hull:** 2  
**Speed:** 5  
**Altitude:** High  
**Tonnage:** 200  
**Price:** 12,800  
**Crew:** 1+2+23  
*Bridge:* C,H,T,S  
*Deck:* 2  
*Maneuver:* 12  
*Gunners:* 8

### Armament:

- 4 light guns, 1 forward, 1 aft, 2 in wing mounts

### MAIN DECK



### Technical Specifications

**Armor:** 0

**Hull:** 4

**Speed:** 4

**Altitude:** Very High

**Tonnage:** 300

**Price:** 25,600

**Crew:** 2 + 2 + 28

*Bridge:* C,H,T,S,O

*Deck:* 4

*Maneuver:* 16

*Gunners:* 7

**Armament:**

1 rogue, forward

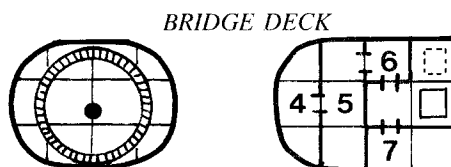
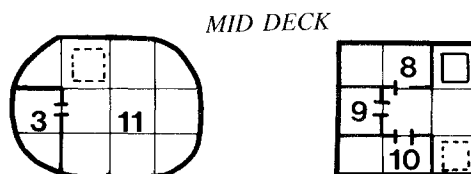
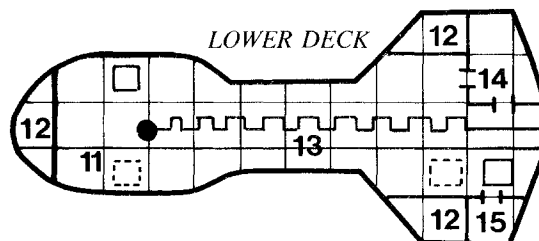
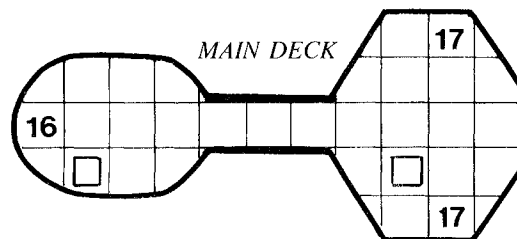
2 heavy guns, wing mounts

### Sky Runner

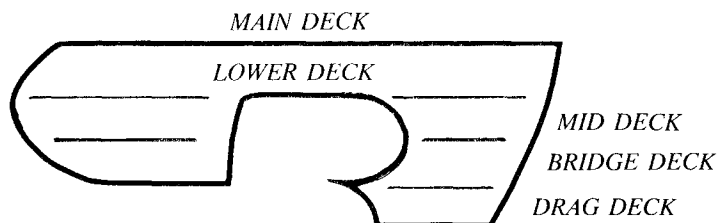
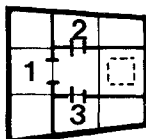
THIS IS A GOOD example of a screw galley in the light-to-medium tonnage range. It is a handy flyer with a good ceiling and is well armed for its size. This class of galley has

long been built at the shipyards of Karkarham and is favored by the piratical cloud captains of the Shistomik Mountains. Several are in Oenotrian service, and the Parhoon Squadron of the Royal Navy Auxiliary operates one as well.

### SKY RUNNER



### DRAG DECK



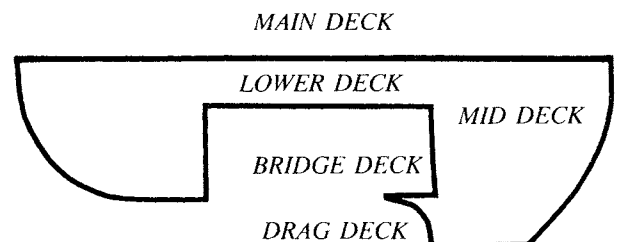
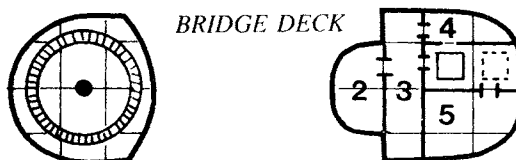
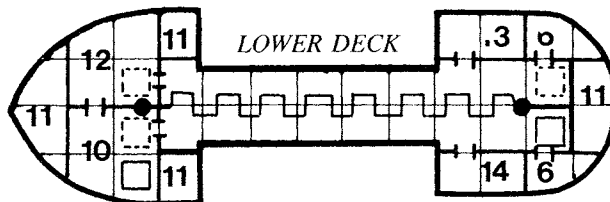
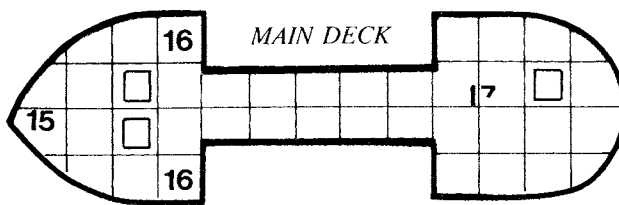
1. Captain's Quarters
2. First Officer's Quarters
3. Shower and Head
4. Flying Bridge
5. Bridge
6. Chart Room
7. Wardroom
8. Master Seamen's Quarters
9. Armory
10. Hold
11. Crew's Quarters
12. Magazine
13. Crankshaft
14. Galley
15. Brig
16. Rogue Gun
17. Heavy Gun

## Endtime

THE *ENDTIME* IS the most numerous class of Oenotrian medium war galleys and is the smallest war-ship to mount a lob gun. As with many of the larger screw galleys, the *Endtime* has a limited operational ceiling, and this puts it at a distinct disadvantage when engaged in any

long-range gun duels with most British gunboats. Its slow speed further compounds the problem, making it difficult to close in on a speedy steamship. As part of a larger force involved in a general fleet engagement, however, the *Endtime* is a useful vessel, and the lob gun is a potentially decisive weapon, once within range.

### ENDTIME



### Technical Specifications

**Armor:** 0

**Hull:** 5

**Speed:** 3

**Altitude:** High

**Tonnage:** 485

**Price:** 31,500

**Crew:** 4 + 2 + 39

**Bridge:** C,H,T,S,2 × O

**Deck:** 5

**Maneuver:** 15

**Gunners:** 9

**Marines:** 1 + 9

### Armament:

- 1 rod gun, forward
- 1 lob gun, amidships
- 2 heavy guns, wing mounts

1. Captain's Quarters
2. Flying Bridge
3. Bridge
4. Chart Room
5. Wardroom
6. Shower and Head
7. Officers' Quarters
8. Armory
9. Brig
10. Crew's Quarters
11. Magazine
12. Marines' Quarters
13. Master Seamen's Quarters
14. Galley
15. Rod Gun
16. Heavy Gun
17. Lob Gun

### Technical Specifications

**Armor:** 0

**Hull:** 7 (ram)

**Speed:** 3

**Altitude:** High

**Tonnage:** 695

**Price:** 46,800

**Crew:** 5 + 2 + 53

Bridge: C,H,T,S,3 × O

Deck: 7

Maneuver: 21

Gunners: 15

Marines: 1 + 9

### Armament:

2 rogues, forward

1 lob gun, amidships

2 heavy guns, wing mounts

1 rod gun, aft

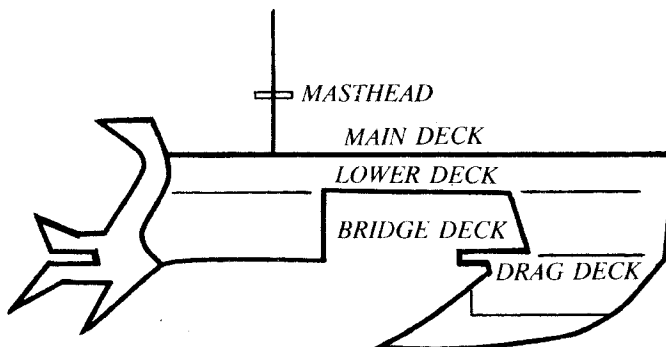
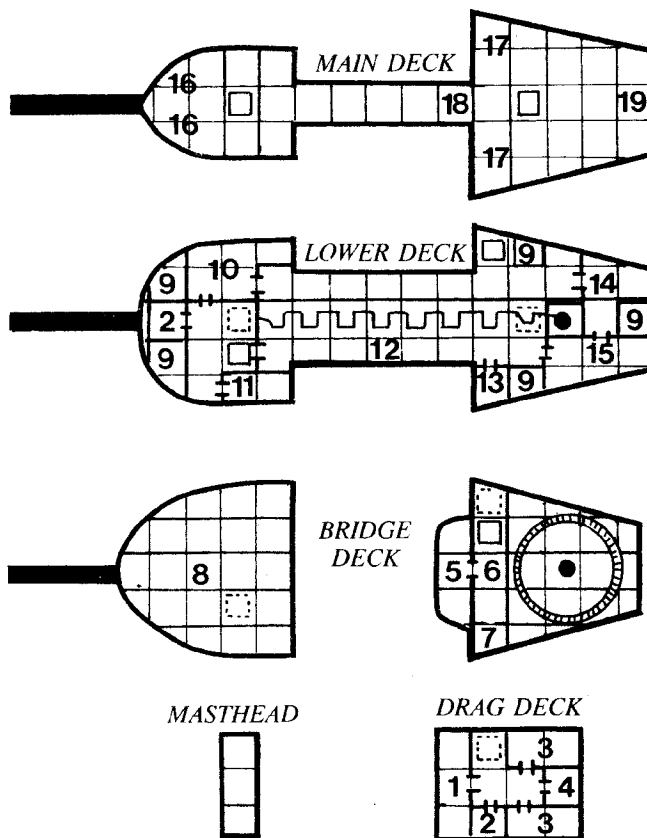
1. Captain's Quarters
2. Head
3. Officers' Quarters
4. Armory
5. Flying Bridge
6. Bridge
7. Chart Room
8. Crew's Quarters
9. Magazine
10. Marine Quarters
11. Master Seamen's Quarters
12. Crankshaft
13. Brig
14. Wardroom
15. Galley
16. Rogue Gun
17. Heavy Gun
18. Lob Gun
19. Rod Gun

### Hullcutter

THIS IS THE workhorse of the Oenotrian navy, and any important naval squadron will invariably be built around one or more *Hullcutter*-class screw galleys. The *Hullcutter*, as its name implies, is equipped with a ram, but its combat potential is derived primarily from its powerful guns. When sufficient ships are available, the *Hullcutters* tend to

work in pairs, with one firing its lob gun and rogues while the other reloads. Although the ship is too slow for its ram to be of much danger to a steam vessel under way, a hit from the lob gun can precipitate a loss of trim. If this is serious enough, the ship will be temporarily helpless, and the *Hullcutter* can then move in and ram. (This was exactly how *H.M.S. Firefly* was lost in the opening action of the Oenotrian War.)

### HULLCUTTER



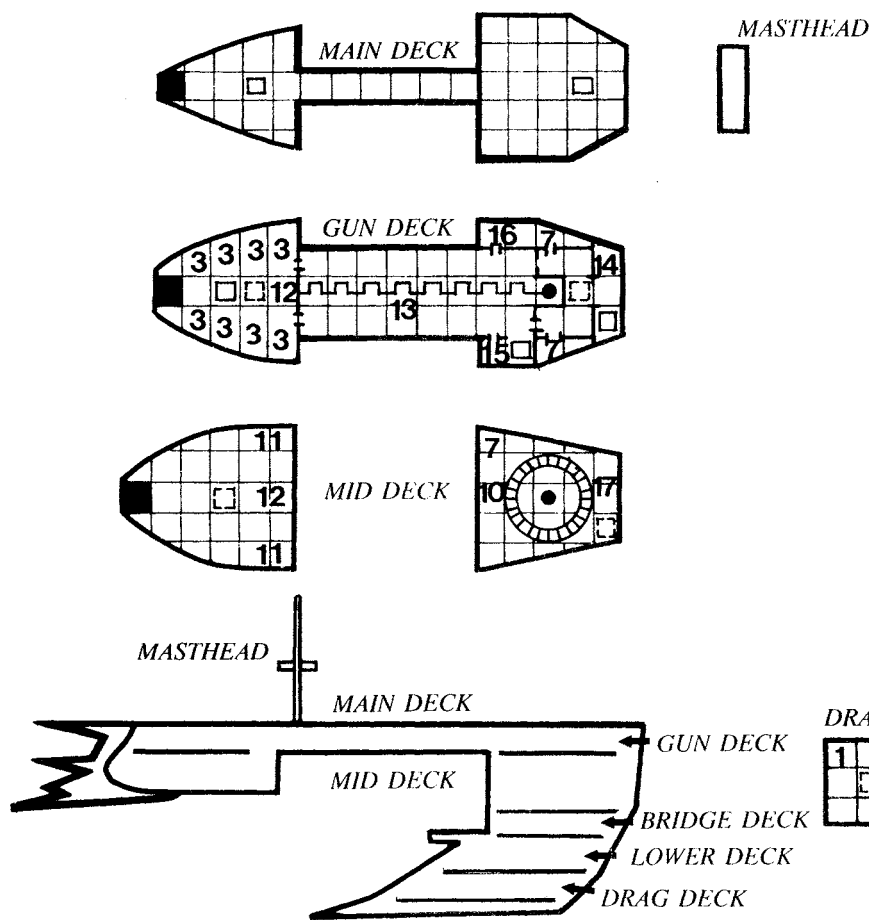
## Skyfire

THE OENOTRIAN Imperial Navy currently operates two *Skyfire* heavy screw galleys, both of which have entered service within the last year. Construction of ships this large is a strain on the naval yard at Crocea, and no other yard in the empire could even attempt such a task. As the Oenotrians have increasingly become converts to the "big ship" theory of naval power long advocated by the city-states of the Mare Erythraeum, demand for powerful fleet units such as this have escalated. To partially meet this need, it is rumored that the Oenotrians have placed an order for at least one and possibly two more large screw gal-

leys from the yards at Sabaeus, far to the southwest.

As the *Skyfire* is the first super-large screw galley built by the Oenotrians, they have apparently followed a fairly conservative design path and drawn as much on previous experience with smaller vessels as possible. The *Skyfire* is little more than an enlarged *Hullcutter* in hull form, with its guns mounted on a covered gun deck and set to fire through the gunwales rather than placed on exposed pivot platforms on the upper deck. At a great distance it is difficult to tell the two classes of vessels apart unless they are located close together, in which case the discrepancy in their sizes becomes evident.

### SKYFIRE



### Technical Specifications

**Armor:** 1

**Hull:** 14 (ram)

**Speed:** 3

**Altitude:** High

**Tonnage:** 1400

**Price:** 105,400

**Crew:** 6 + 2 + 87

**Bridge:** C,H,T,S,5 × O

**Deck:** 14

**Maneuver:** 42

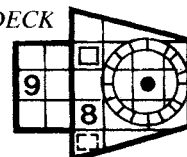
**Gunners:** 30

### Armament:

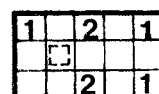
- 2 rod guns, forward behind bulwarks
- 2 rod guns, aft behind bulwarks
- 2 rogues, broadside behind bulwarks
- 8 heavy guns, broadside behind bulwarks
- 10 tether mines

1. Rod Gun
2. Rogue Gun
3. Heavy Gun
4. Officers' Quarters
5. Captain's Quarters
6. Wardroom
7. Head
8. Bridge
9. Flying Bridge
10. Admiral's Quarters
11. Magazine
12. Crew's Quarters
13. Crankshaft
14. Galley
15. Brig
16. Master Seamen's Quarters
17. Ship's Stores

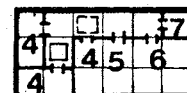
### BRIDGE DECK



### DRAG DECK



### LOWER DECK





## Part III: Gunboats

FEWER THAN 100 steam-powered aerial warships are in service with all the great powers of Earth, but their effect on military strategy has been a profound one. The small number of steam vessels in service makes it possible to here examine the most important of them in some detail.

### GREAT BRITAIN

BRITAIN HAS more experience with aerial combat than any other nation on Earth but has still been building aerial gunboats for less than a decade. The first experience with aerial warfare was in the Goro-

vaangian War (1878-79), also now referred to as the First War of the Parhoon Succession. British officers and men, largely from the Royal Artillery, served along side Parhoonese cloud sailors in Parhoon's small fleet, manning a handful of modern machineguns and field guns hastily lashed to the wooden decks of the Parhoonese screw galleys.

By 1880 and the outbreak of the Second War of the Parhoon Succession, several small screw galleys had been built with modern British weaponry, particularly Hotchkiss revolving cannons and Gatling guns, and these were used to good effect against the Syrtan fleet in that war. These were all Parhoonese vessels, however, and by the end of the war Britain held a considerable tract of territory that demanded a British aerial force. While Parhoonese vessels were loaned to the British as a stopgap measure, a complete shipyard was hastily built in Syrtis Major. In 1882 the first purpose-built, steel-hulled aerial warships in history were produced: the sister ships *Aphid* and *Ladybug*. This shipyard at Syrtis Major has continued to produce a succession of fine military vessels to this time.

The defense of the Martian territories demanded aerial vessels, so it was some time before sufficient liftwood was available for construc-

tion of warships on Earth. Inventors and aerial enthusiasts of private means obtained limited supplies of liftwood and produced a series of experimental vessels of some historical interest but little practical military value. The first military use of aerial vessels on Earth was in 1885 during the Sudan campaign, and, ironically, these were produced by a private citizen, not the government.

Quick to realize the impact that aerial vessels would have on naval warfare, the Royal Navy lobbied hard and successfully for exclusive control over the aerial service. By the close of 1885 this was granted by the government, and all the miscellaneous projects in work by the various services were officially turned over to the navy. The result was a much more efficient and productive building program, which produced the first *Locust*-class vessel in 1886, the very powerful *Macefield* gunboats in 1888, and the *Intrepid*-class cruisers in 1889.

On Mars, however, the building program had always been well in hand, and the Royal Aerial Service (with men drawn from all branches of the army) had become an effective and battle-proven force. Nevertheless, the 1885 decision to turn over all ships to the Navy was applied to Mars as well, even though its actual implementation was delayed until nearly the end of 1886. This policy change caused considerable bitterness among the officers of the aerial service, many of whom resigned and returned to private life. The so-called Red Captains are full of officers and men formerly of the aerial service who look down on the Royal Navy as relatively inexperienced newcomers.

### SHIPS BUILT AT THE SYRTIS MAJOR YARD

- 1881: *Aphid*, *Ladybug*
- 1882: *Sandflea*, *Moth*
- 1883: *Reliant*
- 1884: *Dauntless*
- 1885: *Thunderer*
- 1886: *Daring*
- 1887: *Danger*
- 1888: *Wasp*, *Hornet*
- 1889: *Triumph*

### Currently Building

- 2 improved *Aphid*-class gunboats
- 2 *Triumph*-class aerial cruisers

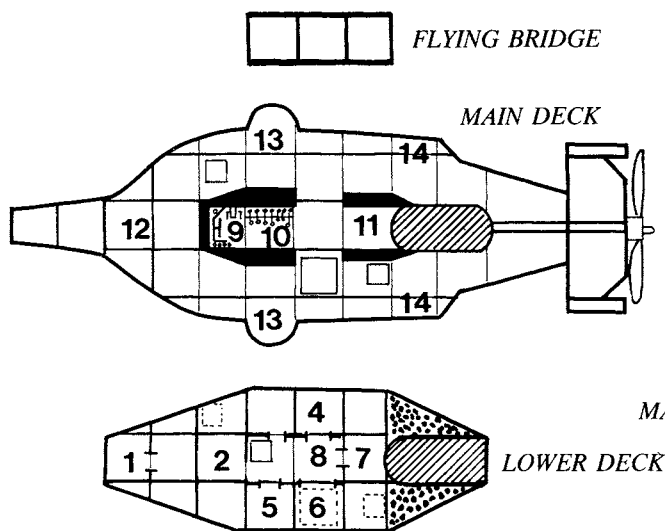
### Aphid-Class Gunboat

THE FIRST genuine aerial gunboat, the *Aphid*-class gunboat, has proven to be one of the most successful as well. It is armed extremely well for its diminutive size, and has proven easy to build and maintain. The two earliest vessels in the class (*Aphid* and *Ladybug*) were assembled in some haste and for years suffered from engine difficulties. The *Aphid* was extensively refitted in 1886, however, and has performed without further trouble since then. (*Ladybug* was due for a refit in 1887 but was lost in action early that

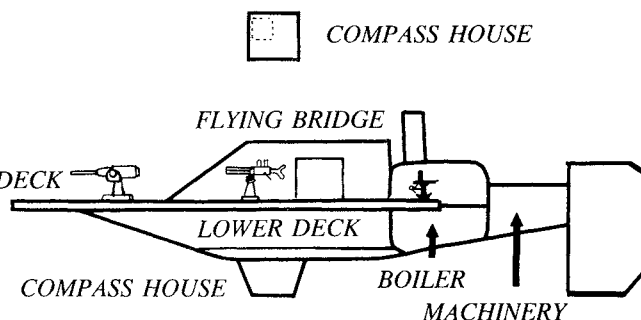
year against the *Fenian Ram*.)

The *Aphid* design has proven so versatile that two additional examples are currently under construction. These have been improved somewhat by the use of more modern forced draught boilers of the same horsepower as the older types. The considerable weight savings that this allows has enabled the installation of a more modern, long, four-inch gun instead of the older, short, four-inch gun on the original design. This increase in firepower has been gained at no sacrifice in performance, although it does increase the price of the ship by £2100.

#### APHID



Technical Specifications (Original Design)	
<b>Armor:</b>	2
<b>Hull:</b>	2
<b>Speed:</b>	6
<b>Engine:</b>	250 hp (ES = 2)
<b>Coal:</b>	40 tons
<b>Endurance:</b>	20 days
<b>Altitude:</b>	Very High
<b>Tonnage:</b>	160
<b>Price:</b>	23,220
<b>Crew:</b>	1 + 3 + 11
<b>Bridge:</b>	C, H, T, S
<b>Deck:</b>	1 + 2
<b>Maneuver:</b>	2
<b>Gunners:</b>	6
<b>Armament:</b>	
	1 4" short, forward
	2 1-pdr HRC, wing mounts
	2 Nordenfelts, broadside



1. 4-inch Magazine
2. Crew's Quarters
3. Captain's Quarters
4. Petty Officers' Quarters
5. Galley
6. Cargo Hold
7. Engine Room
8. Companionway
9. Helm
10. Trim Station
11. Chart Room
12. 4-inch Gun Mount
13. 1-pounder
14. Nordenfelt

#### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Aphid</i>	1881	Parhoon
<i>Ladybug</i>	1881	Lost in action, 1887
<i>Sandflea</i>	1882	Meepsoor
<i>Firefly</i>	1882	Lost in action, 1889
<i>Wasp</i>	1888	Syrtis Major
<i>Hornet</i>	1888	Parhoon
<i>Honey Bee</i>	(Building)	(Syrtis Major)
<i>Bumble Bee</i>	(Building)	(Syrtis Major)

### Technical Specifications

**Armor:** 2

**Hull:** 4

**Speed:** 6

**Engine:** 500 hp (ES = 4)

**Coal:** 80 tons

**Endurance:** 20 days

**Altitude:** Very High

**Tonnage:** 315

**Price:** 50,360

**Crew:** 3 + 4 + 26

Bridge: C,H,T,S,O

Deck: 2 + 4

Maneuver: 4

Gunners: 8

Marines: 1 + 9

#### Armament:

- 1 4'' long, forward, fixed under armor
- 1 4'' long, stern tower
- 2 3-pdr HRC, wing mounts
- 2 Nordenfelts, broadside

1. Forward Gun Compartment
2. Crew's Quarters
3. Marines' Quarters
4. Galley
5. Officers' Quarters
6. Petty Officers' Quarters
7. Hold
8. Aft 4-inch Gun Magazine
9. Engine Room
10. Bridge
11. Captain's Quarters
12. Stern Gun Tower
13. 3-pounder
14. Nordenfelt

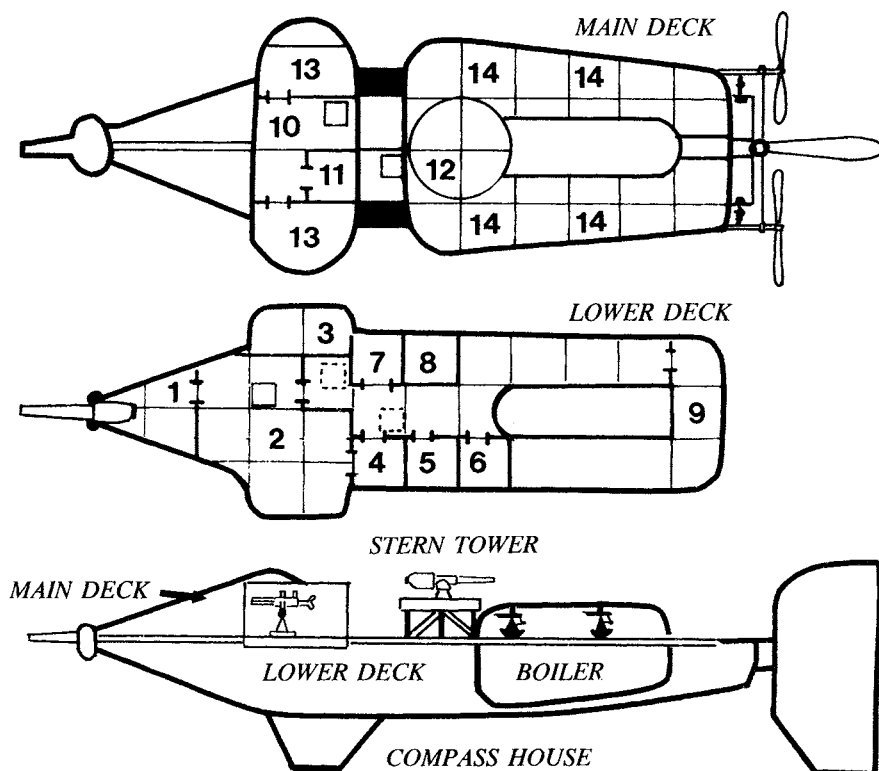
### Dauntless-Class Gunboat

THE SLEEK LINES of the *Dauntless* make it one of the most attractive of all the aerial vessels currently in service, but its performance is disappointing when compared to its cost, and no further examples of this class are planned. The principal difficulty with the vessel is that its forward gun is mounted low behind the hull armor to give it greater protection at no additional weight. The practical result is that the forward four-inch gun does not have sufficient traverse to engage broadside

targets. Despite the fact that the ship has two four-inch guns, it can only engage a target with one of them at a time.

The first two vessels of the class were built with conventional boilers. The third vessel (*H.M.S. Danger*) was built with forced draught boilers. The weight savings has allowed placement of two more 3-pounder Hotchkiss guns sighted to fire to the broadside, although for some reason this modification was not carried out until recently. The technical specifications below are for the original design.

#### DAUNTLESS



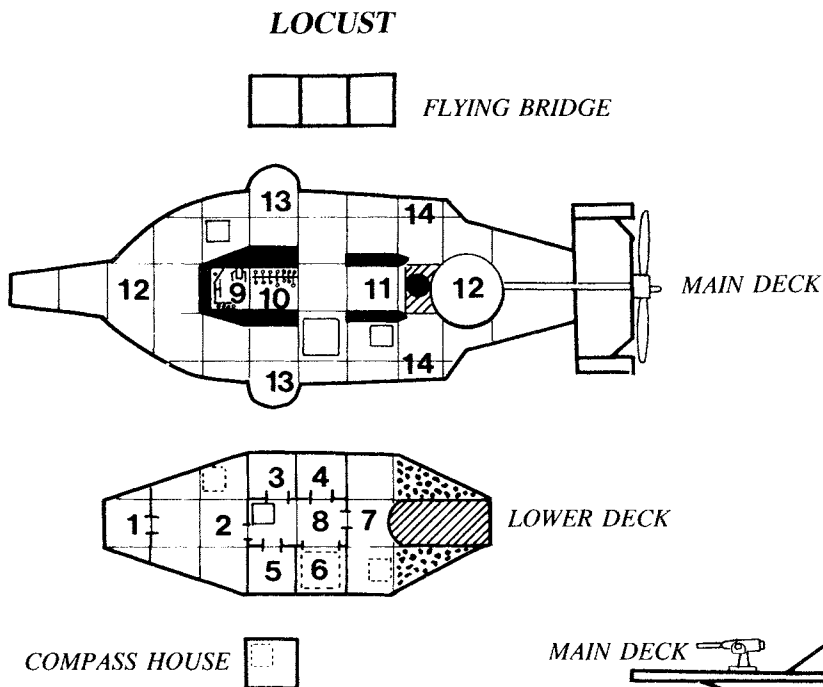
#### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Dauntless</i>	1884	Syrtis Major
<i>Daring</i>	1886	Lost in action, 1886
<i>Danger</i>	1887	Parhoon

### Locust-Class Gunboat

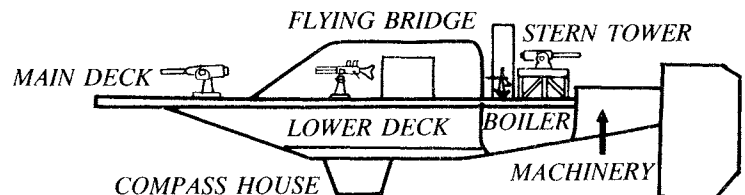
THE *LOCUST* WAS the first aerial warship designed by and built for the Royal Navy on Earth. It is clearly based upon the successful *Aphid* design but emphasizes firepower instead of protection. It mounts a second short four-inch gun aft, and both guns can engage broadside targets, giving it more broadside firepower than a *Dauntless*-class vessel of nearly twice its tonnage and cost. Critics (foremost among them

being the former chief constructor, Mr. E. J. Reed) argue that its armor is so thin that it provides no real protection, and that a more efficient design would have eliminated all armor in place of even more firepower (or better yet, reverted to the original *Aphid* design). Mr. White, the current chief constructor for the navy, insists, however, that the *Locust* design is superior to the *Aphid*, and he also says that he contemplates no design alterations in future versions of the ship.



1. 4-inch Magazine
2. Crew's Quarters
3. Captain's Quarters
4. Petty Officers' Quarters
5. Galley
6. Cargo Hold
7. Engine Room
8. Companionway
9. Helm
10. Trim Station
11. Chart Room
12. 4-inch Mount
13. 1-pounder
14. Nordenfelt

Technical Specifications	
<b>Armor:</b>	1
<b>Hull:</b>	2
<b>Speed:</b>	6
<b>Engine:</b>	250 HP forced draught (ES = 2)
<b>Coal:</b>	40 tons
<b>Endurance:</b>	20 days
<b>Altitude:</b>	Very High
<b>Tonnage:</b>	165
<b>Price:</b>	25,350
<b>Crew:</b>	1 + 3 + 13
	Bridge: C,H,T,S
	Deck: 1 + 2
	Maneuver: 2
	Gunners: 8
<b>Armament:</b>	
	1 4" short, forward
	1 4" short, stern tower
	2 1-pounder HRC, wing mounts
	2 Nordenfelts, broadside
	2 rocket batteries (1 up, 1 down)



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Locust</i>	1886	Channel Fleet
<i>Dragonfly</i>	1887	Channel Fleet
<i>Tse Tse</i>	1887	Pacific Fleet
<i>Yellow Jacket</i>	1887	Mediterranean Fleet
<i>Grasshopper</i>	1888	Atlantic Squadron

### Technical Specifications

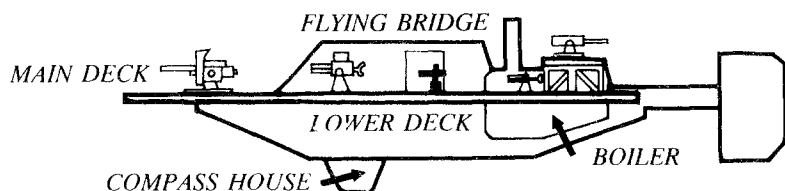
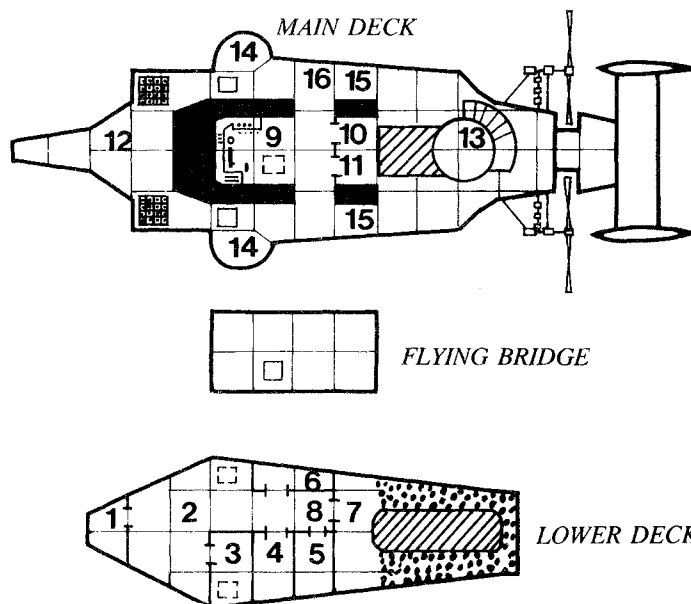
**Armor:** 2  
**Hull:** 5  
**Speed:** 6  
**Engine:** 625 HP forced draught (ES = 5)  
**Coal:** 100 tons  
**Endurance:** 20 days  
**Altitude:** High  
**Tonnage:** 500 tons  
**Price:** 63,780  
**Crew:** 3 + 4 + 30  
     *Bridge:* C, H, T, S, O  
     *Deck:* 2 + 5  
     *Maneuver:* 5  
     *Gunners:* 10  
     *Marines:* 1 + 9  
**Armament:**  
     1 4.7" QF, forward  
     1 4" long, stern tower  
     2 6-pounder HRC, wing mounts  
     2 1-pounder HRC, broadside  
     2 Nordenfelts, broadside  
     1 tether mine  
     1 drogue torpedo  
     4 Hale rocket batteries (2 up, 2 down)

### Macefield-Class Gunboat

THE *MACEFIELD* is an intermediate-sized gunboat, larger than the *Locust* but smaller than the *Reliant*. It was built as a "heavy" gunboat, with emphasis on firepower and protection, and as a result its operational altitude ceiling is lower than many other vessels in the Royal Navy service. It was intended to capitalize on as much of the newest technology as possible, and so it

mounts a forced draught boiler and includes one of the new 4.7-inch, quick-firing forward guns. In general layout, it resembles a much-enlarged *Locust* class, with additional space for broadside weaponry. It does follow the established pattern, however, of the heaviest armament fore and aft on the centerline, secondaries on wingmounts with good field of fire forward and aft, and light antiboarding guns firing to broadside.

### MACEFIELD



1. 4.7-inch Magazine
2. Crew's Quarters
3. Marines' Quarters
4. Petty Officers' Quarters
5. Officers' Quarters
6. Galley
7. Engine Room
8. Companionway
9. Bridge
10. Chart Room
11. Captain's Quarters
12. 4.7-inch Gun Mount
13. 4-inch Gun Mount
14. 6-pounder
15. 1-pounder
16. Nordenfelt

### DEPLOYMENT OF SHIPS IN CLASS

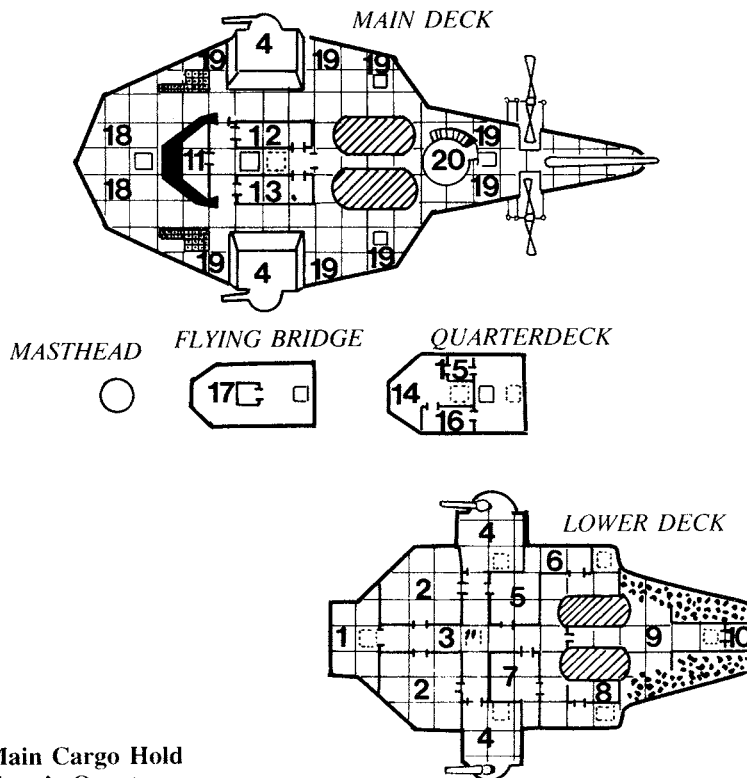
Ship	Launched	Current Station
<i>Macefield</i>	1888	Channel Fleet
<i>St. John</i>	1888	West Indies Squadron
<i>Raglan</i>	1888	West Indies Squadron
<i>Ponsonby</i>	1889	Channel Fleet
<i>Uxbridge</i>	1889	Mediterranean Fleet

### Reliant-Class Gunboat

THE *RELIANT* is unusually large for a gunboat—if it were built today, it might be described as a light cruiser. It differs from most aerial warships in that its heaviest armament is mounted in armored sponsons on either side of the vessel rather

than on its centerline. Because current Royal Navy thinking favors centerline ordnance, it is unlikely that further vessels of this sort will be built. Nevertheless, *Reliant* has proven to be a popular ship in Martian service, and it has also performed well in every one of its many actions.

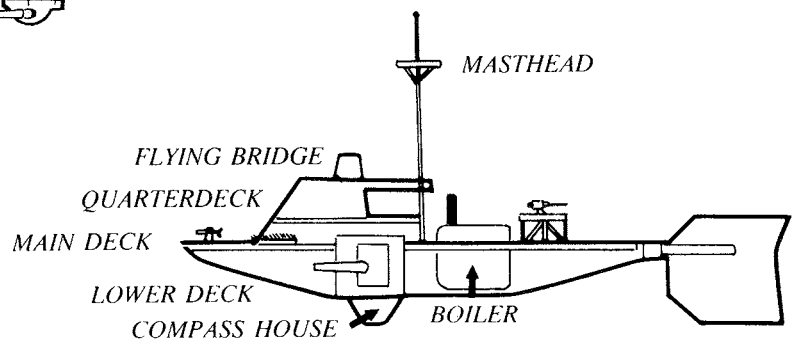
#### RELIANT



1. Main Cargo Hold
2. Crew's Quarters
3. Companionway
4. 6-inch Gun Sponson
5. Mess Hall
6. Galley
7. Marines' Quarters
8. Brig
9. Engine Room
10. 4-inch Magazine
11. Wardroom
12. Officers' Quarters
13. Petty Officers' Quarters
14. Bridge
15. Chart Room
16. Captain's Quarters
17. Conning Tower
18. 6-pounder Mount
19. Nordenfelt
20. 4-inch Gun Mount

#### Technical Specifications

**Armor:** 2  
**Hull:** 8  
**Speed:** 4  
**Engine:** 750 hp (ES = 6)  
**Coal:** 120 tons  
**Endurance:** 20 days  
**Altitude:** High  
**Tonnage:** 800  
**Price:** 92,040  
**Crew:** 4 + 5 + 42  
*Bridge:* C,H,T,S,2 × O  
*Deck:* 3 + 8  
*Maneuver:* 6  
*Gunners:* 16  
*Marines:* 1 + 11  
**Armament:**  
 2 6-pdr HRC, forward  
 2 6" guns in wing sponsons (armor 3)  
 1 4" long gun in stern tower  
 8 Nordenfelts, broadside  
 8 Hale Rocket batteries (4 up, 4 down)



#### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Reliant</i>	1883	Syrtis Major

### Technical Specifications

**Armor:** 3  
**Hull:** 10  
**Speed:** 4  
**Engine:** 1000 HP (ES = 8)  
**Coal:** 160 tons  
**Endurance:** 20 days  
**Altitude:** High  
**Tonnage:** 1000  
**Price:** 123,3000  
**Crew:** 4 + 5 + 39

*Bridge:* C,H,T,S,2 × O

*Deck:* 3 + 10

*Maneuver:* 8

*Gunners:* 9

*Marines:* 1 + 11

### Armament:

- 1 8" gun, forward, in armored turret
- 1 6" gun, aft, in armored turret
- 4 Nordenfelts in wing mounts
- 2 Hale rocket batteries (up)

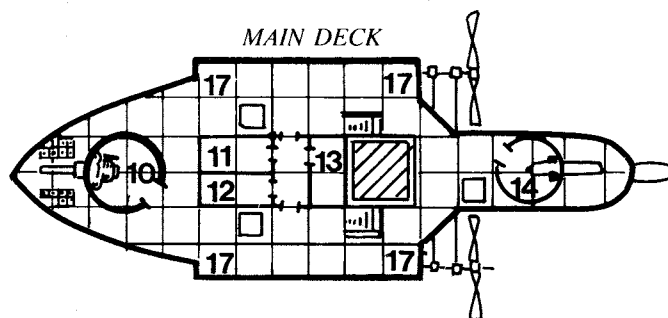
1. 8-inch Magazine
2. Cargo Hold
3. Mess Hall
4. Galley
5. Wardroom
6. Marines' Quarters
7. Crew's Quarters
8. Engine Room
9. 6-inch Magazine
10. 8-inch Gun Turret
11. Officers' Quarters
12. Petty Officers' Quarters
13. Captain's Quarters
14. 6-inch Gun Turret
15. Bridge
16. Chart Room
17. Nordenfelt

### Thunderer-Class Monitor

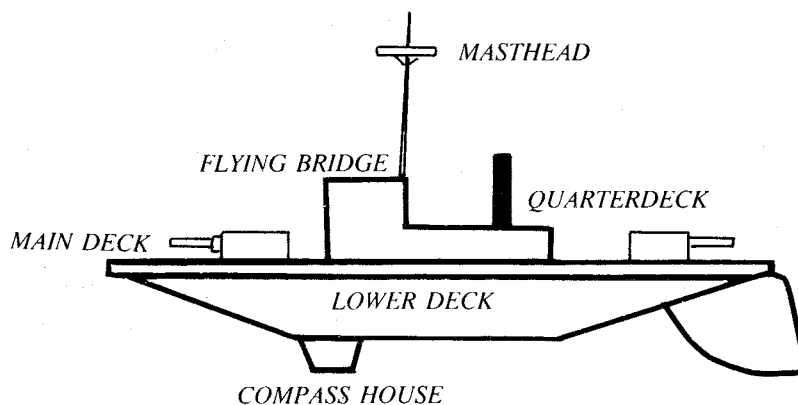
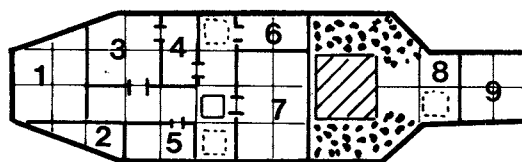
THE *THUNDERER* was built as an experiment which, in retrospect, might have proven more valuable on Earth than Mars. The ship uses most of its available tonnage to mount two large guns in armored, revolving turrets. It is an extremely well armored

ship, and its eight-inch main gun packs tremendous punch. However, it is a very unpopular ship due to its sluggish performance and low ceiling. There is particular concern that the *Thunderer* is vulnerable to being "swarmed" by more small ships than it can effectively engage with its numerically limited armament.

### THUNDERER



### LOWER DECK



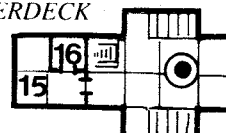
### FLYING BRIDGE



### MASTHEAD



### QUARTERDECK



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Thunderer</i>	1885	Syrtis Major

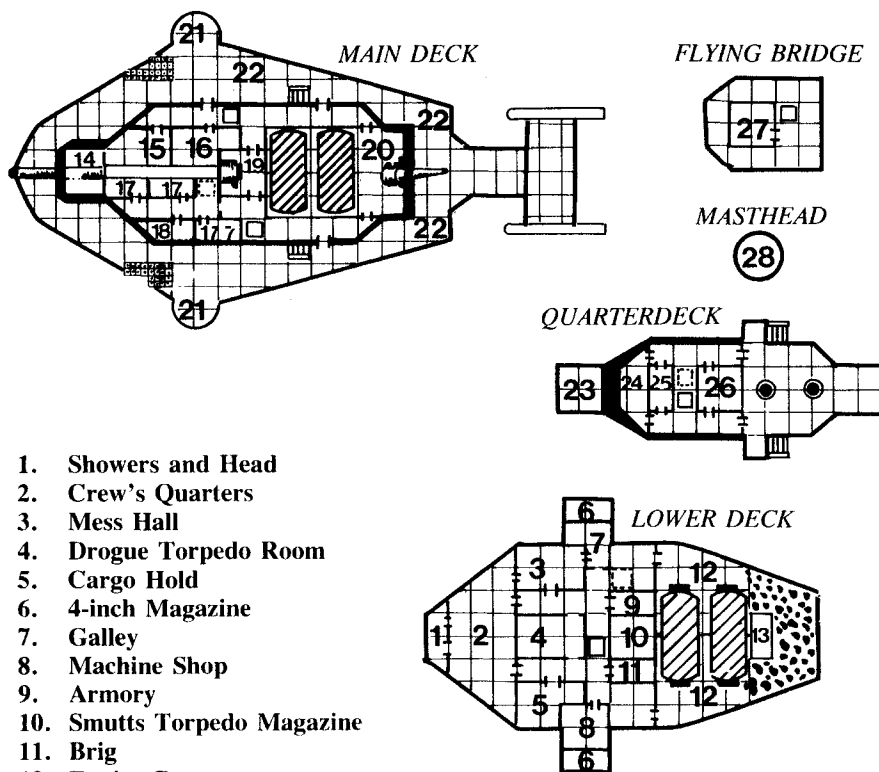


### Triumph-Class Aerial Cruiser

THE *TRIUMPH* represents perhaps the last lingering influence on ship design by the old aerial service, as it is clearly an enlarged and modified *Reliant*-class vessel with a heavy main armament on the centerline but strong secondaries in wing mounts. The *Triumph* joined the fleet

just weeks before the outbreak of the Oenotrian War and has been an indispensable addition to the fleet. However, the navy has requested that future versions provide armor for the main gun mounts, even if this means dispensing with the Smutts projector. Due to the pressure of the war, however, current plans are to retain the design without modification.

### TRIUMPH



1. Showers and Head
2. Crew's Quarters
3. Mess Hall
4. Drogue Torpedo Room
5. Cargo Hold
6. 4-inch Magazine
7. Galley
8. Machine Shop
9. Armory
10. Smutts Torpedo Magazine
11. Brig
12. Engine Room
13. 5-inch Magazine
14. 6-inch Magazine
15. Marines' Quarters
16. Petty Officers' Quarters
17. Officers' Quarters
18. Captain's Quarters
19. Smutts Torpedo Loading Room
20. 5-inch Gun Barbette
21. 4-inch Gun Mount
22. Nordenfelt Gun Mount
23. 6-inch Gun Mount
24. Admiral's Quarters
25. Chart Room
26. Wardroom
27. Bridge
28. Masthead

### Technical Specifications

**Armor:** 3  
**Hull:** 12  
**Speed:** 4  
**Engine:** 1250 HP (ES = 10)  
**Coal:** 240 tons  
**Endurance:** 20 days  
**Altitude:** High  
**Tonnage:** 1200  
**Price:** 138,400  
**Crew:** 4 + 6 + 44

*Bridge:* C,H,T,S,2 × O

*Deck:* 4 + 12

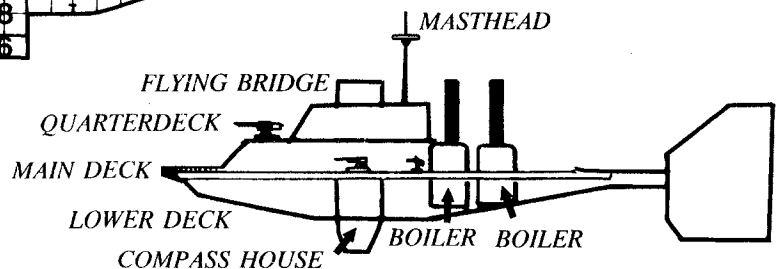
*Maneuver:* 10

*Gunners:* 12

*Marines:* 1 + 9

### Armament:

- 1 6" gun, forward
- 1 5" gun, aft, fixed under armor
- 2 4" long guns, wing mounts
- 4 Nordenfelts, broadside
- 4 Hale rocket batteries (up)
- 4 drogue torpedoes
- 1 Smutts discharger (with 5 torpedoes)



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Triumph</i>	1889	Syrtis Major
<i>Victory</i>	(Building)	(Syrtis Major)
<i>Vindication</i>	(Building)	(Syrtis Major)

### Technical Specifications

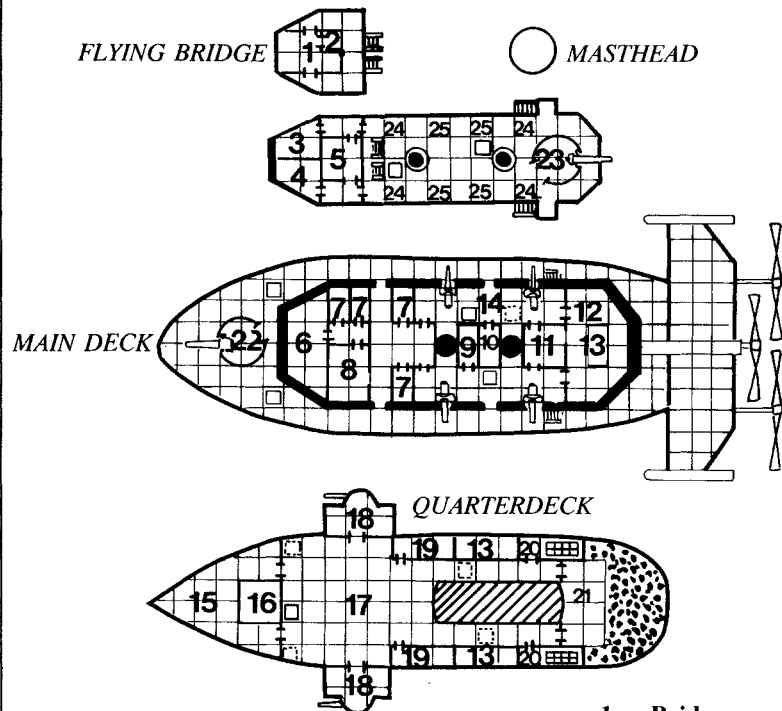
**Armor:** 3  
**Hull:** 16  
**Speed:** 4  
**Engine:** 1375 HP forced draught (ES = 11)  
**Coal:** 330 tons  
**Endurance:** 30 days  
**Altitude:** High  
**Tonnage:** 1600  
**Price:** 194,540  
**Crew:** 6 + 7 + 68  
     *Bridge:* C,H,T,S,3 × O  
     *Deck:* 5 + 16  
     *Maneuver:* 11  
     *Gunners:* 24  
     *Marines:* 2 + 18  
**Armament:**  
     1 6'' gun, forward in armored turret  
     2 4.7'' QFG, armored sponsons  
     1 4'' long, aft in armored turret  
     4 4'' long, broadside under hull armor  
     4 3-pounder HRC, broadside  
     4 Nordenfelts, broadside  
     2 tether mines  
     4 bomb racks (4 loads carried)

### Intrepid-Class Aerial Cruiser

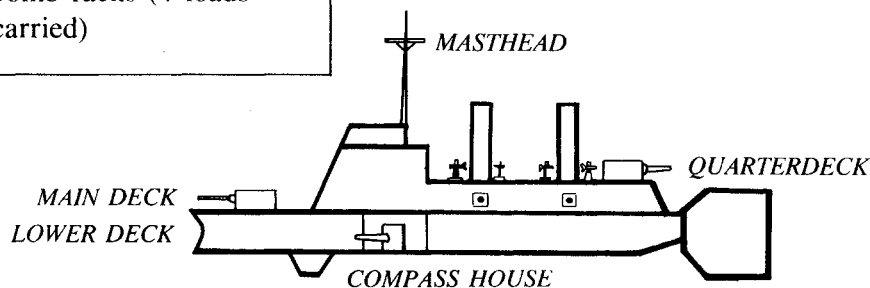
APART FROM A handful of very large, armed, interplanetary ether flyers, the *Intrepid* is the most powerful aerial vessel in service with any

fleet. Both its main and secondary batteries are well protected by armor, and the new 4.7-inch quick-firing guns give an impressive augmentation to the firepower of this fine vessel.

### INTREPID



1. Bridge
2. Chart Room
3. Admiral's Quarters
4. Captain's Quarters
5. Wardroom
6. Marines' Quarters
7. Officers' Quarters
8. Petty Officers' Quarters
9. Armory
10. Brig
11. Galley
12. Mess Hall
13. 4-inch Magazine
14. 4-inch Gun Bay
15. Cargo Hold
16. 6-inch Magazine
17. Crew's Quarters
18. 4-inch Gun Sponson
19. Showers and Head
20. Bomb Bay
21. Engine Room
22. 6-inch Turret
23. 4-inch Turret
24. 3-pounder Mount
25. Nordenfelt



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Intrepid</i>	1889	Home Fleet
<i>Indominable</i>	(Building)	Spithead

## RUSSIA

THE FIRST RUSSIAN expeditions to Mars in 1883 landed in the region known as Cebrenia, near the city-state of Hecates Lacus. That city-state was, at the time, under pressure from both its closest neighbors (Herculis to the north and Styx to the south), and was also in the grips of a complex and bloody struggle of succession. The Russians quickly sided with one of the factions and were able to tip the balance in their favor in the dynastic struggle as well as discourage any would-be invading armies, by the rapid shipment of a number of Gatling guns and trained crews. Although Russia does not rule Hecates Lacus, the treaties of friendship and protection between the two states give Russia considerable privileges in the area and a strong say in the city-state's foreign policy. With a fairly secure lodgement on Mars, the Russians soon began the construction of aerial gunboats.

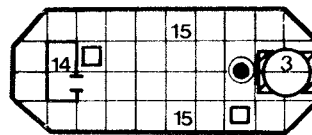
## Czarina-Class Gunboat

THE ONLY MAJOR class of aerial warships built by the Russians to date has been the *Czarina* class. The costs given below are the average costs for those examples of the class built at the Kronstadt naval yard on Earth. The two examples on Mars were undoubtedly much more expensive. As the Russians do not have a proper naval yard for the construction of armored steam vessels on Mars, the individual components had to be shipped from Earth and then laboriously assembled by hand at Hecates Lacus. In Russian service, the Gatlings are know as Gorloff guns.

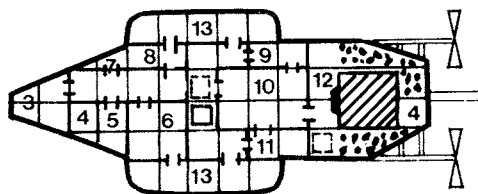
1. Bomb Bay
2. Compass House
3. 3-inch Gun Mount
4. 3-inch Magazine
5. Petty Officers' Quarters
6. Captain's Quarters
7. Brig
8. First Officer's Quarters
9. Showers and Head
10. Crew's Quarters and Mess
11. Galley
12. Engine Room
13. 1-inch Gatling Mount
14. Bridge
15. .50-caliber Gatling Mount

## CZARINA

QUARTERDECK



MAIN DECK



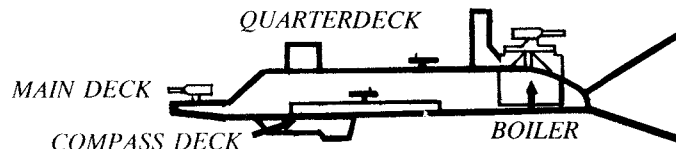
## Technical Specifications

**Armor:** 3  
**Hull:** 4  
**Speed:** 6  
**Engine:** 500 HP (ES = 4)  
**Coal:** 80 tons  
**Endurance:** 20 days  
**Altitude:** Very High  
**Tonnage:** 330  
**Price:** 46,000  
**Crew:** 2 + 3 + 17  
    *Bridge:* C,H,T,S,O  
    *Deck:* 1 + 4  
    *Maneuver:* 4  
    *Gunners:* 8  
**Armament:**  
    1 3'', forward  
    1 3'', stern tower  
    2 1'' Gatlings, wing mounts  
    2 0.5'' Gatlings, broadsides  
    1 drogue torpedo  
    2 bomb racks (2 loads carried)

### COMPASS DECK



*QUARTERDECK*



## DEPLOYMENT OF SHIPS IN CLASS

<i>Ship</i>	<i>Launched</i>	<i>Current Station</i>
<i>Czarina</i>	1886	Baltic Fleet
<i>Anakria</i>	1887	Hecates Lacus
<i>Ekenes</i>	1887	Baltic Fleet
<i>Rotchensalm</i>	1888	Hecates Lacus
<i>Gapsal</i>	1888	Pacific Fleet
<i>Kotka</i>	1888	Pacific Fleet
<i>Seskar</i>	1889	Black Sea Fleet
<i>Kronshlot</i>	1889	Baltic Fleet

## GERMANY

THE GERMAN Luftschifferabteilung (airship detachment) was formed as a separate branch of service in 1887—its uniform being the same as that for the engineers of the guard with the addition of a yellow metal “L” on the red shoulder straps. The airship detachment is formed as a three-battalion regiment for administrative purposes, but personnel are drawn from various companies and battalions to form the crews of airships. Most aerial vessels in German service are hydrogen-filled rigid airships; these ships are almost universally called “Zep-pelins” after their inventor, Count von Zeppelin.

Very limited supplies of liftwood have been obtained from the trading station in Western Dioscuria, and these have been mostly used to construct a variety of small experimental vessels, which provide some practical design and construction experience as well as try out various engineering theories. The only genuine aerial warship using liftwood in German service is on Mars. The *Hamburg*'s armament, armor, and weaponry were built on Earth (in Wilhelmshaven) and shipped in pieces to Mars. They were then assembled and finished with the addition of liftwood panels.

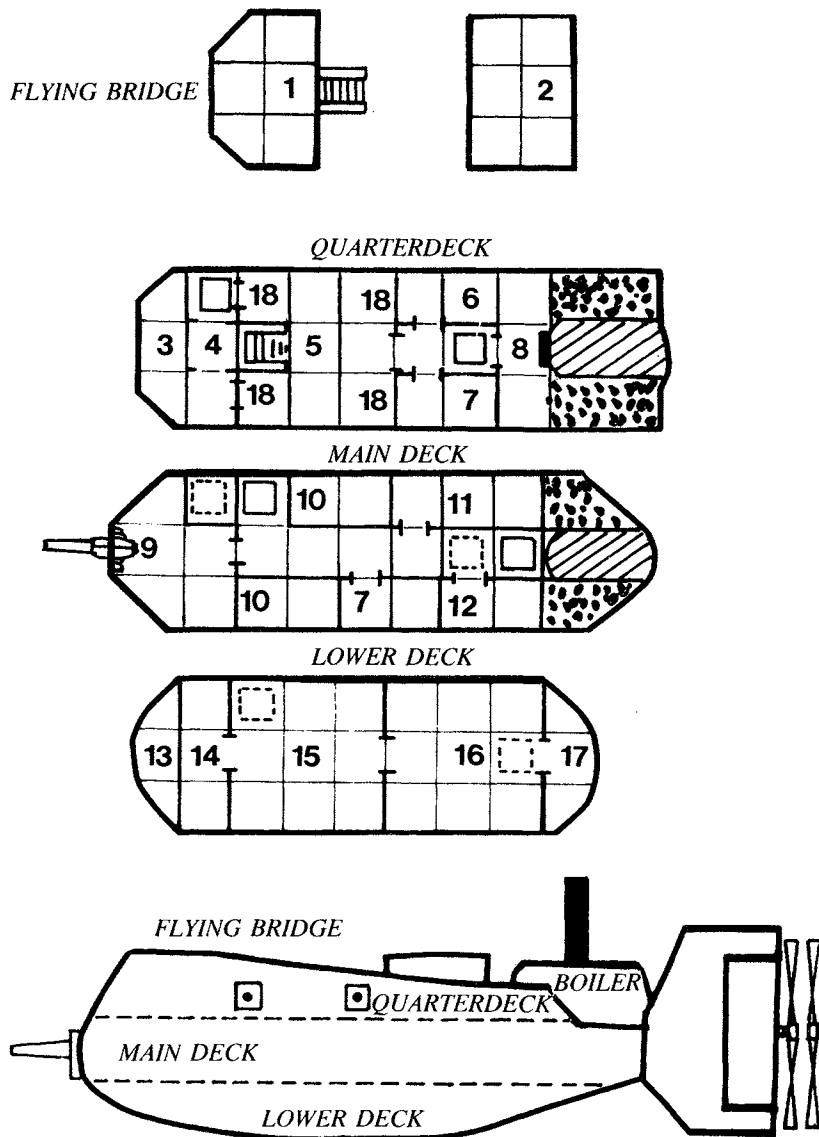
### *Hamburg*-Class Luftkreuzer (Aerial Cruiser)

THE *HAMBURG* is a very clumsy design, but a powerful one, nonetheless. The designer's decision to place all armament below the bulkhead armor provides good protection for the crew at no weight cost but severely restricts traverse of the

guns. This is largely made up for by the sheer number of large guns carried, however. In 1886, shortly after assembly was completed, the *Hamburg* was involved in a serious exchange of gunfire with two British aerial gunboats in the so-called “My-larkt Incident.” *Hamburg* was seri-

ously damaged in the exchange, but succeeded in destroying *H.M.S. Daring*. *Hamburg* was grounded for repairs until late 1887, at which time it began regular patrol runs in Western Dioscuria and has ventured as far west as Dinsoor in Cydonia to show the German flag.

### HAMBURG



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Hamburg</i>	1886	Western Dioscuria

1. Flying Bridge
2. Cabin Roof
3. Bridge
4. Chart Room
5. Waist
6. Captain's Quarters
7. Officers' Quarters
8. Engine Space
9. 6-inch Gun Bay
10. 4-inch Magazine
11. Wardroom
12. Galley
13. 6-inch Magazine
14. Petty Officers' Quarters
15. Crew's Quarters
16. Marines' Quarters
17. Cargo Hold
18. 4-inch Gun Mount

### Technical Specifications

**Armor:** 3  
**Hull:** 6  
**Speed:** 5  
**Engine:** 625 HP (ES = 5)  
**Coal:** 100 tons  
**Endurance:** 20 days  
**Altitude:** High  
**Tonnage:** 600  
**Price:** 69,400  
**Crew:** 5 + 4 + 40  
     *Bridge:* C,H,T,S,2 × O  
     *Deck:* 2 + 6  
     *Maneuver:* 5  
     *Gunners:* 10  
     *Marines:* 2 + 18  
**Armament:**  
     1 6" gun, forward, fixed under armor  
     4 4" short guns, broadside, fixed under armor

### LIFTWOOD

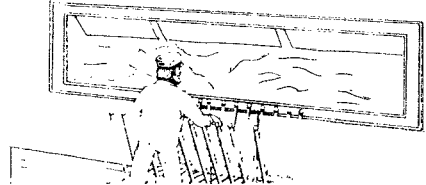
LIFTWOOD IS A product of certain of the Martian highlands. Upon maturity, this tree displays remarkable contra-gravitational properties. Generations of Martian ship builders have used liftwood to make graceful kites (wind-driven aerial ships) and, more recently, screw galleys.

Liftwood interacts with the magnetic field of a planet to alter the gravitational field in its immediate vicinity, thus rendering the wood and certain objects in close proximity to it nearly weightless. Objects immediately above the liftwood do not seem weightless but retain their normal apparent weight. This apparent gravitational attraction is exhibited in respect to the liftwood rather than the planetary surface. This attraction to the liftwood is also apparently fundamental to its contra-gravitational properties, as the attraction is always proportional to the gravitational field of the world on which the liftwood is used. No measurable gravitational attraction is shown by liftwood in interplanetary space, even when powerful magnetic fields are generated in its presence.

Thickness of liftwood does not appear to profoundly affect the extent of its contra-gravitational properties, so fairly thin sheets of liftwood can lift remarkable weights. Planks thinner than about two inches tend to deteriorate at a greatly accelerated rate, however, and so lifters are routinely built at about this thickness. (Master builders can judge the hardness of a log from its color and grain, and can cut it accordingly, but two inches is a safe rule of thumb.)

Once cut and planed, lifters are mounted on the bottom of a vessel's hull on pivots or on gimbals, which allow them to be adjusted for proper lift. The greater the exposed surface of the lifter, the greater the lift. All the individual lifters are connected by cables to the trimsmen's levers. As weight shifts on a vessel, it will tip, and this will alter the amount of lift the various panels provide. The trimsmen then adjust one or more panels, and the ship comes back to level. If trim is not adjusted, the ship may continue to roll to one side, losing more lift, and begin a rapid side slip toward the ground. If left uncorrected, this will soon turn into an uncontrolled dive that will end in a crash.

While liftwood works on Venus, the unusual nature of the magnetic field of that planet rapidly accelerates decay of the wood, and in a few days the hardest of liftwood will lose virtually all its lift. Normally, a well cut lifter will last an average of 10 years, so the actual supply of liftwood in use is fairly constant, with newly harvested logs replacing old lifter panels. With the new demand for liftwood from the industrial powers of Earth, the price has been rising, and many worry that the red powers will drain Mars of what its inhabitants view as their heritage and birthright.

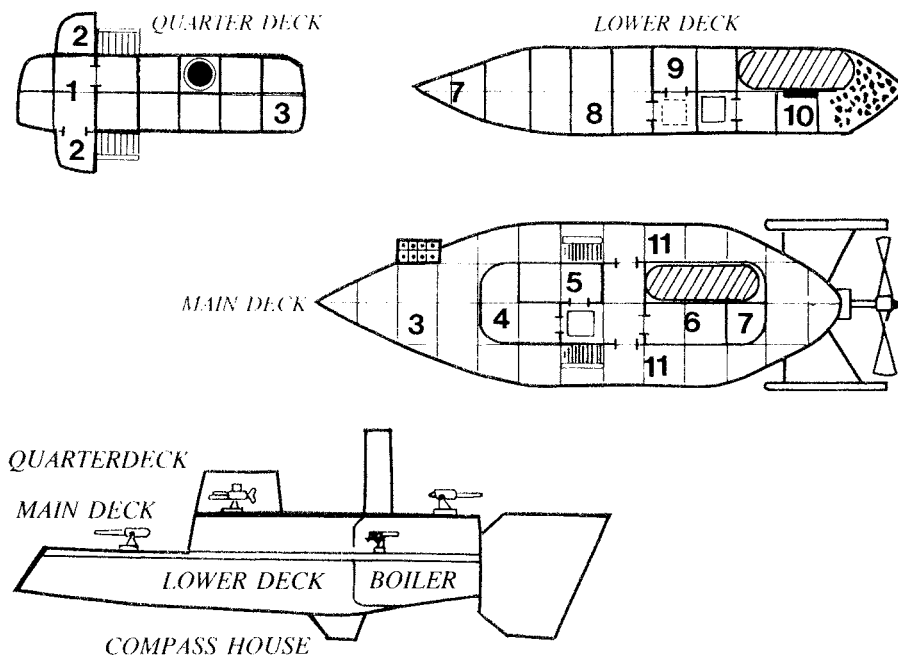


## FRANCE

THE FRENCH COLONY on Mars consists of the city-state of Idaeus Fons and considerable expanses of the broad steepe leading up to the foothills of the Tempe Mountains. Fast-moving columns have repeatedly fought their way into the heart of the Tempe Range, and although they have been unable to suppress the Tempe High Martians or establish a permanent foothold there, they have brought out considerable supplies of liftwood. On Mars the French operate a fleet of locally built ships, mostly screw galleys in the 300- to 500-ton range. Much of the liftwood brought out of the Tempes, however, has been shipped back to Earth and has been used to form a powerful aerial squadron.

**Harpon-Class Aerial Sloop**

THE *HARPON* IS the main class of aerial vessel in French naval service. It is lightly armed by contemporary standards, but it is a fine performance boat with excellent speed and altitude ceiling. Vessels of this class currently serve on every major French naval station, and an uncertain number (rumored to be as high as four vessels) is under construction.

**HARPON**

1. Bridge
2. 3-pounder Mount
3. 4-inch Gun Mount
4. Officers' Quarters
5. Galley
6. Petty Officers' Quarters
7. 4-inch Magazine
8. Crew's Quarters
9. Shower and Head
10. Engine Room
11. Mitrailieuse Mount

**Technical Specifications**

**Armor:** 2  
**Hull:** 3  
**Speed:** 6  
**Engine:** 375 HP (ES = 3)  
**Coal:** 60 tons  
**Endurance:** 20 days  
**Altitude:** Very High  
**Tonnage:** 250  
**Price:** 37,880  
**Crew:** 2 + 3 + 15  
*Bridge:* C, H, T, S, O  
*Deck:* 1 + 3  
*Maneuver:* 3  
*Gunners:* 8

**Armament:**

1 4'' short, forward  
 1 4'' short, stern tower  
 2 3-pounder HRC, wing mounts  
 2 Mitrailieuse, broadside  
 2 rocket batteries (1 up, 1 down)

**DEPLOYMENT OF SHIPS IN CLASS**

Ship	Launched	Current Station
<i>Harpon</i>	1887	Atlantic Squadron
<i>Hallebarde</i>	1888	Mediterranean Squadron
<i>Hache</i>	1888	Atlantic Squadron
<i>Javeline</i>	1888	Pacific Squadron
<i>Mousqueton</i>	1889	Mediterranean Squadron

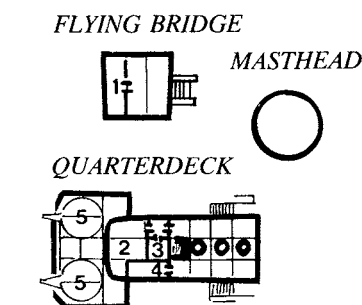
### *Gloire*-Class Aerial Cruiser

THE *GLOIRE* was designed in response to a naval requirement for a long-range heavy aerial unit capable of operating independently of surface naval units. At the same time, it was decided that the ship should have better armor protection than any aerial vessel built to date. The result is a controversial ship among French naval experts. The *Gloire* has exceptional range and is very well protected. On the other hand, it is sluggish and has a limited

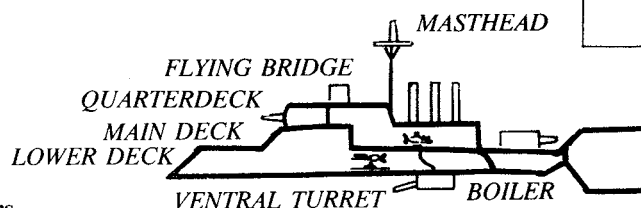
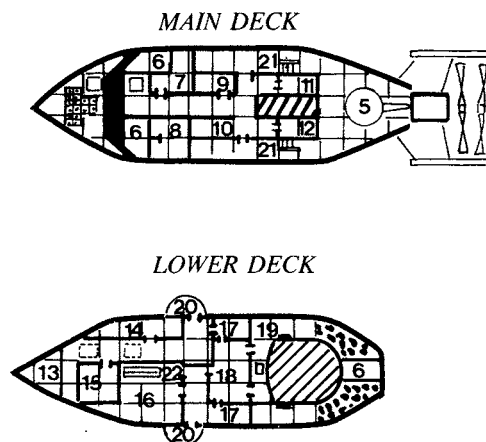
ceiling, and its armament is somewhat less impressive than the title "cruiser" might suggest.

One point of particular interest is the arrangement of the armament on the ship. Three of the four-inch guns are located in upper deck turrets, two side-by-side forward and one aft. The remaining gun is mounted in a ventral turret with all-around fields of fire. This weapon is of considerable value for use in bombarding ground targets, but it cannot engage other ships at higher altitudes than the *Gloire*.

### *GLOIRE*



1. Bridge
2. Admiral's Quarters
3. Chart Room
4. Flag Captain's Quarters
5. 4-inch Gun Turret
6. 4-inch Magazine
7. Officers' Quarters
8. Wardroom
9. Captain's Quarters
10. Galley
11. Brig
12. Armory
13. Cargo Hold
14. Petty Officers' Quarters
15. Marines' Quarters
16. Crew's Quarters
17. Shower and Head
18. Mess Hall
19. Engine Room
20. 6-pounder Mount
21. 3-pounder Mount
22. Bomb Bay



### *Technical Specifications*

**Armor:** 4

**Hull:** 10

**Speed:** 3

**Engine:** 625 HP (ES = 5)

**Coal:** 200 tons

**Endurance:** 40 days

**Altitude:** High

**Tonnage:** 1001

**Price:** 112,760

**Crew:** 4 + 5 + 39

*Bridge:* C,H,T,S,2 × O

*Deck:* 3 + 10

*Maneuver:* 5

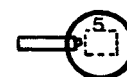
*Gunners:* 12

*Marines:* 1 + 11

### **Armament:**

- 2 4'' longs, forward in armored turrets
- 1 4'' long, aft in armored turret
- 1 4'' long, in ventral armored turret
- 2 6-pounder HRCs, wing mounts
- 2 3-pounder HRCs, broad-side
- 4 rocket batteries (2 up, 2 down)
- 5 bomb racks (5 loads carried)
- 1 drogue torpedo
- 1 tether mine

### *Ventral Turret*



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Gloire</i>	1887	Atlantic Squadron
<i>Invincible</i>	1888	Pacific Squadron



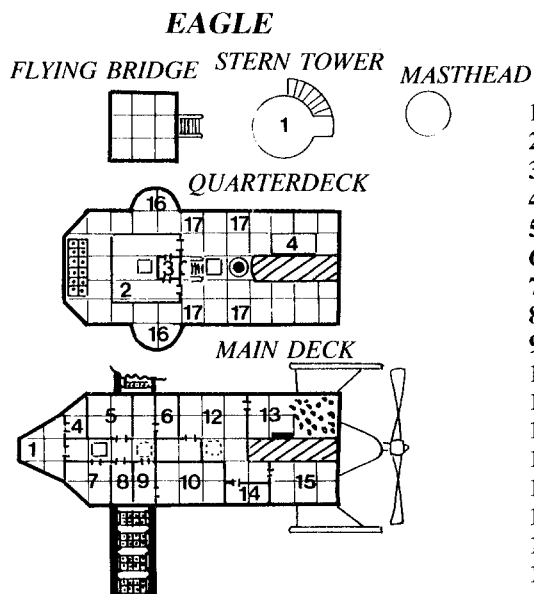
## U.S.A.

THE RESPONSIBILITIES of the U.S. Navy have, for many years, been confined to coast defense, and most of its ships have been coast defense monitors left over from the Civil War, supplemented by a few old wooden-hulled, ocean-going, steam-assisted sailing vessels. This is now changing, and a number of modern new ships are entering service with many more being built. Although the United States is far from being a major naval power, it has at least become an important force in the western hemisphere.

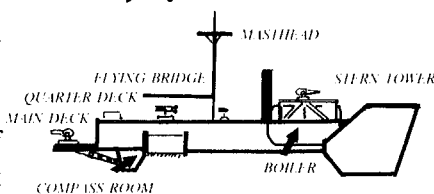
To support the growing U.S. naval force, the Americans have built a number of aerial rocket sloops. These are small vessels heavily loaded with rockets for bombardment of surface naval vessels. They are not intended to fight heavily armed aerial gunboats and would be at a severe disadvantage if called upon to do so. Nevertheless, they are extremely valuable in the aerial scouting role and have a better bombardment ability than ships several times larger.

**Eagle-Class Rocket Sloop**

THE *EAGLE* IS an unusual class of vessel, easily recognizable by its large outrigger-like racks of rocket batteries. Normally a small vessel of this type would be unable to accommodate more than a quarter of the



1. 3-inch Gun Mount
2. Bridge
3. Chart Room
4. 3-inch Magazine
5. Wardroom
6. Captain's Quarters
7. Officers' Quarters
8. Shower and Head
9. Galley
10. Mess Hall
11. Bomb Bay
12. Crew's Quarters
13. Engine Room
14. Petty Officers' Quarters
15. Marines' Quarters
16. 1-pounder Mount
17. Gatling Gun Mount



rockets carried on the *Eagle*, but the ingenious design (and a 50-percent inflation of the vessel's basic cost) enables it to carry an intimidating ordnance load.

The principal disadvantage of the design is the likelihood that an explosion will set off a chain reaction of detonating rocket batteries. In game terms, whenever an *Eagle*-class rocket sloop suffers a magazine hit, all remaining rockets, bombs, and gun magazines detonate, the boiler blows up, and the vessel is destroyed in a spectacular explosion.

*Technical Specifications*

**Armor:** 2

**Hull:** 4

**Speed:** 6

**Engine:** 500 HP (ES = 4)

**Coal:** 40 tons

**Endurance:** 10 days

**Altitude:** High

**Tonnage:** 400

**Price:** 67,820

**Crew:** 4 + 4 + 37

*Bridge:* C,H,T,S,O

*Deck:* 2 + 4

*Maneuver:* 4

*Gunners:* 10

*Marines:* 2 + 18

**Armament:**

1 3", forward

1 3", aft

2 1-pounder HRC, wing mounts

4 0.5" Gatlings, broadside  
16 rocket batteries (12 down, 4 up)

2 bomb racks (4 loads carried)

**DEPLOYMENT OF SHIPS IN CLASS**

Ship	Launched	Current Station
<i>Eagle</i>	1887	Atlantic Squadron
<i>Valley Forge</i>	1888	Gulf Squadron
<i>Saratoga</i>	1888	Pacific Squadron
<i>Ticonderoga</i>	1889	Gulf Squadron

### Technical Specifications

**Armor:** 0  
**Hull:** 3  
**Speed:** 4  
**Engine:** 250 HP (ES = 2)  
**Coal:** 60 tons  
**Endurance:** 30 days  
**Altitude:** Very High  
**Tonnage:** 246  
**Price:** 23,600  
**Crew:** 4 + 3 + 34  
     *Bridge:* C,H,T,S,O  
     *Deck:* 1 + 3  
     *Maneuver:* 2  
     *Gunners:* 10  
     *Marines:* 2 + 18

#### Armament:

- 1 40-pounder, forward
- 1 4" short, aft
- 2 6-pounder breechloaders, wing mounts
- 2 0.5 caliber Gatling guns, broadside

1. Flying Bridge
2. Bridge
3. Captain's Quarters
4. Officers' Quarters
5. Chart Room
6. Crew's Quarters
7. Engine Room
8. 40-pounder Magazine
9. Marines' Quarters
10. Petty Officers' Quarters
11. Galley
12. 4-inch Mount
13. Gatling Gun Mount
14. 40-pounder Mount
15. 6-pounder Mount
16. 4-inch Magazine

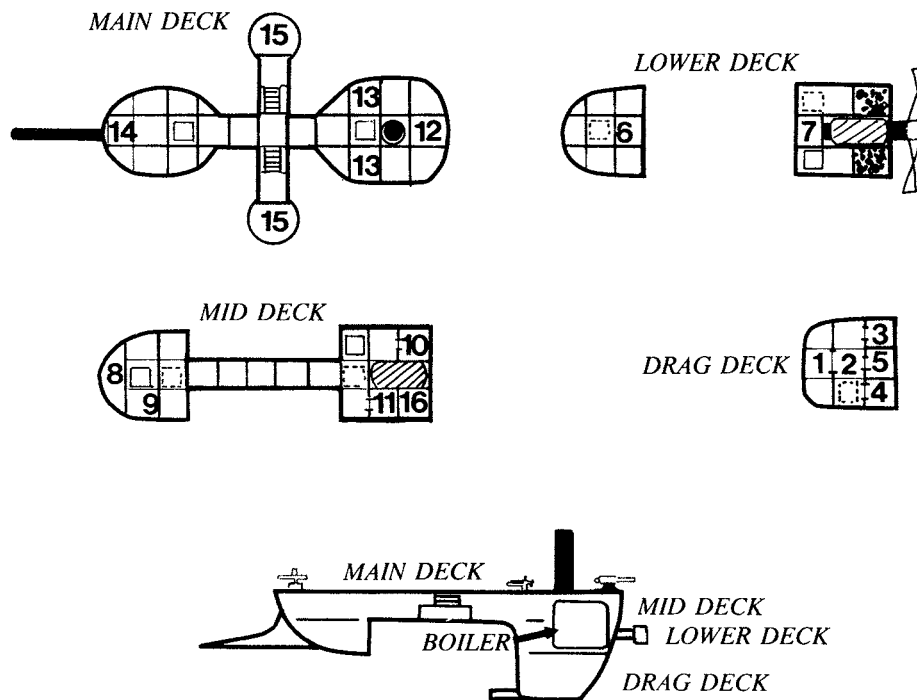
### Ranger-Class Gunboat

AMERICAN interests on Mars are, for the most part, nonterritorial and require little policing. However, the American quarter of Thymiamata in Eastern Chryse now contains an American population of several thousand, and growing antihuman sentiment on Mars has prompted the Americans to increase their security forces on the planet. The detachment of marines in Syrtis Major at the legation compound has been brought up to company strength, while three companies of infantry, a battery of artillery, and a troop of cavalry are now stationed in Thymiamata.

Naturally, a need was identified

for some sort of aerial force as well. While funds were voted for the construction of a modern armored gunboat at the British yards at Syrtis Major, the outbreak of the Oenotrian War has resulted in the entire capacity of those yards being devoted to British naval needs. Consequently, the Americans have recently purchased a damaged *Swiftwood*-class Oenotrian war kite (a prize taken by a Red Captain privateer and sold at public auction to the highest bidder), and men from the Corps of Engineers have refit it using armament and machinery shipped out from Earth. Renamed the *U.S.S. Ranger*, this vessel, many believe, will soon be moved to Thymiamata.

### RANGER



### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Ranger</i>	1886	Thymiamata

## JAPAN

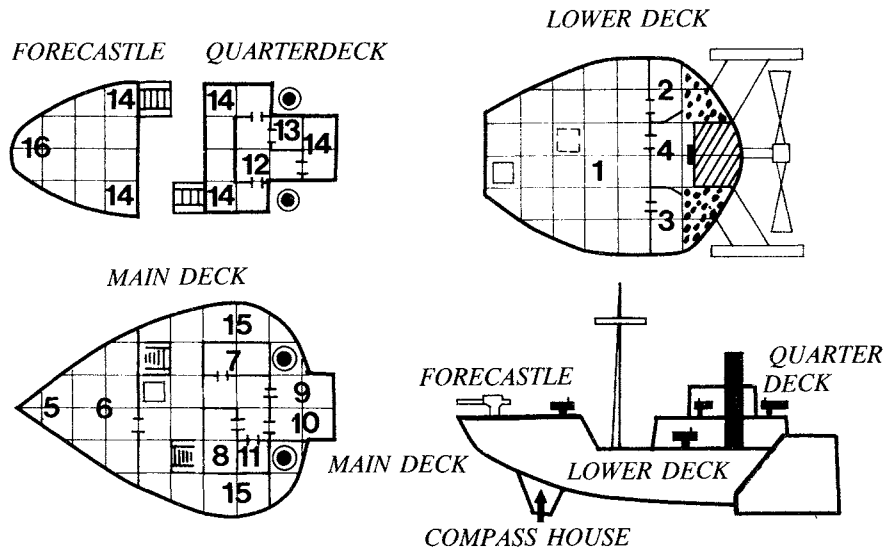
JAPAN MAINTAINS a permanent trading station at Euxinus Lacus on Mars, as well as a military and scientific outpost (Unebi Station) some 100 miles west of the city along the dead canal to Herculis. Relations with the prince of Euxinus Lacus are strained, but there have been no outbreaks of violence to date. Nevertheless, Japan maintains a regiment of infantry at Unebi Station, a company of which is always on duty at the trading station and legation compound in Euxinus Lacus.

The need for some means of quick reinforcement of the Euxinus Lacus legation from Unebi Station resulted in the purchase of the *Mikasa* in 1886. Originally built as a merchant kite in the Martian yards at Herculis, the *Mikasa* was fitted with boilers and an air screw, and outfitted as an armed transport.

One year later the Japanese placed their first order for a purpose-built military ship, the *Yashima*, and this was delivered early in 1888 from the British yards at Syrtis Major. Recently an identical vessel has been constructed on Earth at the new Yokosuka Naval Yards and serves with the Imperial Japanese Home Fleet. The design of the *Yashima* class was influenced heavily by the British *Reliant*, as the prominent armored wing sponsons indicate. The Japanese naval ministry has announced a further modest naval building program as well.

*Mikasa*-Class Armed Transport

## MIKASA



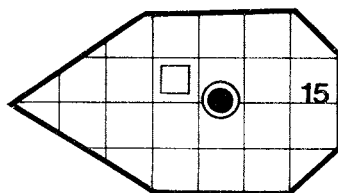
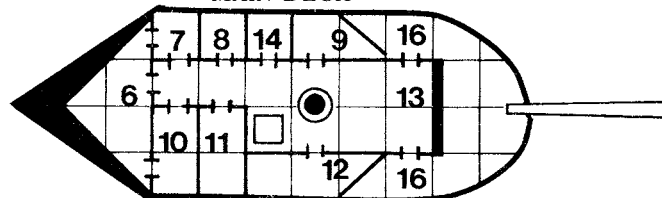
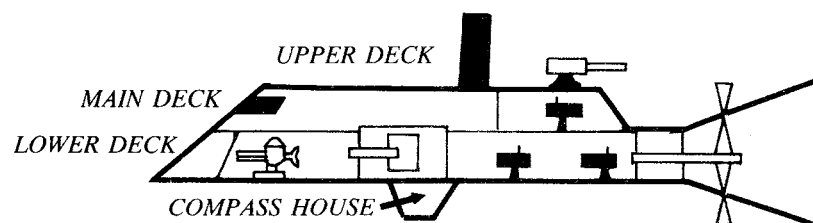
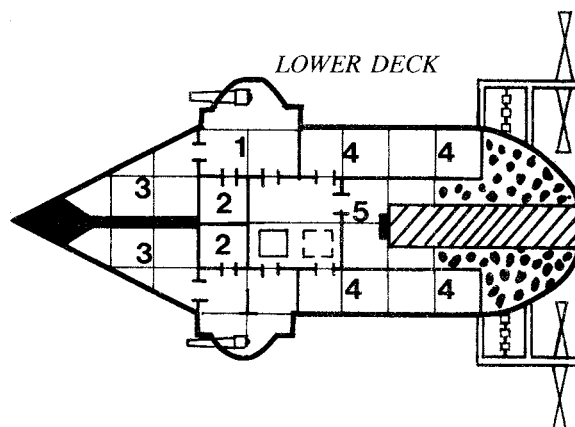
1. Marines' Quarters
2. Showers and Head
3. Brig
4. Engine Room
5. 3-inch Magazine
6. Crew's Quarters
7. Petty Officers' Quarters
8. Galley
9. Captain's Quarters
10. First Officer's Quarters
11. Armory
12. Bridge
13. Chart Room
14. .50-caliber Gatling Mount
15. 1-inch Gatling Mount
16. 3-inch Mount

## Technical Specifications

**Armor:** 0  
**Hull:** 2 (wood)  
**Speed:** 3  
**Engine:** 125 HP (ES = 1)  
**Coal:** 10 tons  
**Endurance:** 10 days  
**Altitude:** High  
**Tonnage:** 200  
**Price:** 17,780  
**Crew:** 2 + 3 + 13 (+ 50 troops)  
     *Bridge:* C,H,T,S,O  
     *Deck:* 1 + 2  
     *Maneuver:* 1  
     *Gunners:* 9  
     *Troops:* 50  
**Armament:**  
     1 3'' gun, forward  
     2 1'' Gatlings, wing mounts  
     1 0.5 caliber Gatling, aft  
     4 0.5 caliber Gatlings, broadside

## DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Mikasa</i>	1886	Unebi Station

**Yashima-Class Gunboat****YASHIMA****UPPER DECK****MAIN DECK****LOWER DECK****Technical Specifications****Armor:** 2**Hull:** 3**Speed:** 4**Engine:** 250 HP (ES = 2)**Coal:** 40 tons**Endurance:** 20 days**Altitude:** Very High**Tonnage:** 250**Price:** 34,100**Crew:** 2 + 4 + 20*Bridge:* C,H,T,S,O*Deck:* 2 + 3*Maneuver:* 2*Gunners:* 14**Armament:**

2 3'' guns in armored sponsons, wing mounts

1 4'' long gun in stern tower

2 1-pounder HRCs, forward

2 1'' Gatlings, broadside

4 0.5'' Gatlings, broadside

1. 3-inch Sponson
2. 3-inch Magazine
3. 1-pounder Mount
4. .50-caliber Gatling Mount
5. Engine Room
6. Bridge
7. Chart Room
8. First Officer's Quarters
9. Shower and Head
10. Captain's Quarters
11. Petty Officers' Quarters
12. Galley and Mess Hall
13. Crew's Quarters
14. Armory
15. 4-inch Gun Mount
16. 1-inch Gatling Mount

**DEPLOYMENT OF SHIPS IN CLASS**

<i>Ship</i>	<i>Launched</i>	<i>Current Station</i>
<i>Yashima</i>	1888	Unebi Station
<i>Fuji</i>	1889	Yokosuka

## BELGIUM

BELGIUM DOES NOT have an ocean-going surface navy on Earth, nor does it have an aerial force to speak of. Its only aerial warships are on Mars and are employed in suppression of the nearly constant state of insurrection that prevails in the Coprates Rift Valley.

*Leopold-Class Gunboat*

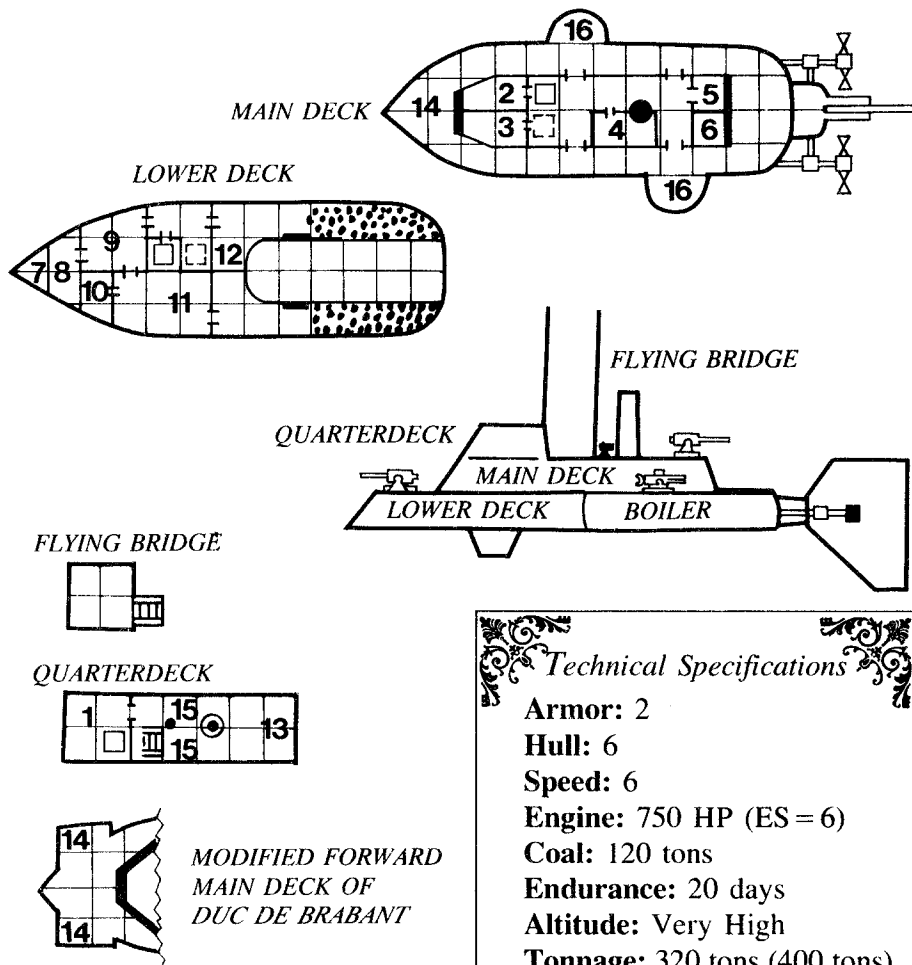
THE BELGIANS currently operate two armored gunboats in the Coprates Rift Valley on Mars. These boats were built under contract at Syrtis Major and are identical in all respects except for armament. They are fairly expensive boats for their size and armament, but are fast and have a good ceiling (both qualities much in demand as the vessels are used more in the armed border patrol and commerce interdiction role, rather than as a line of battleships). The technical specifications given below are for the *Leopold*. Where the specifications for the *Duc de Brabant* differ, they follow in parentheses.

- |                                                                      |                                                                         |
|----------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1. Bridge                                                            | 10. Shower and Head                                                     |
| 2. Captain's Quarters                                                | 11. Crew's Quarters                                                     |
| 3. First Officer's Quarters                                          | 12. Engine Room                                                         |
| 4. Petty Officers' Quarters                                          | 13. 4-inch Gun Mount<br>(6-inch Gun Mount on<br><i>Duc de Brabant</i> ) |
| 5. Brig                                                              | 14. 4-inch Gun Mount                                                    |
| 6. 4-inch Magazine<br>(6-inch Magazine on<br><i>Duc de Brabant</i> ) | 15. Nordenfelt Mount                                                    |
| 7. 4-inch Magazine                                                   | 16. 6-pounder Mount<br>(Nordenfelt Mounts on<br><i>Duc de Brabant</i> ) |
| 8. Galley                                                            |                                                                         |
| 9. Mess Hall                                                         |                                                                         |

## DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Leopold</i>	1887	Copratia
<i>Duc de Brabant</i>	1887	Melas

## LEOPOLD



## Technical Specifications

**Armor:** 2  
**Hull:** 6  
**Speed:** 6  
**Engine:** 750 HP (ES = 6)  
**Coal:** 120 tons  
**Endurance:** 20 days  
**Altitude:** Very High  
**Tonnage:** 320 tons (400 tons)  
**Price:** 69,080 (69,400)  
**Crew:** 2 + 4 + 21 (23)  
*Bridge:* C,H,T,S,O  
*Deck:* 2 + 6  
*Maneuver:* 6  
*Gunners:* 8 (10)

**Armament (*Leopold*):**

1 4'' long gun, forward  
 1 4'' long gun, aft  
 2 6-pounder HRC, wing mounts  
 2 Nordenfelts, broadside

**Armament (*Duc de Brabant*):**

2 4'' long guns, forward  
 1 6'' gun, aft  
 2 Nordenfelts, wing mounts  
 2 Nordenfelts, broadside

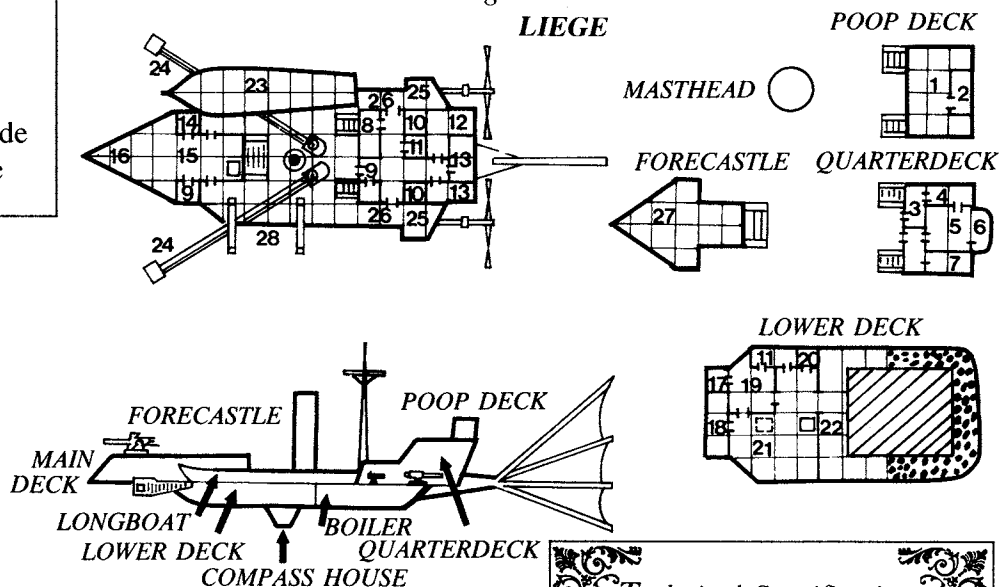
### Technical Specifications

**Armor:** 0  
**Hull:** 12 (wood)  
**Speed:** 5  
**Engine:** 1250 HP (ES = 10)  
**Coal:** 200 tons  
**Endurance:** 20 days  
**Altitude:** Very High  
**Tonnage:** 940  
**Price:** 113,000  
**Crew:** 5 + 5 + 52  
*Bridge:* C,H,T,S,2 × O  
*Deck:* 3 + 12  
*Maneuver:* 10  
*Gunners:* 8  
*Marines:* 2 + 22  
**Armament:**  
 1 6" gun, forward  
 2 4" long guns, broadside  
 2 Nordenfelts, broadside

1. Bridge
2. Chart House
3. Admiral's Day Cabin
4. Admiral's Sleeping Cabin
5. Dining Room
6. Stern Gallery
7. Captain's Cabin
8. Petty Officers' Quarters
9. Armory
10. 4-inch Magazine
11. Galley
12. Wardroom
13. Officers' Quarters
14. Head
15. Marines' Quarters
16. 6-inch Magazine
17. Ship's Stores
18. Shower and Head
19. Mess Hall
20. Brig
21. Crew's Quarters
22. Engine Room

### Liege Assault Transport

THE *LIEGE* IS a unique vessel. In addition to its normal armament, it mounts a pair of steam-powered catapults used to launch small boarding longboats. Each such longboat carries 12 marines (half the marine complement of the ship), and moves six hexes the turn it is launched. Thereafter, it moves at its normal speed. The catapults are angled 30 degrees either side of the bow, and so the launches will move in a straight line away from the *Liege* in the turn of launch, beginning with the hex to either side of the bow of the *Liege*.



23. Boarding Longboat in Cradle
24. Steam Catapult
25. 4-inch Gun Mount
26. Nordenfelt Mount
27. 6-inch Gun Mount
28. Empty Longboat Cradle

### Technical Specifications

**Armor:** 0  
**Hull:** 1 (wood)  
**Speed:** 8  
**Altitude:** Very High  
**Tonnage:** 29  
**Price:** 3000  
**Crew:** 1 + 11  
*Bridge:* C,H,T  
*Maneuver:* 8  
*Gunner:* 1  
**Armament:**  
 1 Nordenfelt, forward

### DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<i>Liege</i>	1888	Coprata

## CONSOLIDATED GUN LIST

Type	Naval Mount							Field Gun				
	Wt.	Pen	DV	ROF	Crew	Range	Cost	ROF	Range	Burst	Wt.	Cost
1-pdr PP	10	0/0	1	4	1	2/4	250	3	400	2	300	250
1-pdr HRC	10	0/0	1	3	1	2/4	160	2	400	2	300	160
3-pdr HRC	10	1/0	1	3	1	2/4	180	2	400	4	400	180
6-pdr HRC	15	1/0	1	3	1	3/6	220	2	600	4	800	220
6-pdr	10	1/0	1	1	2	3/6	200	(3)*	600	4	600	200
9-pdr	10	1/1	1	1	2	3/6	220	(3)	600	6	800	220*
12-pdr/3''	20	2/1	1	1	2	3/6	240	(3)	600	8	1000	240*
15-pdr	25	2/1	1	1	2	3/6	260	(3)	600	10	1200	260*
20-pdr/4'' S	30	2/1	2	1	2	3/6	300	(3)	600	12	1600	300*
4'' L	40	3/2	2	1	2	4/8	400	(3)	800	10	—	—
40-pdr	60	3/2	3	1	2	4/8	600	(3)	800	14	3500	600*
4.7'' QF	100	4/2	3	2	2	4/8	1000	(1)	800	14	—	—
5''	80	4/2	4	1	2	5/10*	800	(3)	1000	16	—	—
6''	100	5/3	6	1	2	5/10	1000	(3)	1000	20	—	—
8''	300	9/5	8	(1)	3	6/12	3000	(6)	1200	24	—	—
10''	600	10/5	10	(1)	4	7/14	6000	(6)	1400	28	—	—
12''	900	12/6	12	(1)	5	8/16	9000	(6)	1600	32	—	—
14''	1300	14/7	14	(1)	6	9/18	12,000	(6)	1800	36	—	—
16''	2250	16/8	16	(2)	6	10/20	24,000	(12)	2000	40	—	—
7-pdr MH	15	—/0	1	2	2	—/6	200	(1)	600	4	400	200
5'' Hwtzr	60	—/1	3	1	2	—/8	1000	(3)	800	14	3000	600*

## MARTIAN GUNS AND OLD EARTH SMOOTHBORES

Type	Naval Mount							Field Gun				
	Wt.	Pen	DV	ROF	Crew	Range	Cost	ROF	Range	Burst	Wt.	Cost
Sweeper	10	P	—	2	1	0/1	200	(1)	100	2	1	200
Light Gun	20	0	1	1	2	1/2	400	(3)	200	4	2	400
Heavy Gun	40	1/0	2	1	2	2/4	1000	(4)	300	6	4	1000
Rod Gun	30	3/2	1	(1)	2	3/6	800	(5)	400	4	3	800
Rogue	60	2/1	3	(1)	3	3/6	2000	(6)	400	8	6	2000
9'' SB	60	1/1	2	1	2	2/4	1000	(4)	400	6	—	—
10'' SB	80	2/1	4	(1)	3	3/6	2000	(6)	600	10	—	—
11'' SB	150	3/1	5	(1)	3	3/6	3500	(6)	600	12	—	—
15'' SB	300	4/2	7	(2)	4	4/8	6000	(8)	800	14	—	—
Lob Gun	200	—/2	4	(1)	3	—/3	2000	(6)	300	10	20	2000

## ABBREVIATIONS

**PP:** Pom Pom  
**HRC:** Hotchkiss Revolving Cannon  
**SB:** Smoothbore  
**pdr:** pounder  
**S:** Short

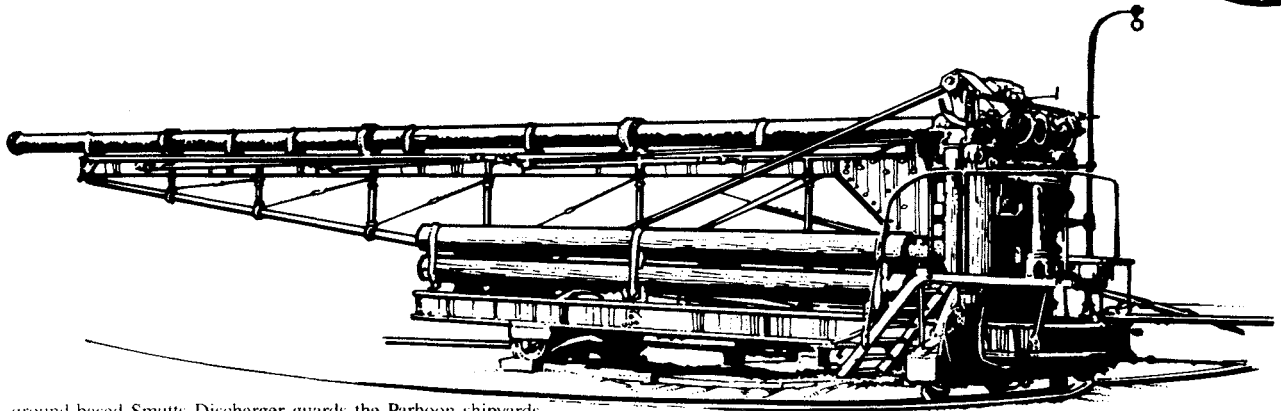
**L:** Long  
**QF:** Quick Firing  
**MH:** Mountain Howitzer  
**Hwtzr:** Howitzer  
**Nord:** Nordenfelt  
**B:** Barrel

**D6:** One die.

**Dschrgr:** Discharger.

**Smutts Dschrgr + :** This is a new, improved version of the Smutts discharger which was recently developed.





A ground-based Smutts Discharger guards the Parhoon shipyards.

### WEAPON CHARACTERISTICS: Exotic Martian Weapons

#### Naval Mount

Weapon	Wt.	Pen	DV	ROF	Crew	Range	Cost	Requires
Tether Mine	—	0	4	—	—	—	200	Deck
Drogue Torpedo	10	0	10	—	—	—	20	—
Power Grapnel	20	—	—	(2)	(2)	0/1	200	—
Liquid Fire	20	—	F	D6	—	—	200	Deck
Spike Dropper	5	—	P	D6	—	—	150	Deck

### WEAPON CHARACTERISTICS: Exotic British Weapons

#### Naval Mount

Weapon	Wt.	Pen	DV	ROF	Crew	Range	Cost	Requires
Hale Rockets	5	0	1	D6	(1)	—/4	50	Deck
Tether Mine	—	0	6	—	—	—	200	Deck
Drogue Torpedo	10	0	10	—	—	—	20	—
Smutts Dschrgr	200	—	—	(1)	3	—	1000	—
Smutts Dschrgr +	100	—	—	(1)	3	—	1500	—
Smutts Torpedo	—	1	12	—	—	30	500	Interior
Power Grapnel	20	—	—	(2)	(2)	0/1	200	—
Bomb Rack	—	—	—	D6	(4)	—	50	Deck
Bomb Load	5	1	2	D6	—	—	10	—
Spike Dropper	5	—	P	D6	—	—	150	Deck

### MACHINEGUNS

#### Naval Mount

Gun	Wt.	Pen	DV	ROF	Crew	Range	Cost
0.5" Gatling	3	—	P	3/5	1	1/2	40
1" Gatling	5	0/0	1	3/4	1	1/2	70
Mitrailleuse	5	—	P	3	1	1/2	60
Nord. 5-B	5	—	P	5	1	1/2	100
Nord. 3-B	3	—	P	3	1	1/2	60
Nord. 1-B	—	—	P	2	(1)	0/1	40
Gardner	—	—	P	2/3	(1)	1/2	50
Maxim	—	—	P	6	(1)	1/2	150

### Notes

1. Weight includes weight of weapon, mount, crew, and magazine.

2. Penetration: The first number is the penetration of the weapon at close range; the second is the value at long range. Weapons with a penetration value of "—" are not capable of piercing armor.

3. DV is the gun's damage value. Weapons with a DV of P affect only personnel (crew). Weapons with a DV of F start fires.

4. The first number under range is the weapon's effective range; the second is its long range.

5. Rate of fire is the number of shots the gun may take per turn. Weapons with a ROF of (1) take one turn to reload between shots and thus may only fire every other turn. It takes one turn longer to reload a gun for every crew position the gun is short. Thus a weapon with an ROF of (1) and short one crewman would have an effective ROF of (2).

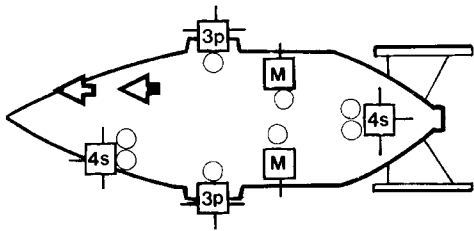
6. Weapons with a crew number in parentheses normally require that many crewmen to operate or reload the weapon, but the installation of the gun on the ship does not include provision for these crewmen. Instead, they must be provided as needed from other crew positions (usually the deckhands).

France

**HARPON**

②

£ 37,880



3

Boiler = 3

250 TONS

6

Bridge CHTSO

Deck P

Maneuver

Screw

6  
5  
4  
3  
2  
1

Hull Hits

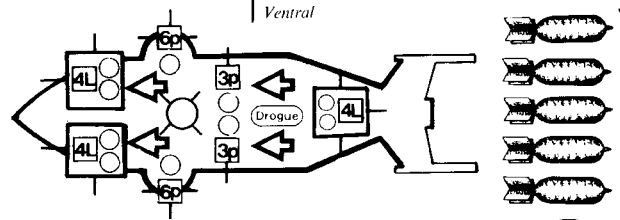
VH					
H					
M					
L					
VL					

France

**GLOIRE**

④

£ 112,760



10

Boiler = 5

1001 TONS

3

Bridge CHTSOO

Deck PPP

Maneuver

Screw

3  
2  
1

Hull Hits

H					
M					
L					
VL					

Marines

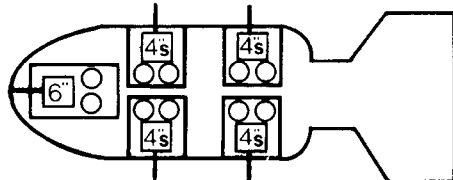
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Germany

**HAMBURG**

③

£ 69,400



6

Boiler = 5

600 TONS

5

Bridge CHTSOO

Deck PP

Maneuver

Screw

5  
4  
3  
2  
1

Hull Hits

H					
M					
L					
VL					

Marines

0				
0				

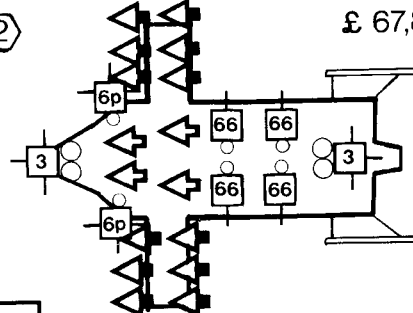
Scenario 3

USA

**EAGLE**

②

£ 67,870



4

Boiler = 4

400 TONS

6

Bridge CHTSO

Deck PP

Maneuver

Screw

6  
5  
4  
3  
2  
1

Hull Hits

H					
M					
L					
VL					

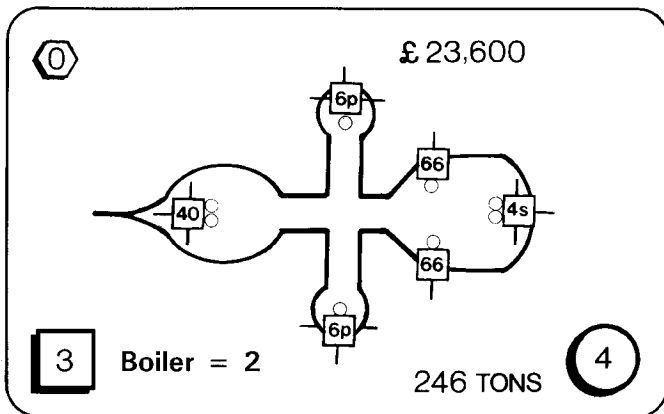
Marines

0	0			

CC-1982/R2

USA

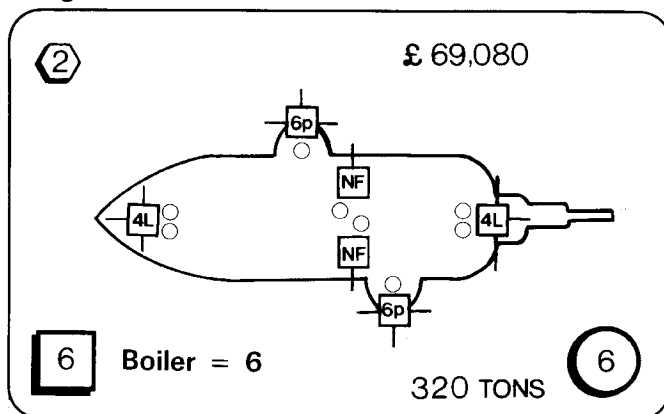
RANGER



Bridge	C	H	T	S	O	
Deck	P					
Maneuver						
Hull Hits	VH					
	H					
	M					
	L					
	VL					
Marines	0	0				

Belgium

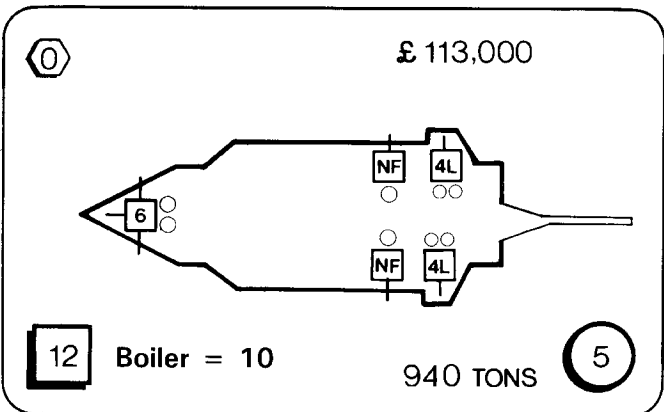
LEOPOLD



Bridge	C	H	T	S	O	
Deck	P	P				
Maneuver						
Hull Hits	VH					
	H					
	M					
	L					
	VL					
Marines	0	0				

Belgium

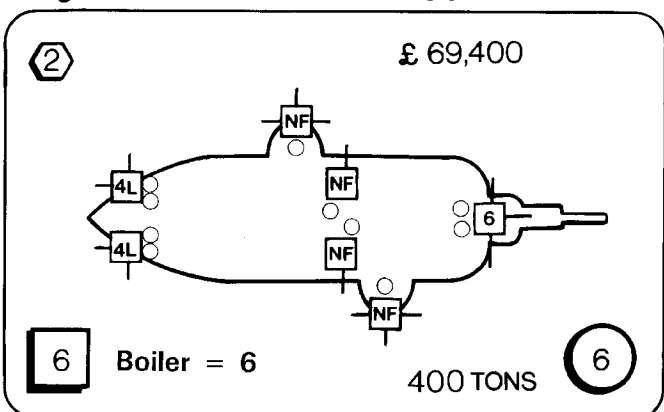
LIEGE



Bridge	C	H	T	S	O	O
Deck	P	P	P			
Maneuver						
Hull Hits	VH					
	H					
	M					
	L					
	VL					
Marines	0	0				

Belgium

DUC DE BRABANT



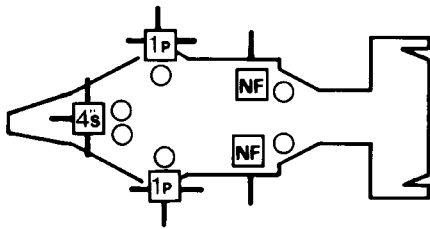
Bridge	C	H	T	S	O	
Deck	P	P				
Maneuver						
Hull Hits	VH					
	H					
	M					
	L					
	VL					
Marines	0	0				

## Great Britain

## APHID

②

£ 23,220



2 Boiler = 2

160 TONS

⑥

Bridge CHTS

Deck

Maneuver

Screw  
6  
5  
4  
3  
2  
1

Hull Hits

VH	
H	
M	
L	
VL	

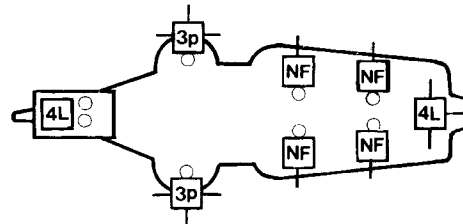
Marines


## Great Britain

## DAUNTLESS

②

£ 50,360



4 Boiler = 4

315 TONS

⑥

Bridge CHTSO

Deck PP

Maneuver

Screw  
6  
5  
4  
3  
2  
1

Hull Hits

VH			
H			
M			
L			
VL			

Marines

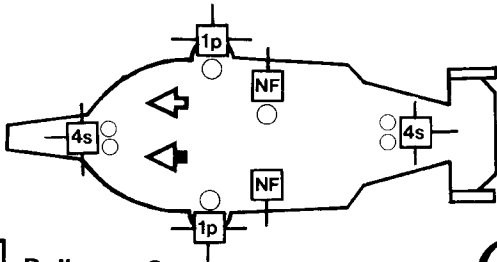
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## Great Britain

## LOCUST

①

£ 25,350



2 Boiler = 2

165 TONS

⑥

Bridge CHTS

Deck P

Maneuver

Screw  
6  
5  
4  
3  
2  
1

Hull Hits

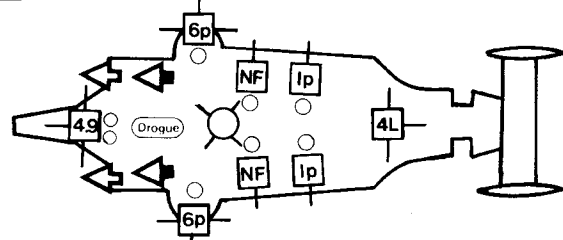
VH	
H	
M	
L	
VL	

## Great Britain

## MACEFIELD

②

£ 63,780



5 Boiler = 5

500 TONS

⑥

Bridge CHTSO

Deck PP

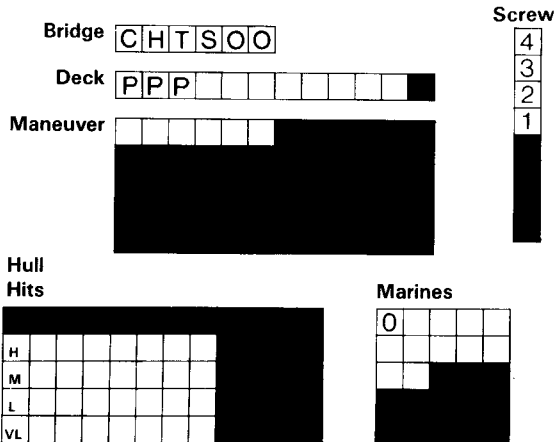
Maneuver

Screw  
6  
5  
4  
3  
2  
1

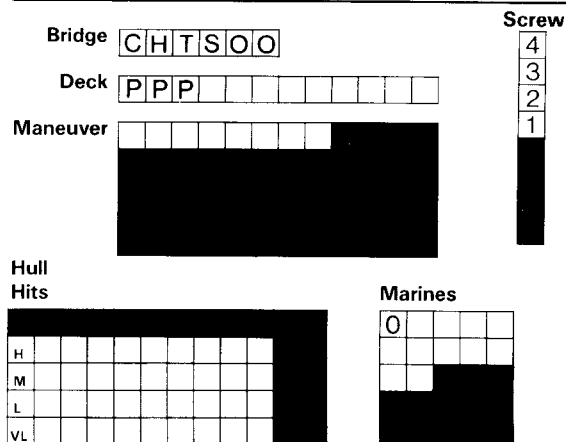
Hull Hits

H			
M			
L			
VL			

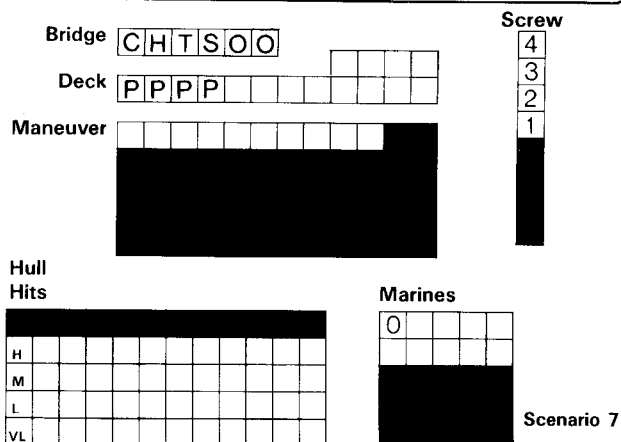
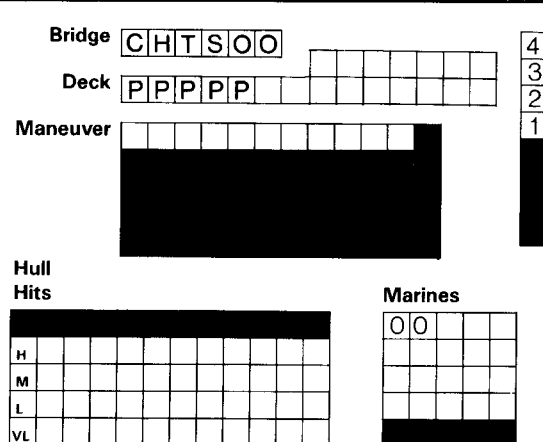
Marines


**RELIANT**

**THUNDERER**



**TRIUMPH**

**INTREPID**

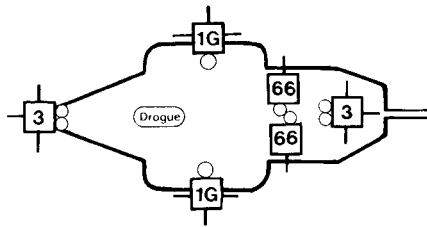
## Scenario 7

Russia

CZARINA

③

£ 46,000



4

Boiler = 4

330 TONS

6

Bridge CHTSO

Screw

6  
5  
4  
3  
2  
1

Deck P

Maneuver

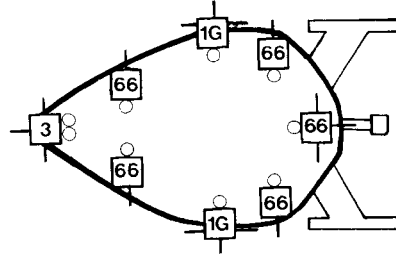
Hull Hits	Marines
VH	
H	
M	
L	
VL	

Japan

MIKASA

⑥

£ 17,780



2

Boiler = 1

200 TONS

3

Bridge CHTSO

Screw

3  
2  
1

Deck P

Maneuver

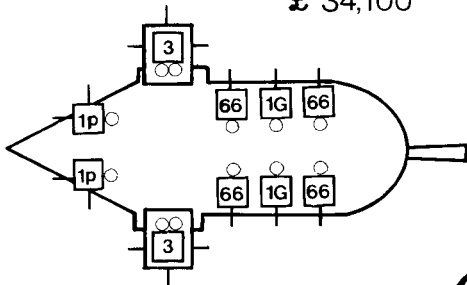
Hull Hits	Troops
VH	0 0 0 0 0
H	
M	
L	
VL	

Japan

YASHIMA

②

£ 34,100



3

Boiler = 2

250 TONS

4

Bridge CHTSO

Screw

4  
3  
2  
1

Deck PP

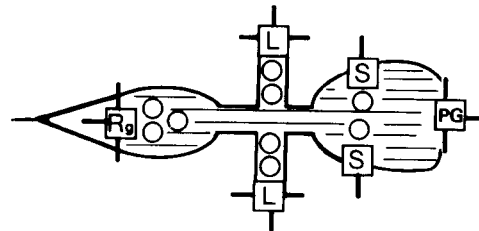
Maneuver

Hull Hits	Marines
VH	
H	
M	
L	
VL	

SWIFTWOOD

⑥

£ 20,140



3

250 TONS

K

Bridge CHTSO

Screw

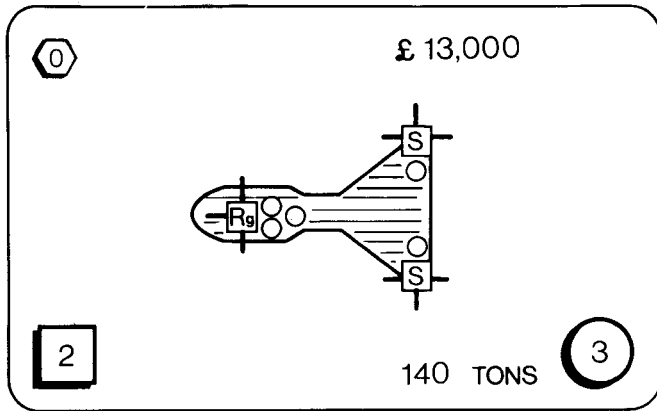
-1  
-2  
-3  
-4  
-5  
-6

Deck

Maneuver

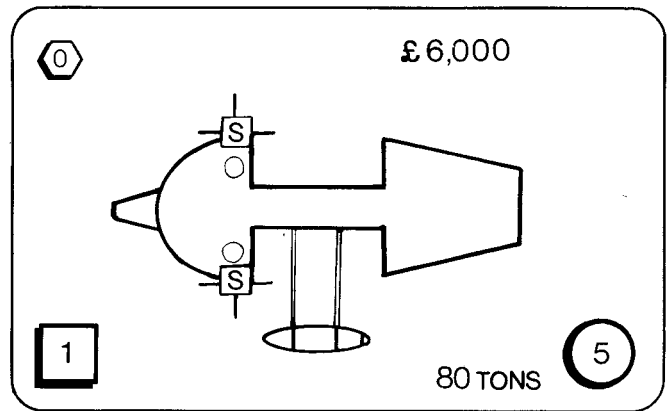
Hull Hits	Marines
VH	0 0
H	
M	
L	
VL	

### SMALL BIRD



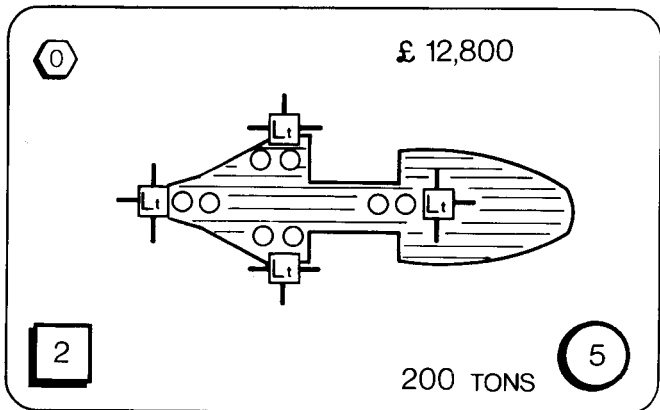
Bridge	C	H	T	S	
Deck					
Maneuver					
Hull Hits	VH				
	H				
	M				
	L				
	VL				
Marines					

### FLEETFOOT



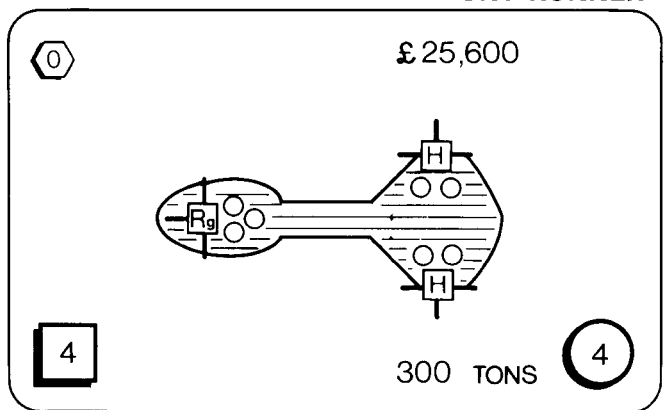
Bridge	C	H	T	S	
Deck					
Maneuver					
Hull Hits	VH				
	H				
	M				
	L				
	VL				
Marines					

### CLEARLIGHT



Bridge	C	H	T	S	
Deck					
Maneuver	5				
	4				
	3				
	2				
	1				
Hull Hits	H				
	M				
	L				
	VL				
Marines					

### SKY RUNNER



Bridge	C	H	T	S	O
Deck					
Maneuver					
Hull Hits	VH				
	H				
	M				
	L				
	VL				
Marines					





# ENDTIME

£ 31,500

5

485 TONS

3

Bridge

CHTSOO

Deck

Maneuver

Hull Hits

Marines

0

Screw

3  
2  
1

# HULLCUTTER

£ 46,800

7

695 TONS

3

Bridge

CHTSOOO

Deck

Maneuver

Hull Hits

Marines

0

Screw

3  
2  
1

Scenario

# SKYFIRE

£ 105,400

14

1400 TONS

3

Bridge

CHTSOOOOO

Deck

Maneuver

Hull Hits

Marines

Screw

3  
2  
1

£

TONS

Bridge

CHTSOO

Deck

Maneuver

Hull Hits

Marines

Screw

# SKY RUNNER

## Screw Galley

£ 25,600

4

300 TONS

4

Bridge C H T S O

Deck

Maneuver

Hull Hits

VH					
H					
M					
L					
VL					

Marines

Scenario 1

# SKY RUNNER

## Screw Galley

£ 25,600

4

300 TONS

4

Bridge C H T S O

Deck

Maneuver

Hull Hits

VH					
H					
M					
L					
VL					

Marines

Scenario 1

# SKY RUNNER

## Screw Galley

£ 25,600

4

300 TONS

4

Bridge C H T S O

Deck

Maneuver

Hull Hits

VH					
H					
M					
L					
VL					

Marines

Scenario 1

# SKY RUNNER

## Screw Galley

£ 25,600

4

300 TONS

4

Bridge C H T S O

Deck

Maneuver

Hull Hits

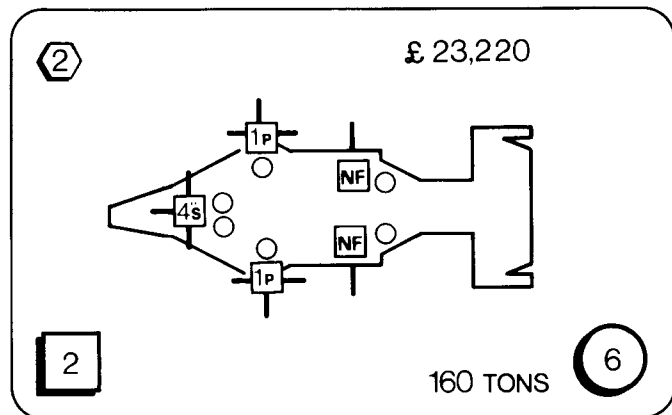
VH					
H					
M					
L					
VL					

Marines

Scenario 1

# APHID-Class

# Aerial Gunboat



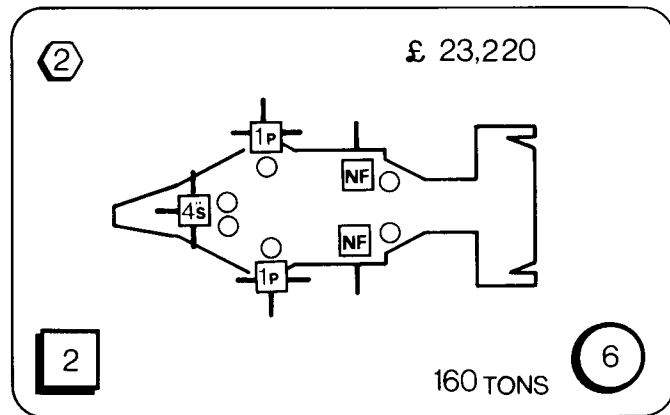
Bridge	CHTS	Screw	6
Deck		5	4
Maneuver		3	2
		1	

Hull Hits		Marines	
VH			
H			
M			
L			
VL			

Scenario 2

# APHID-Class

# Aerial Gunboat



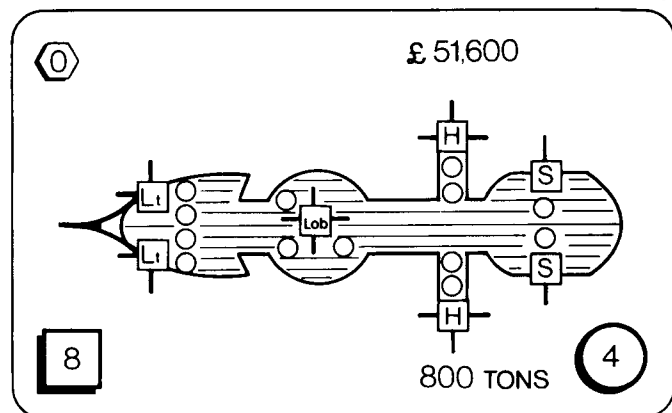
Bridge	CHTS	Screw	6
Deck		5	4
Maneuver		3	2
		1	

Hull Hits		Marines	
VH			
H			
M			
L			
VL			

Scenario 2

# FENIAN RAM

# Screw Galley



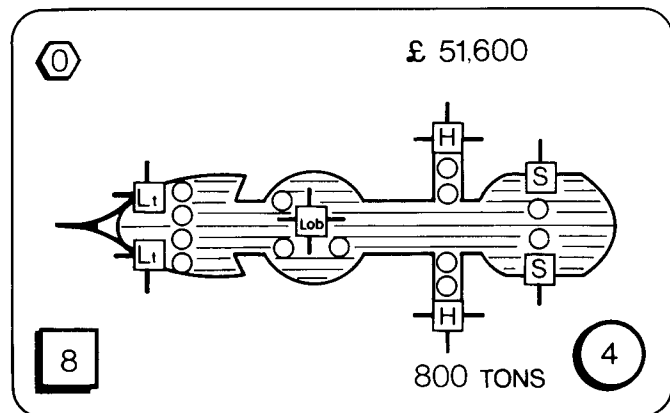
Bridge	CHTSOOO	Screw	4
Deck		3	2
Maneuver		1	

Hull Hits		Marines	
H		00	
M			
L			
VL			

Scenario 2

# FENIAN RAM

# Screw Galley



Bridge	CHTSOOO	Screw	4
Deck		3	2
Maneuver		1	

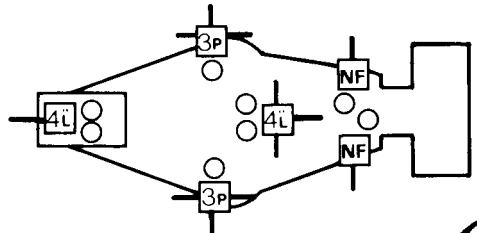
Hull Hits		Marines	
H		00	
M			
L			
VL			

Scenario 2

DAUNTLESS-Class      Aerial Gunboat

②

£ 50,360



4

315 TONS

6


Bridge

CHTSO

Deck

PP

Maneuver



Screw

6

5

4

3

2

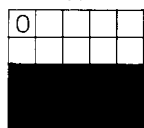
1

Hull Hits

VH					
H					
M					
L					
VL					

Marines

0

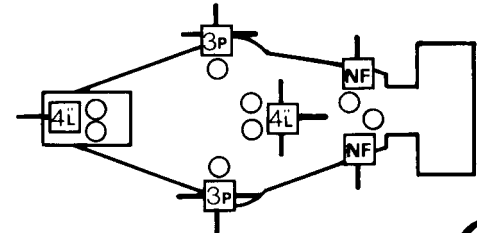


Scenario 3

DAUNTLESS-Class      Aerial Gunboat

②

£ 50,360



4

315 TONS

6


Bridge

CHTSO

Deck

PP

Maneuver



Screw

6

5

4

3

2

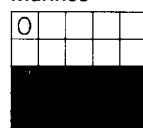
1

Hull Hits

VH					
H					
M					
L					
VL					

Marines

0

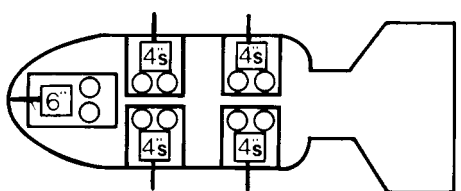


Scenario 3

HAMBURG-Class      Luftkreuzer (Aerial Cruiser)

③

£ 69,400



6

600 TONS

5


Bridge

CHTSOO

Deck

PP

Maneuver



Screw

5

4

3

2

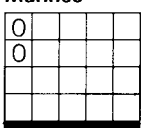
1

Hull Hits

H					
M					
L					
VL					

Marines

0

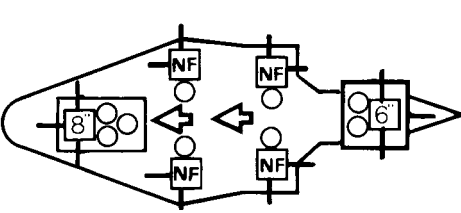


Scenario 3

THUNDERER-Class      Aerial Monitor

③

£ 123,300



10

1,000 TONS

4


Bridge

CHTSOO

Deck

PPP

Maneuver



Screw

4

3

2

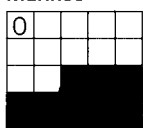
1

Hull Hits

H					
M					
L					
VL					

Marines

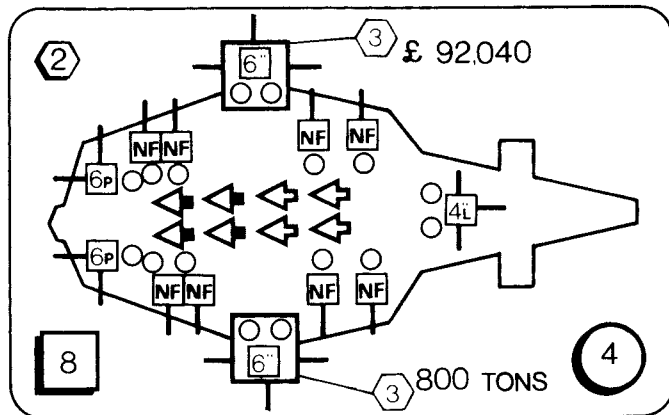
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Scenario 5

# RELIANT-Class

# Aerial Gunboat

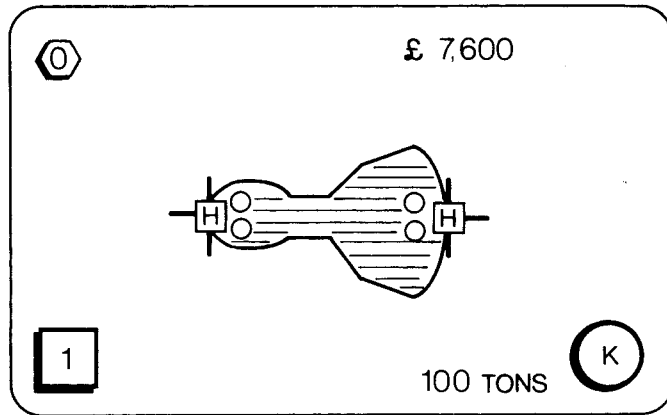


Bridge	C	H	T	S	O	O
Deck	P	P	P			
Maneuver						
Hull Hits	H					
	M					
	L					
	VL					
Marines	0					

Scenario 4

# BLOODRUNNER

# Kite

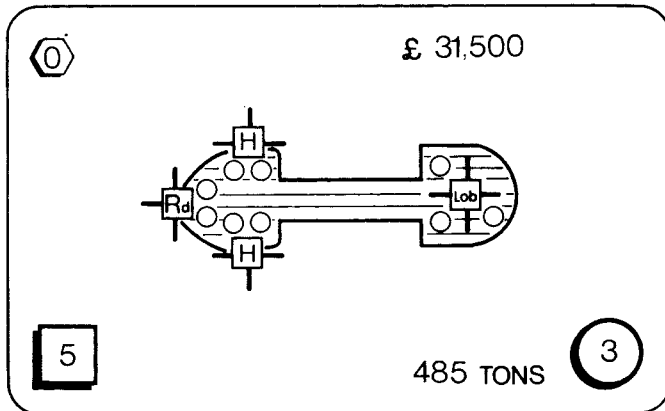


Bridge	C	H	T	S		
Deck						
Maneuver						
Hull Hits	H					
	M					
	L					
	VL					
Marines	0					

Scenario 4

# ENDTIME

# Screw Galley

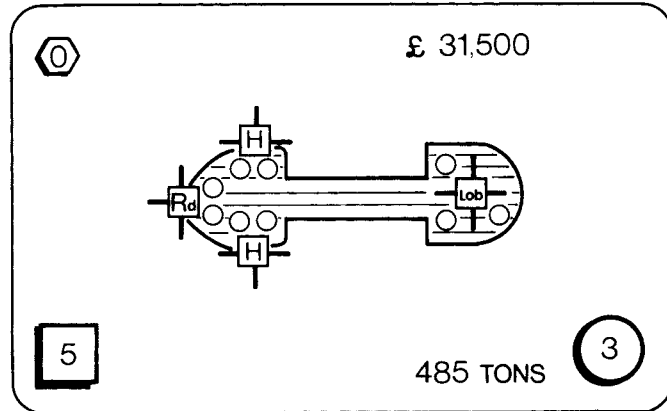


Bridge	C	H	T	S	O	O
Deck						
Maneuver						
Hull Hits	H					
	M					
	L					
	VL					
Marines	0					

Scenario 4

# ENDTIME

# Screw Galley

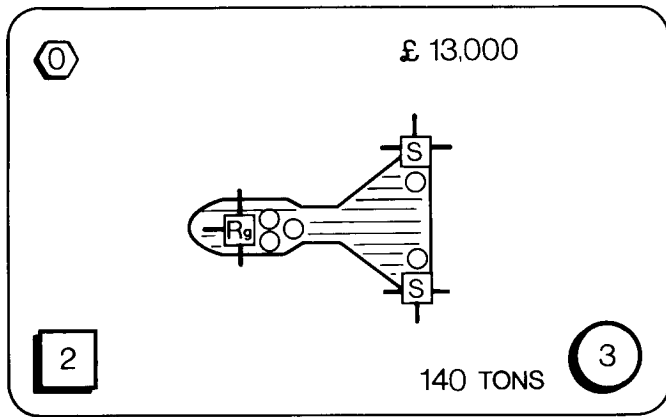


Bridge	C	H	T	S	O	O
Deck						
Maneuver						
Hull Hits	H					
	M					
	L					
	VL					
Marines	0					

Scenario 4

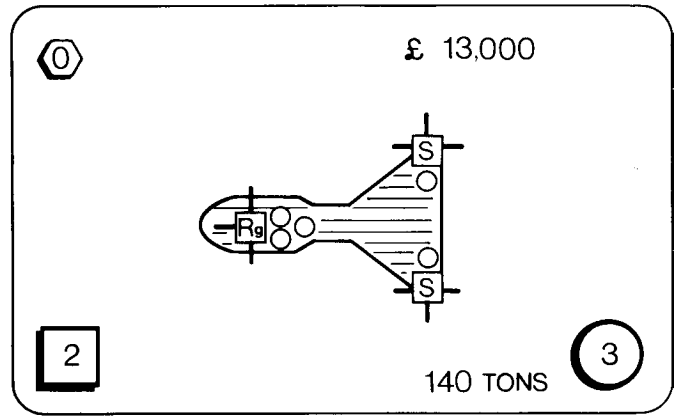
# SMALL BIRD

## Screw Galley



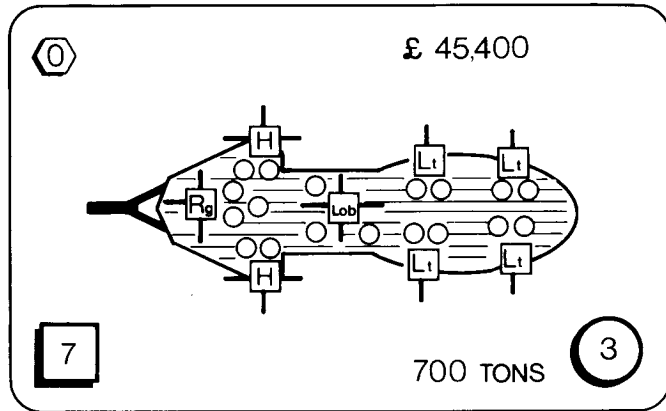
# SMALL BIRD

## Screw Galley



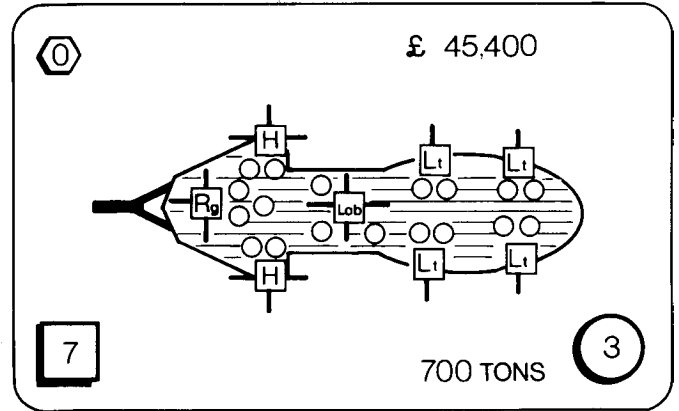
# GLORY SLED

## Screw Galley



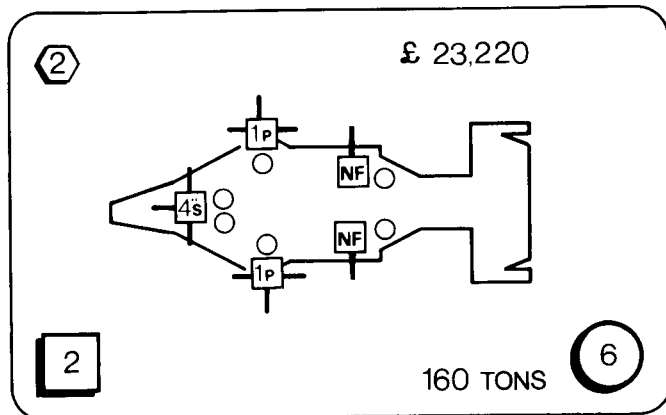
# GLORY SLED

## Screw Galley



# APHID-Class

## Aerial Gunboat



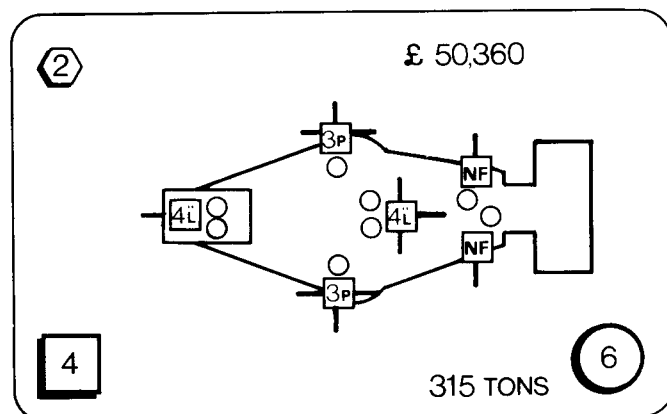
Bridge	CHTS	Screw	6
Deck			5
Maneuver			4
			3
			2
			1

Hull Hits		Marines	
VH			
H			
M			
L			
VL			

Scenario 6

# DAUNTLESS-Class

## Aerial Gunboat



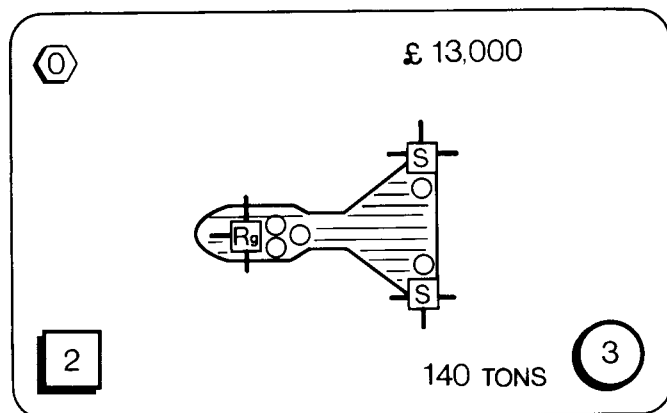
Bridge	CHTSO	Screw	6
Deck	PP		5
Maneuver			4
			3
			2
			1

Hull Hits		Marines	
VH		0	
H			
M			
L			
VL			

Scenario 6

# SMALL BIRD

## Screw Galley



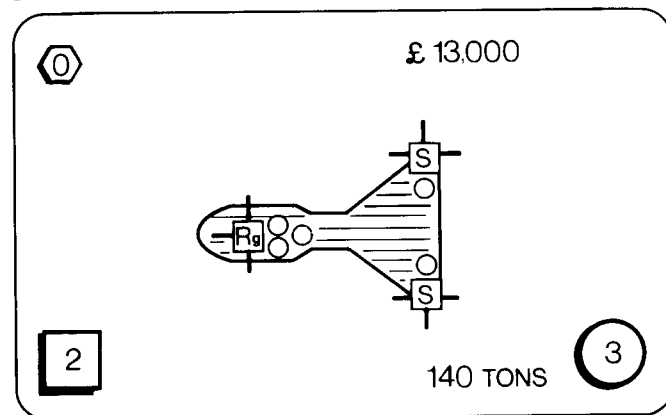
Bridge	CHTS	Screw	3
Deck			2
Maneuver			1

Hull Hits		Marines	
VH			
H			
M			
L			
VL			

Scenario 6

# SMALL BIRD

## Screw Galley



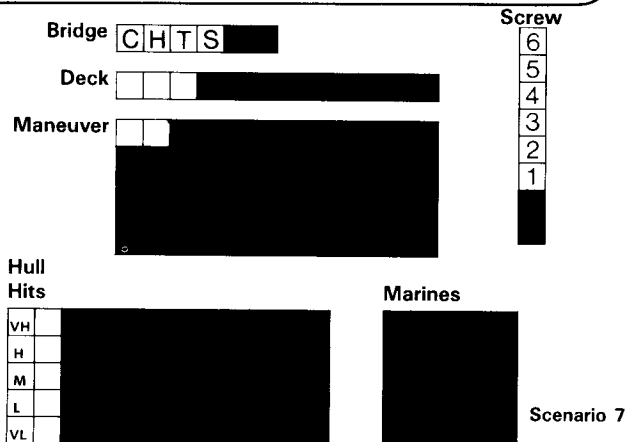
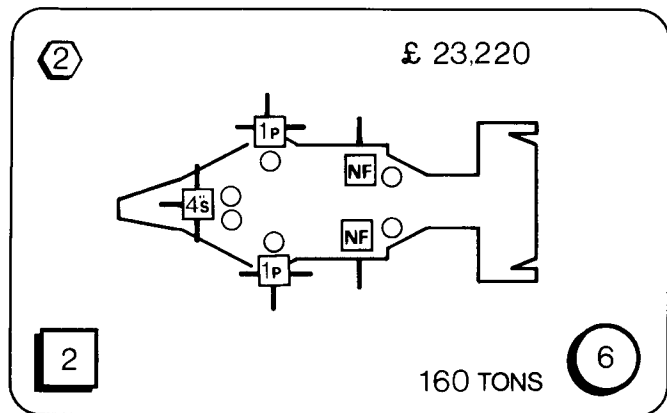
Bridge	CHTS	Screw	3
Deck			2
Maneuver			1

Hull Hits		Marines	
VH			
H			
M			
L			
VL			

Scenario 6

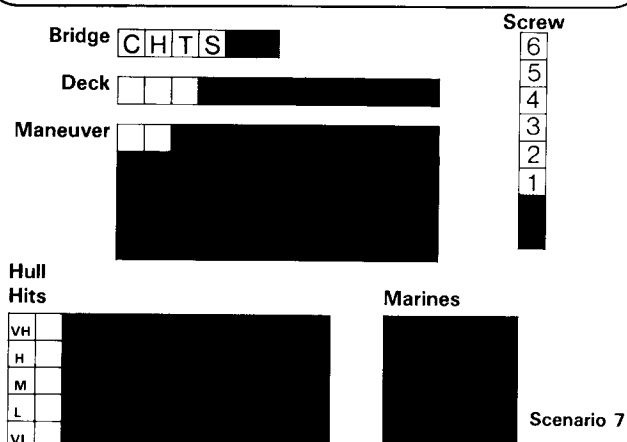
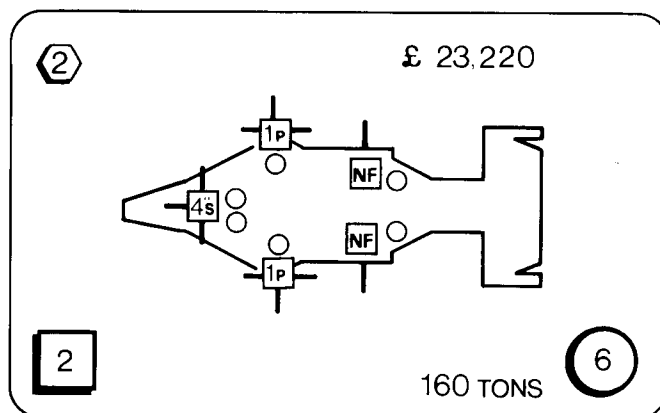
# APHID-Class

# Aerial Gunboat



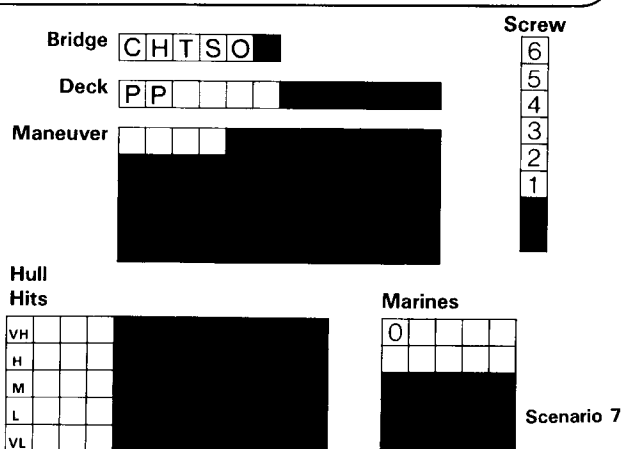
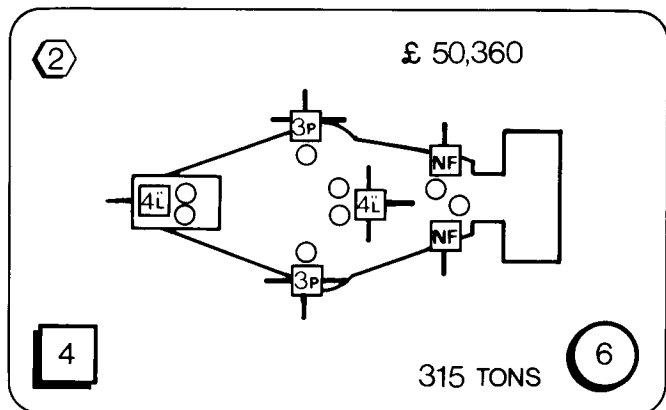
# APHID-Class

# Aerial Gunboat



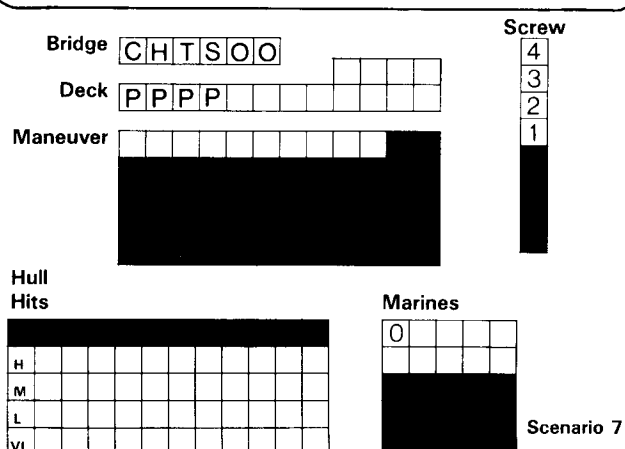
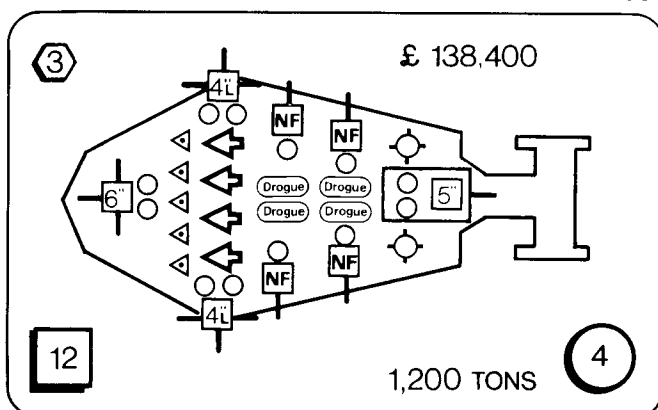
# DAUNTLESS-Class

# Aerial Gunboat



# TRIUMPH-Class

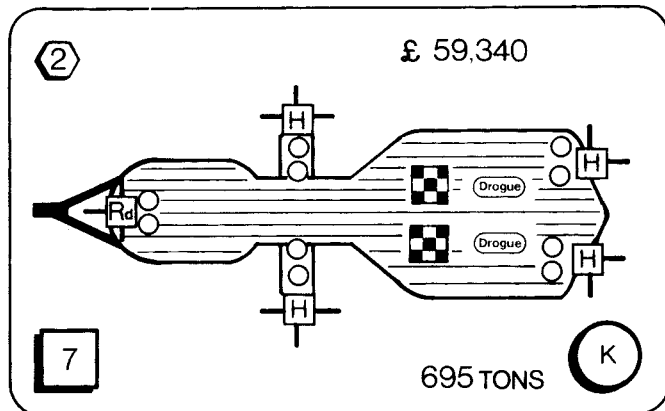
# Aerial Cruiser





# WHISPERDEATH

Kite

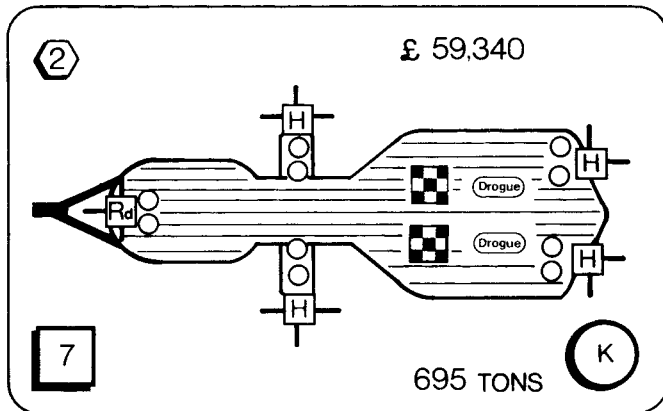


Bridge	C	H	T	S	O	
Deck						
Maneuver						
Hull Hits						
Marines	0					

Scenario 7

# WHISPERDEATH

Kite

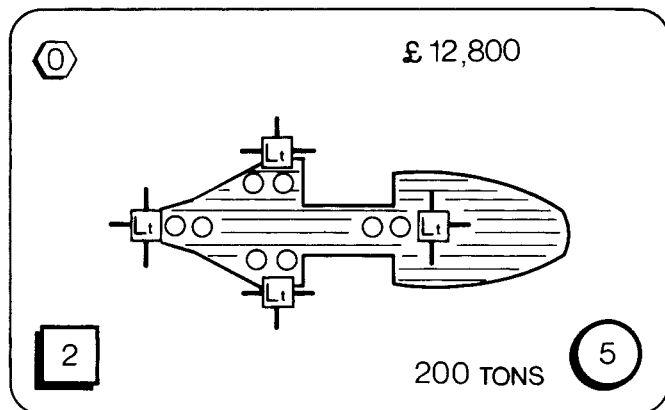


Bridge	C	H	T	S	O	
Deck						
Maneuver						
Hull Hits						
Marines	0					

Scenario 7

# CLEARLIGHT

Screw Galley

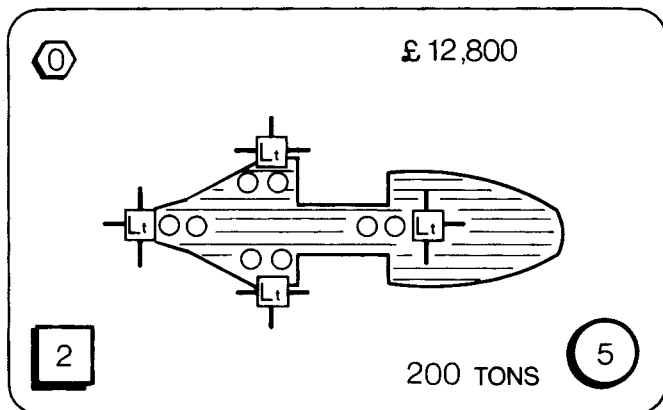


Bridge	C	H	T	S	
Deck					
Maneuver	5				
Hull Hits					
Marines	0				

Scenario 7

# CLEARLIGHT

Screw Galley

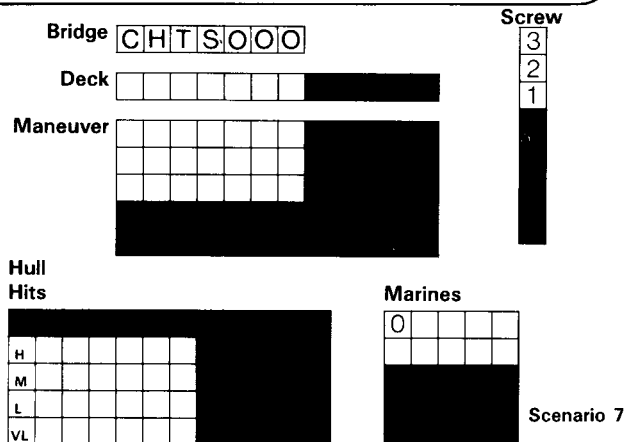
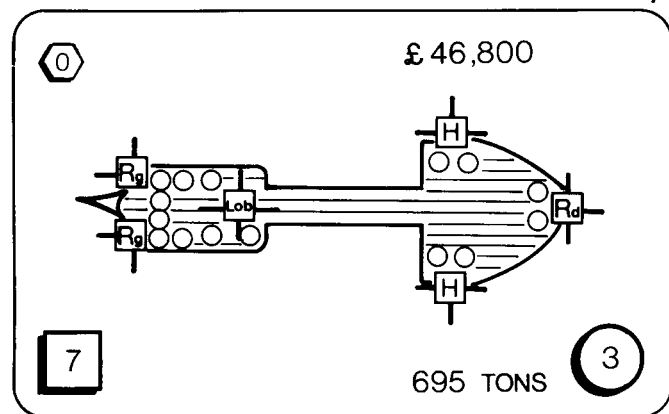


Bridge	C	H	T	S	
Deck					
Maneuver	5				
Hull Hits					
Marines	0				

Scenario 7

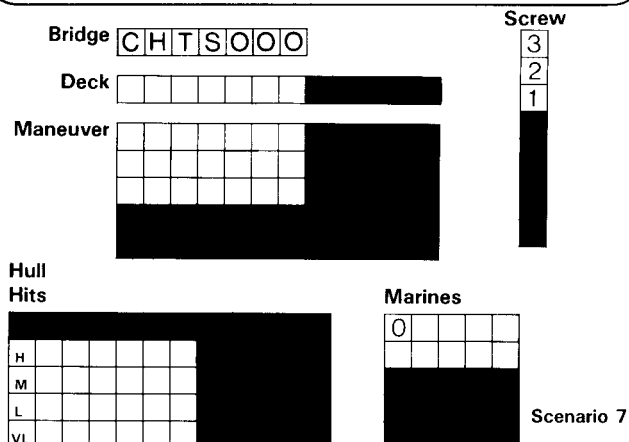
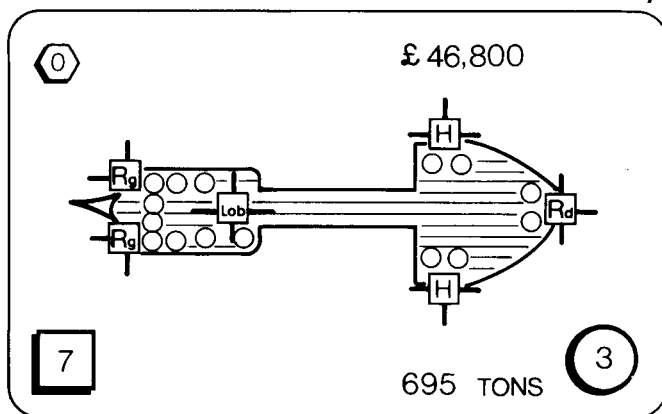
# HULLCUTTER-

## Screw Galley



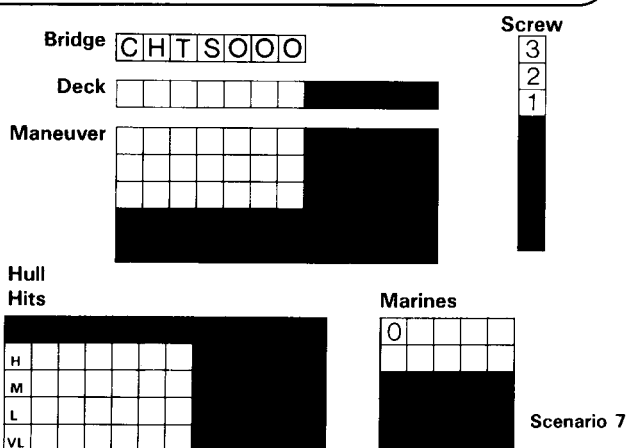
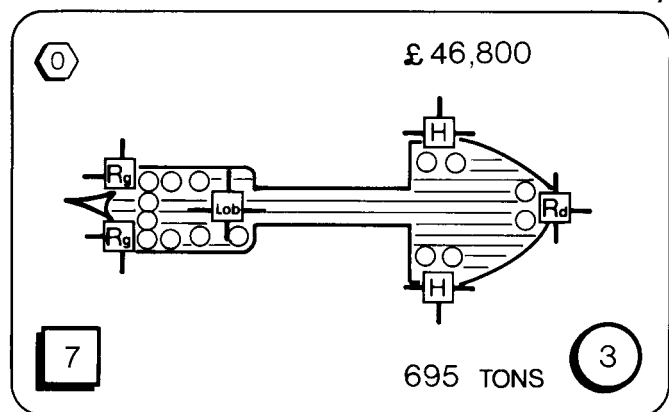
# HULLCUTTER

## Screw Galley



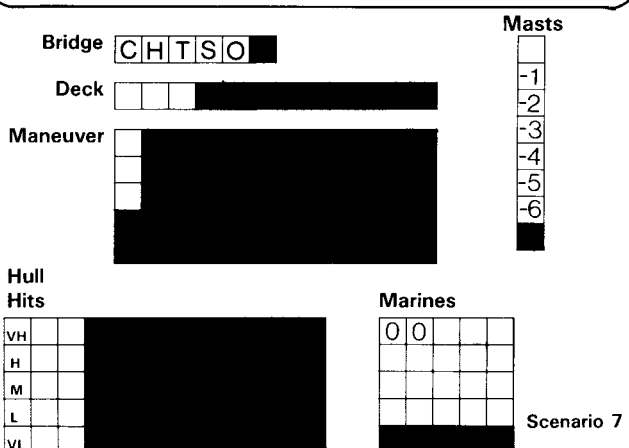
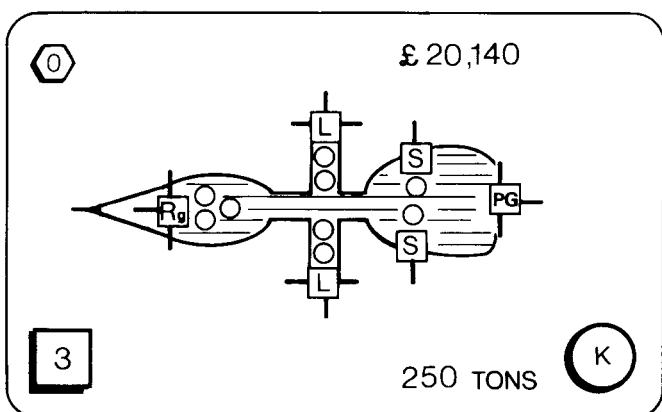
# HULLCUTTER

## Screw Galley



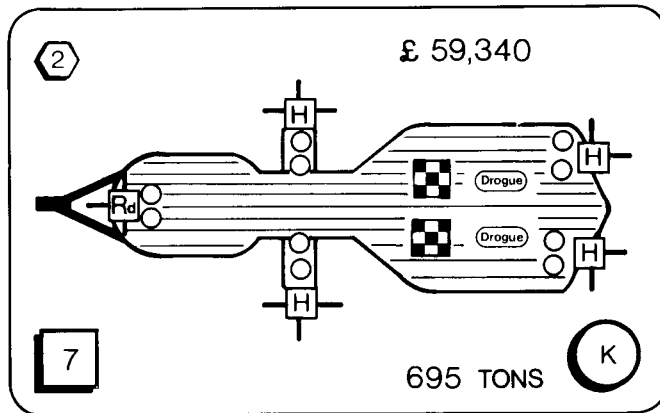
# SWIFTWOOD

## Kite



**WHISPERDEATH**

## Kite



Bridge C H T S O

Deck 

--	--	--	--	--	--	--

Maneuver				

## Hull Hits

H									
M									
L									
V <sub>L</sub>									

## Marines

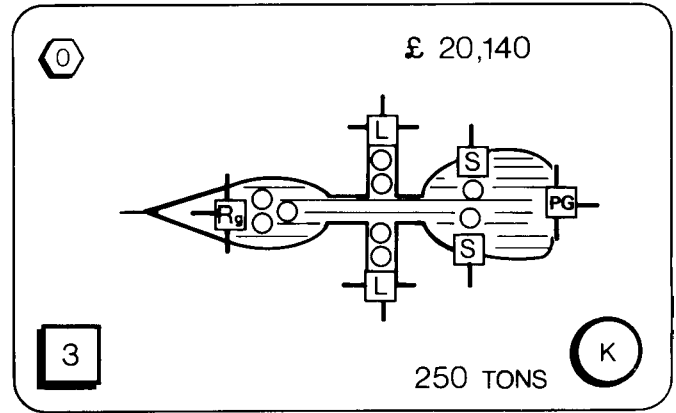
0				

## Masts

-1
-2
-3
-4
-5
-6

**SWIFTWOOD**

## Kite



Bridge 

C	H	T	S	O	
---	---	---	---	---	--

Deck 

--	--	--

Maneuver	

## Hull Hits

VH		
H		
M		
L		
VL		

## Marines

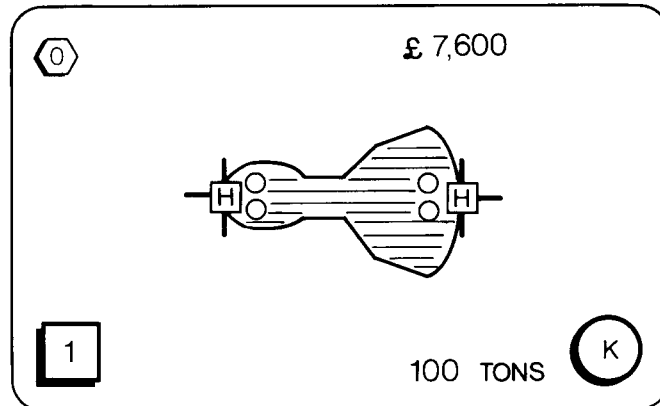
0	0			

## Masts

-1
-2
-3
-4
-5
-6

**BLOODRUNNER**

## Kite



Bridge 

C	H	T	S	
---	---	---	---	--

**Deck** ☐ [REDACTED]

Maneuver	

## Hull Hits

H	
M	
L	
VI	

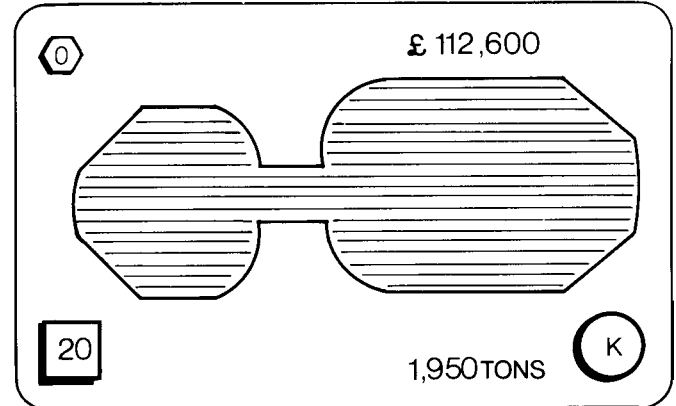
## Marines

1. *Journal of the American Medical Association*, 281: 2369-2372, 1999.

## Masts

-1
-2
-3
-4
-5
-6

## WARM WINDS

**Merchant Kite**

Bridge 

C	H	T	S	O	C
---	---	---	---	---	---

[illegible][illegible]

**Hull Hits** (Each box counts as two)

[illegible]

## Marines

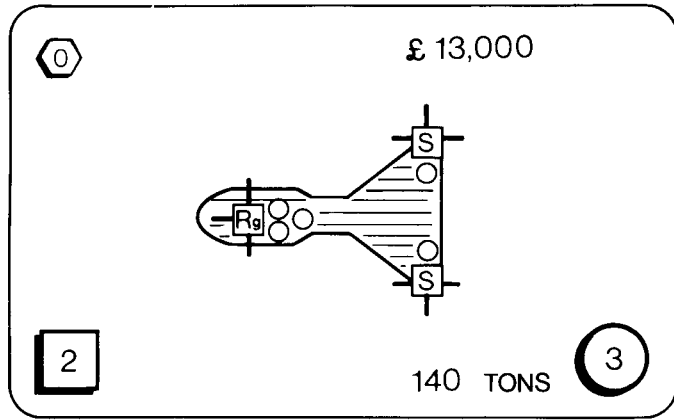


## Masts

-1
-2
-3
-4
-5
-6

# SMALL BIRD

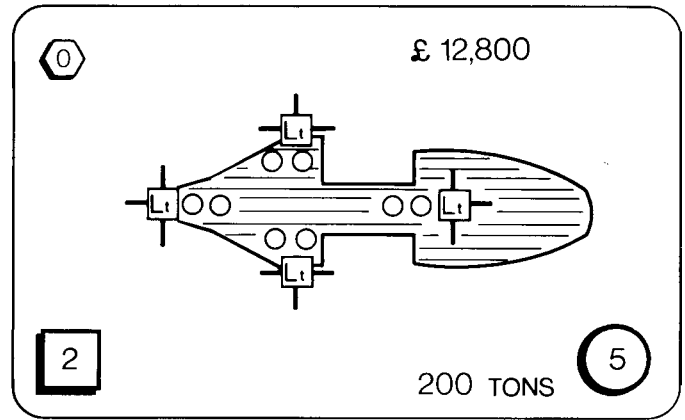
Screw Galley



Bridge	CHTS	Screw	3
Deck			2
Maneuver			1
Hull Hits			
Marines			

# CLEAR SIGHT

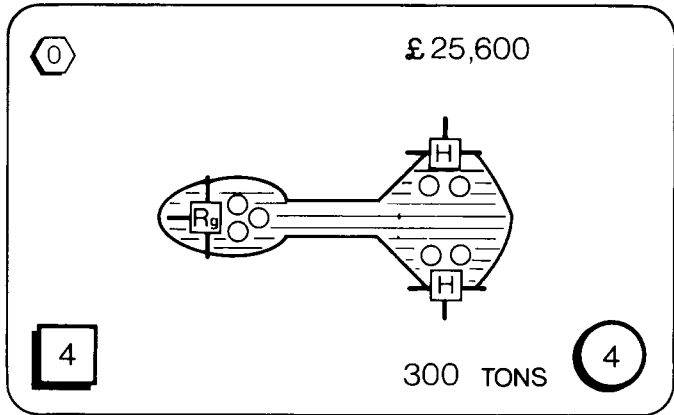
Screw Galley



Bridge	CHTS	Screw	5
Deck			4
Maneuver			3
Hull Hits			2
Marines			1

# SKY RUNNER

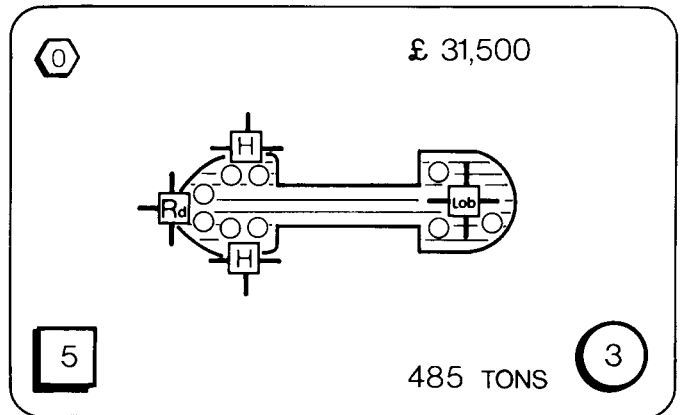
Screw Galley



Bridge	CHTSO	Screw	4
Deck			3
Maneuver			2
Hull Hits			1
Marines			

# ENDTIME

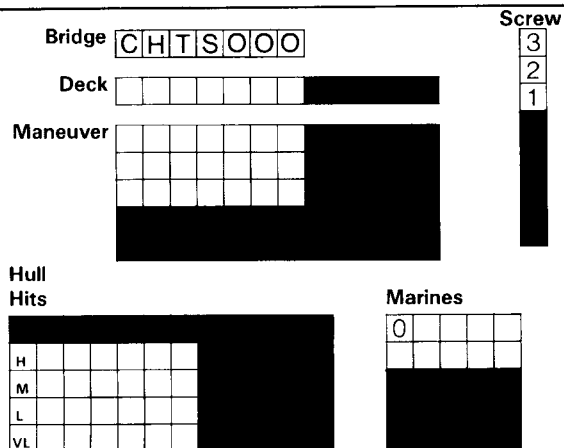
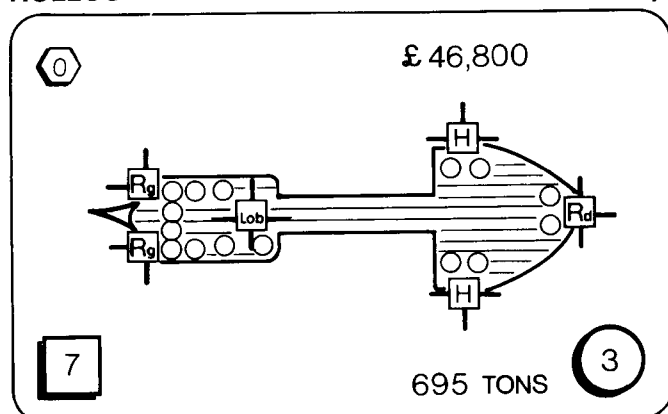
Screw Galley



Bridge	CHTSOO	Screw	3
Deck			2
Maneuver			1
Hull Hits			
Marines			

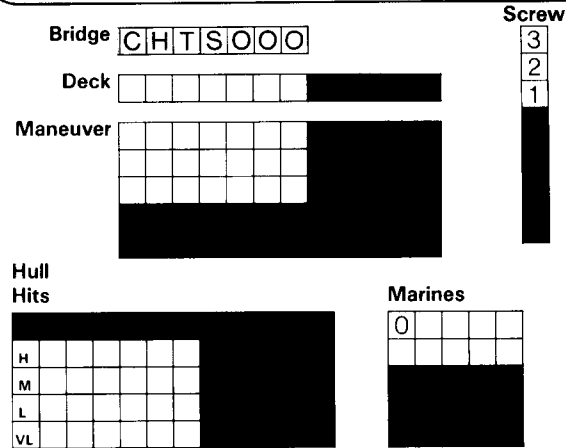
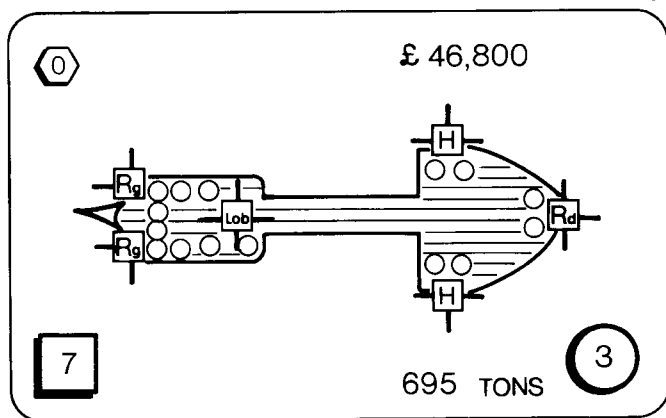
# HULLCUTTER

Screw Galley



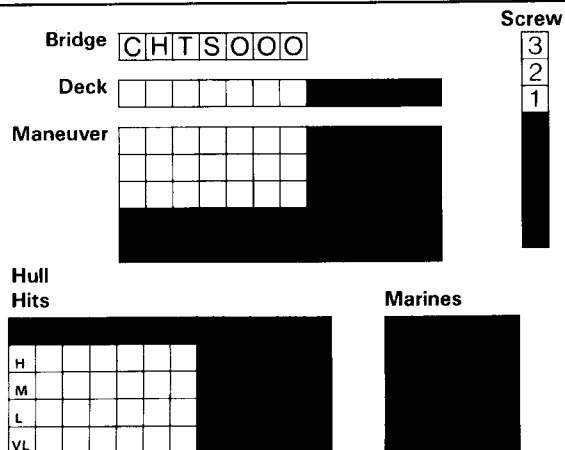
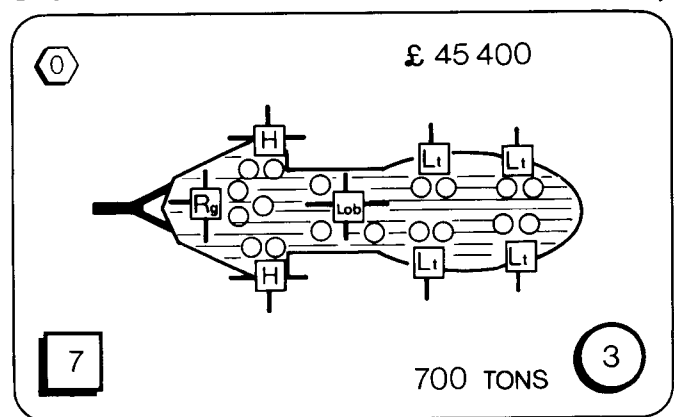
# HULLCUTTER

Screw Galley



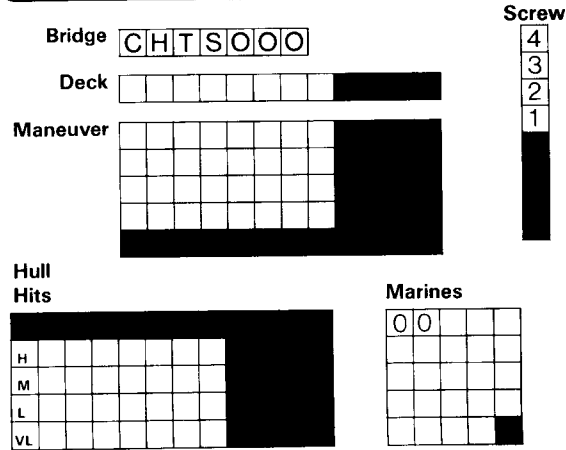
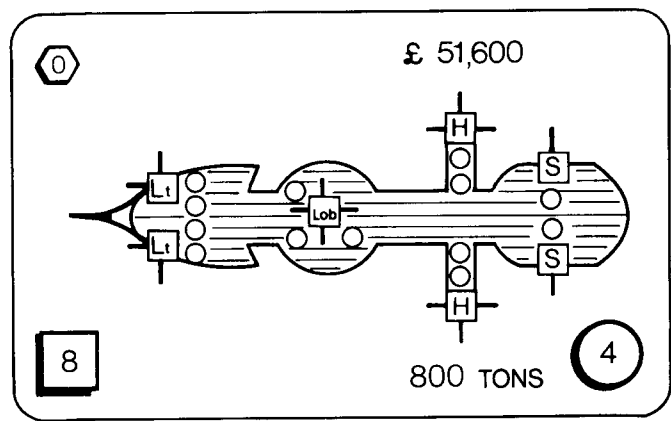
# GLORY SLED

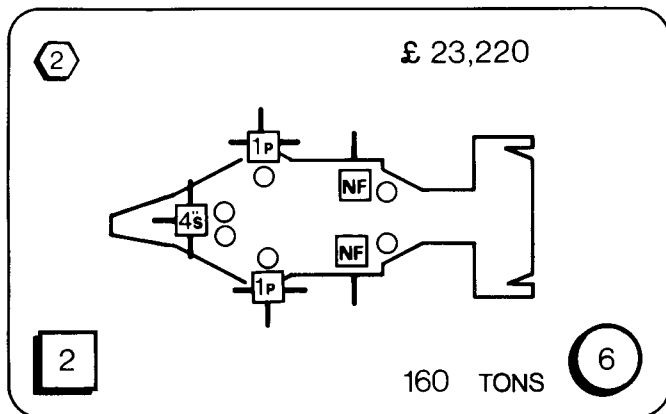
Screw Galley



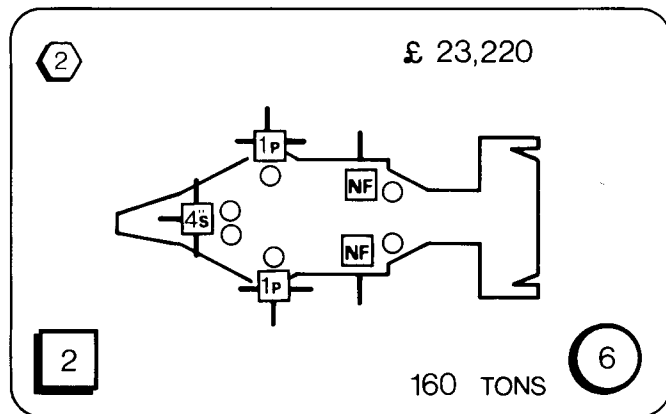
# FENIAN RAM

Screw Galley

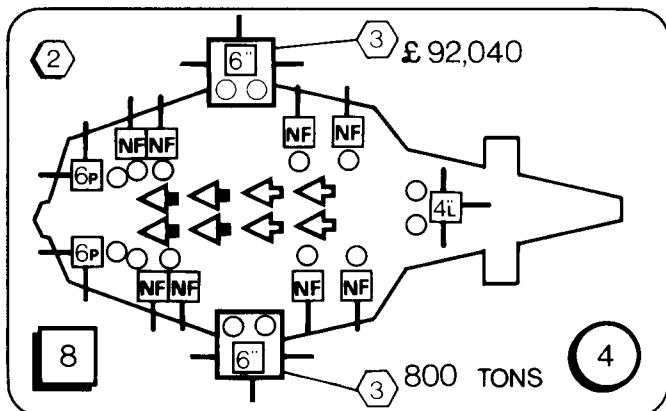


**APHID-Class**
**Aerial Gunboat**


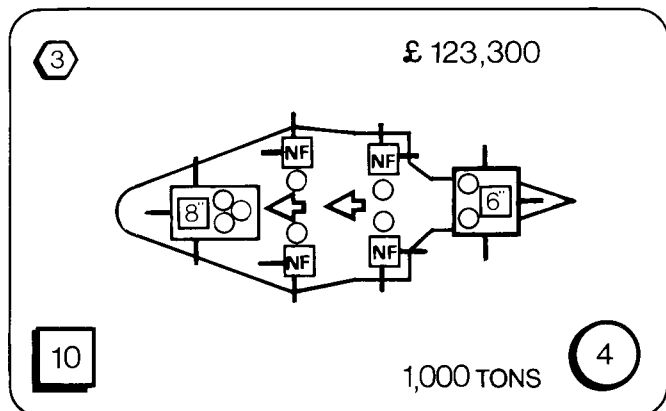
Bridge	CHTS	Screw	6
Deck		5	
Maneuver		4	
		3	
		2	
		1	
Hull Hits			
VH			
H			
M			
L			
VL			
Marines			

**APHID-Class**
**Aerial Gunboat**


Bridge	CHTS	Screw	6
Deck		5	
Maneuver		4	
		3	
		2	
		1	
Hull Hits			
VH			
H			
M			
L			
VL			
Marines			

**RELIANT-Class**
**Aerial Gunboat**


Bridge	CHTSOO	Screw	4
Deck	PPP	3	
Maneuver		2	
		1	
Hull Hits			
H			
M			
L			
VL			
Marines	0		

**THUNDERER-Class**
**Aerial Monitor**


Bridge	CHTSOO	Screw	4
Deck	PPP	3	
Maneuver		2	
		1	
Hull Hits			
H			
M			
L			
VL			
Marines	0		



£

TONS

£

TONS

Bridge

Deck

Maneuver

Hull Hits

Marines

CHTSOO

VH

H

M

L

VL

Bridge

Deck

Maneuver

Hull Hits

Marines

CHTSOO

VH

H

M

L

VL

£

TONS

£

TONS

Bridge

Deck

Maneuver

Hull Hits

Marines

CHTSOO

VH

H

M

L

VL

Bridge

Deck

Maneuver

Hull Hits

Marines

CHTSOO

VH

H

M

L

VL



## TURN SEQUENCE

### Initiative Phase

- Increase All Fires
- Change Crew Assignments
- Declare Ramming/Grappling Attempts
- Determine Player with Initiative

### First Player Movement Phase

- First Player Moves
- First Player Resolves Ramming/Grappling Attempts
- Both Players Fire
- First Player Resolves Boarding Actions
- First Player Conducts Repairs

### Second Player Movement Phase

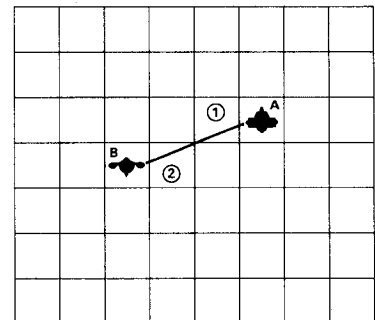
- Second Player Moves
- Both Players Fire
- Second Player Resolves Boarding Actions
- Second Player Conducts Repairs

## ALTITUDE GAUGE

Hexes															
Altitude	VH													VH Very High	Altitude
	H													H High	
	M													M Medium	
	L													L Low	
	VL													VL Very Low	

If the vessels are at differing altitudes, use the altitude gauge printed on the Game Reference chart. Place the firing ship and the target ship at their respective altitudes and distance. Now plot the location of any ship which might block the line of sight. (Remember that to be blocked, the line of sight must pass through two nonadjacent hexsides.) After you plot the squares that all of the ships occupy, trace the line of sight between the firing and target ships. If the line of sight passes through the bottom half of a box containing an intervening ship, it is blocked.

For example, in the diagram below, ship A and ship B are exchanging fire. A ship in position 1 would block the line of fire between the two ships, as the line of sight passes through the bottom half of its box. A ship in position 2, however, would not block line of sight, as this condition does not exist.



# SKY GALLEONS<sup>TM</sup> *of Mars*

## WEAPON CHARACTERISTICS:

### Martian Cannon

Weapon	Pen	DV	ROF	Range
Sweeper	P	—	2	0/1
Light	0	1	1	1/2
Rod Gun	3	1	(1)	3/6
Heavy	1	2	1	2/4
Rogue	2	3	(1)	3/6
Lob Gun	2	4	(1)	—/3

*Weapon:* The common weapon name. *Pen:* Penetration of the weapon. *DV:* Damage value of the weapon. *ROF:* Rate of fire of the weapon. *Range:* Maximum range (in hexes) the weapon may fire.

### INFERNAL DEVICES

Device	Pen	DV	To Hit
Smutts Torpedo	1	12	As collision
Tether Mine (B)	0	6	6 (if released)
Tether Mine (M)	0	4	6 (if released)
Droque Torpedo	0	10	6

*Device:* The common device name. *Pen:* Penetration of the device. *DV:* Damage value of the device. *To Hit:* The die roll on which the device hits the target. *B:* British. *M:* Martian.

## WEAPON CHARACTERISTICS:

### Royal Navy Guns

Weapon	Pen	DV	ROF	Range
Maxim	—	P	6	1/2
Gardner	—	P	2/3	1/2
Nordenfelt	—	P	5	1/2
1-pdr HRC	0	1	3	2/4
3-pdr HRC	1	1	3	2/4
6-pdr HRC	1	1	3	3/6
4'' short	2	2	1	3/6
4'' long	3	2	1	4/8
5''	4	4	1	4/8
6''	5	6	1	5/10
8''	9	8	(1)	6/12
10''	10	10	(1)	7/14
12''	12	12	(1)	8/16
14''	14	14	(1)	9/18
16''	16	16	(1)	10/20

*HRC:* Hotchkiss Rotating Cannon. *Weapon:* The common weapon name. *Pen:* Penetration of the weapon. *DV:* Damage value of the weapon. *ROF:* Rate of fire of the weapon. *Range:* Maximum range (in hexes) the weapon may fire.

## HIT LOCATION

Die Roll	Location
1	Hull
2	Hull
3	Crew
4	Crew
5	Gun
6	Critical

*Die Roll:* The roll of one six-sided die. *Location:* The location the hit occurred (see Hit Location Explanation).

## CRITICAL HIT TABLE

Die Roll	Result
2	Magazine
3	Bridge
4	Fire/Boiler
5	Trim Damage
6	Rudder Jammed
7	Fire
8	Lifters Jammed
9	Screw/Mast
10	Magazine
11	Bridge
12	Fire/Boiler

*Die Roll:* The sum of the die roll results of two six-sided dice. *Result:* The result of the Critical Hit (see Critical Hit Explanation).

## TO HIT

Range	Die Roll
Close:	3, 4, 5, 6
Long:	5, 6

### To Hit Modifiers:

Different Altitude:	—1
Green Crew:	—1
Burning:	—1
Crack Crew:	+1
Shrapnel or Grape:	+1

*Range:* The type of range at which the attempt to hit is being made. *Die Roll:* The die roll of one six-sided die. *To Hit Modifiers:* Modifiers to the die roll.

## HIT LOCATION EXPLANATION

**Hull:** The vessel takes hull damage equal to the damage value of the round. (If firing shrapnel or grape, hit has no effect.)

**Crew:** Crewmen are killed equal to half the damage value of the gun (or full damage value if firing shrapnel or grape).

**Gun:** One gun is destroyed. If the round has a damage value greater than one, the excess are crew casualties, starting with the destroyed gun's crew. (If firing shrapnel or grape, this is treated as a normal crew hit.)

**Critical:** The vessel suffers critical damage. Roll two dice and consult the Critical Hit table. (If firing shrapnel or grape, hit has no effect.)

## CRITICAL HIT EXPLANATION

**Magazine:** Ship loses one gun (damage value of 1 or greater) and its crew, selected by die roll. The ship also takes hull hits equal to the damage value of the gun destroyed. Finally, the ship takes one additional Critical hit resolved with the damage value of the gun that was destroyed.

**Bridge:** Bridge crewmen are killed equal to half the damage value of the gun, rounding fractions up. Roll a die to determine which ones are casualties. The ship may not change altitude or course next turn.

**Fire:** A fire is started on board. The initial fire level is equal to the damage value of the firing gun.

**Boiler:** The boiler is damaged and steam is leaking out. Roll 1D6. If the result is less than the damage value of the impacting round, the boiler blows. If the boiler blows, the ship suffers additional Criticals equal to the engine size, the entire engine crew is killed, and the ship's speed is permanently reduced to 0. Additional Criticals are resolved with a damage value of 1. If the boiler does not blow, the ship's speed is reduced by the damage value of the impacting round. This speed reduction is only temporary, and the net reduction is reduced by 1 each turn.

**Screw:** The air screw (propeller) and its

driving chains are damaged. For each hit inflicted reduce ship's speed permanently by 1.

**Mast:** One set of masts and booms is shot away. For each hit inflicted subtract 1 from the ship's movement die roll.

**Trim Damage:** The ship's trim controls are damaged and the ship suffers a sudden loss of trim. The owning player immediately attempts to recover trim by rolling greater than the damage value of the firing gun on the die. (If the loss of trim was caused by a collision, the player recovers with a roll greater than half the difference in hull size, rounding fractions down.) If the original trimsmen is dead, the captain makes the attempt but with a die roll modifier of -1. If the captain is dead any surviving officer or petty officer may make the attempt, but with a die roll modifier of -2. If all officers and petty officers are dead any crewman may make the attempt but with a die roll modifier of -3. The roll is also modified by +1 for every 5 hull sizes. A roll of 6 will always recover trim, regardless of the damage value of the gun or the die roll modifiers in use. If successful, the ship regains trim without losing altitude. If unsuccessful, the ship drops one altitude level and attempts to recover trim next turn. This continues until the ship recovers trim or drops below Very Low altitude (and crashes). Once the ship recovers trim it is immobilized for the next two movement phases; and the crew may not row, man guns, fire small arms, or board an enemy ship. If boarded they may defend themselves.

**Rudder Jammed:** The ship may not change course until the rudder is freed. To free the rudder, roll a die for a number greater than the damage value of the gun that jammed the rudder. However, a roll of 6 will always free the rudder, regardless of the damage value of the round.

**Lifters Jammed:** The main liftwood panels are jammed in place. The ship cannot change altitude until they are freed. To free the lifters, roll a die for a number greater than the damage value of the gun that jammed the lifters.

# SKY GALLEONS<sup>TM</sup> *of Mars*

## SMALL ARMS FIRE

<i>Hit Roll Modifiers</i>	<i>Hit Number</i>	<i>Save Number</i>	<i>Saving Roll Modifiers</i>
On Fire: -1	Close: 5, 6	1, 2	If attackers are bowmen: -1
	Long: 6		If attacker is Green: -1
			If attacker is Crack: +1

*Hit Number:* The attacker must throw the hit number to hit the target. *Save Number:* If the attacker hits, the target must throw the save number to survive the hit. *Hit Roll Modifiers:* Modifiers to the die roll to hit. *Saving Roll Modifiers:* Modifiers to the die roll to survive the hit.

<i>Weapon</i>	<i>Men</i>	<i>Close Range</i>	<i>Long Range</i>
Modern Rifle	2	1	2
Musket	3	0 (same hex)	1
Bow	3	0 (same hex)	—
Rifle Musket	4	1	2

*Weapon:* The type of weapon. *Men:* The attacker may make one roll (attack) for each group of this number of men. *Close Range:* The distance (in hexes) or less which allows a close range attack. *Long Range:* The distance (in hexes) which allows a long range attack.

## COLLISIONS

<i>Collision Roll Modifiers</i>	<i>Roll</i>	<i>Effects</i>
Collision from Bow or Stern: +1	1, 2	Hull hit if roll less than other ship's hull size.
If Turning in the Hex: -2		Smaller ship suffers loss of trim if it rolls less than half the difference in hull sizes (round down).

## RAMMING

<i>Ramming Roll Modifiers</i>	<i>Roll</i>	<i>Effects</i>
To Avoid: +1/2 movement speed (round up)	1, 2, 3, 4	<i>Ram Mounted.</i> Rammed ship suffers hull hits equal to half the hull size of the ramming ship (round fractions up). Rammed ship suffers loss of trim if rolls less than half the hull size of the ramming ship (round fractions up). Rammed ship is grappled unless it plummets due to a loss of trim.
		<i>No Ram Mounted.</i> Same as for a collision, but if the ramming ship is smaller there is no chance of a loss of trim. Rammed ship is grappled unless it plummets due to a loss of trim.

## GRAPPLING

<i>Roll</i>	<i>Comment</i>
5, 6	The number of attacking rolls allowed is equal to half the number of deckhands (round up).



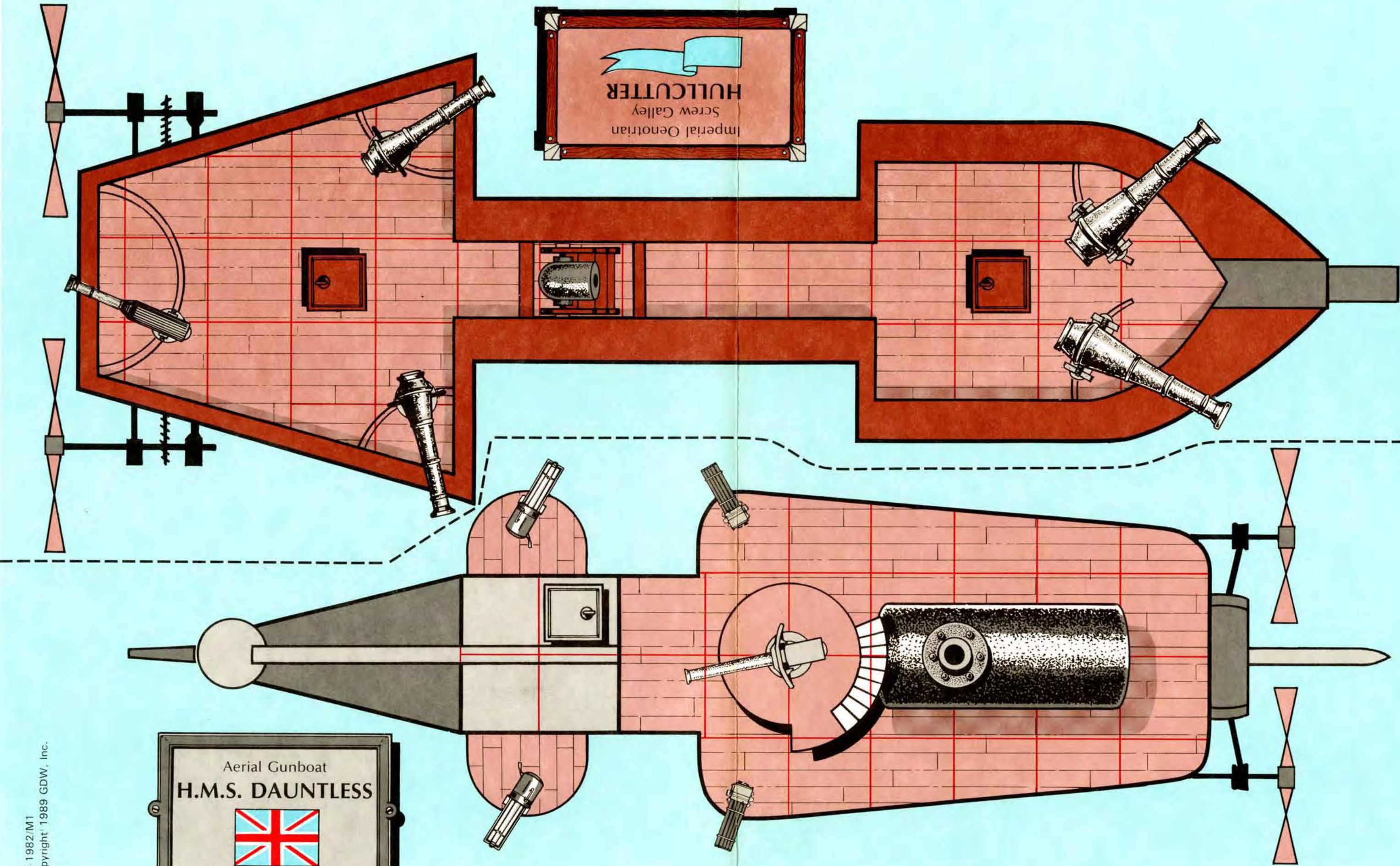
										
British Soldier	British Soldier	British Soldier	Martian Marine	Martian Marine	German Airman	German Airman	German Airman	High Martian Warrior	High Martian Warrior	High Martian Warrior
										
British Soldier	British Soldier	British Soldier	Martian Marine	Martian Marine	German Airman	German Airman	German Airman	High Martian Warrior	High Martian Warrior	High Martian Warrior
										
Sailor	Sailor	Sailor	Martian Sailor	Martian Sailor	Martian Sailor	Martian Sailor	Martian Sailor	High Martian Warrior	High Martian King	High Martian Warrior
										
Sailor	Sailor	Sailor	Martian Sailor	Martian Sailor	Martian Sailor	Martian Sailor	Martian Sailor	High Martian Warrior	High Martian King	High Martian Warrior
										
British Officer	British Officer	German Officer	Martian Officer	Hill Martian Adventurer	British Officer	British Lady	Explorer	High Martian Warrior	High Martian Warrior	High Martian Warrior
										
Naval Officer	British Officer	German Officer	Martian Officer	Hill Martian Adventurer	British Officer	British Lady	Explorer	High Martian Warrior	High Martian Warrior	High Martian Warrior



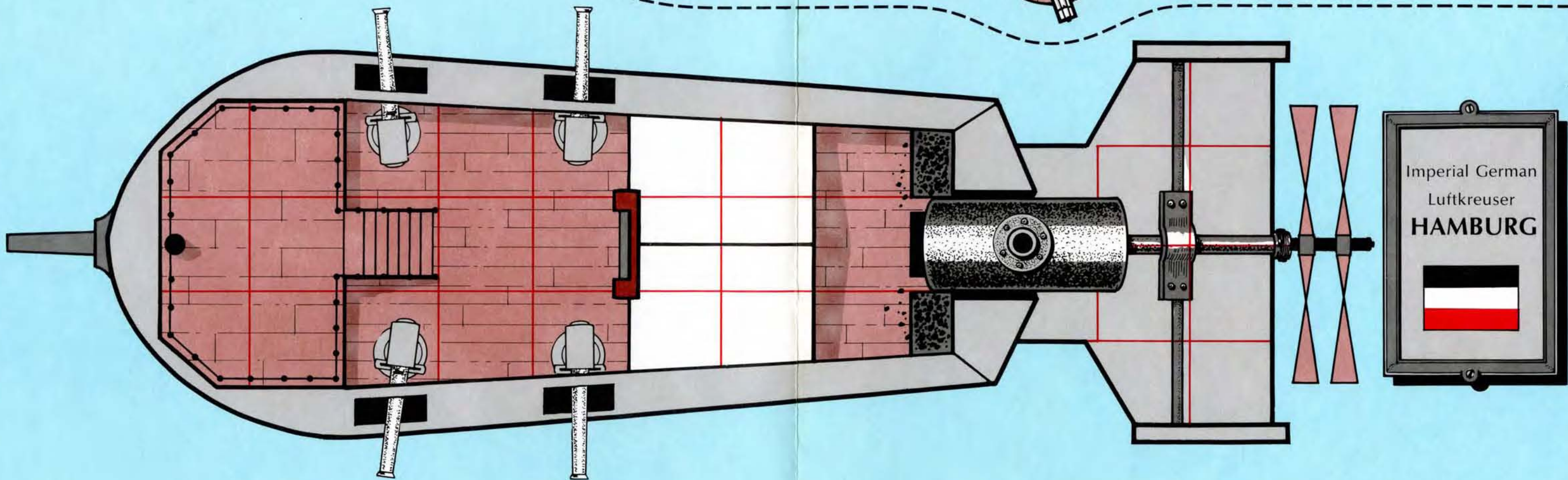
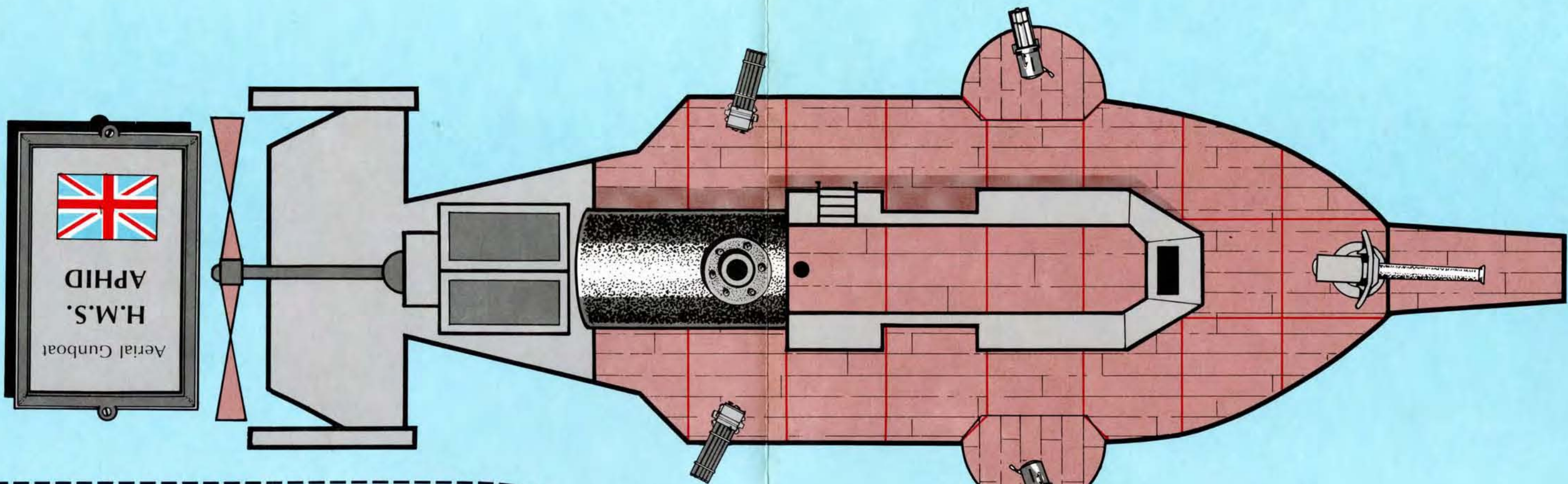
Aerial Gunboat  
**H.M.S. DAUNTLESS**



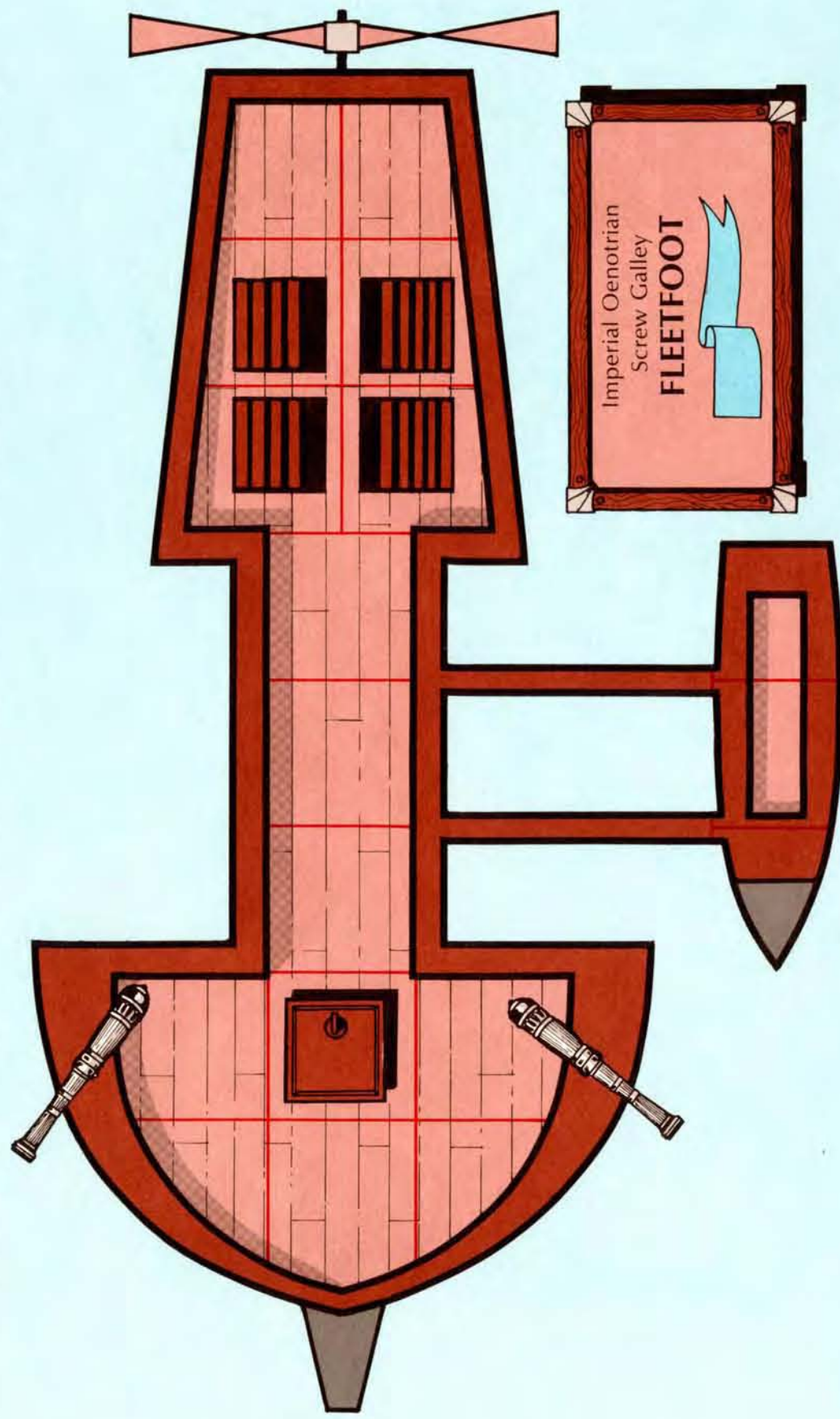
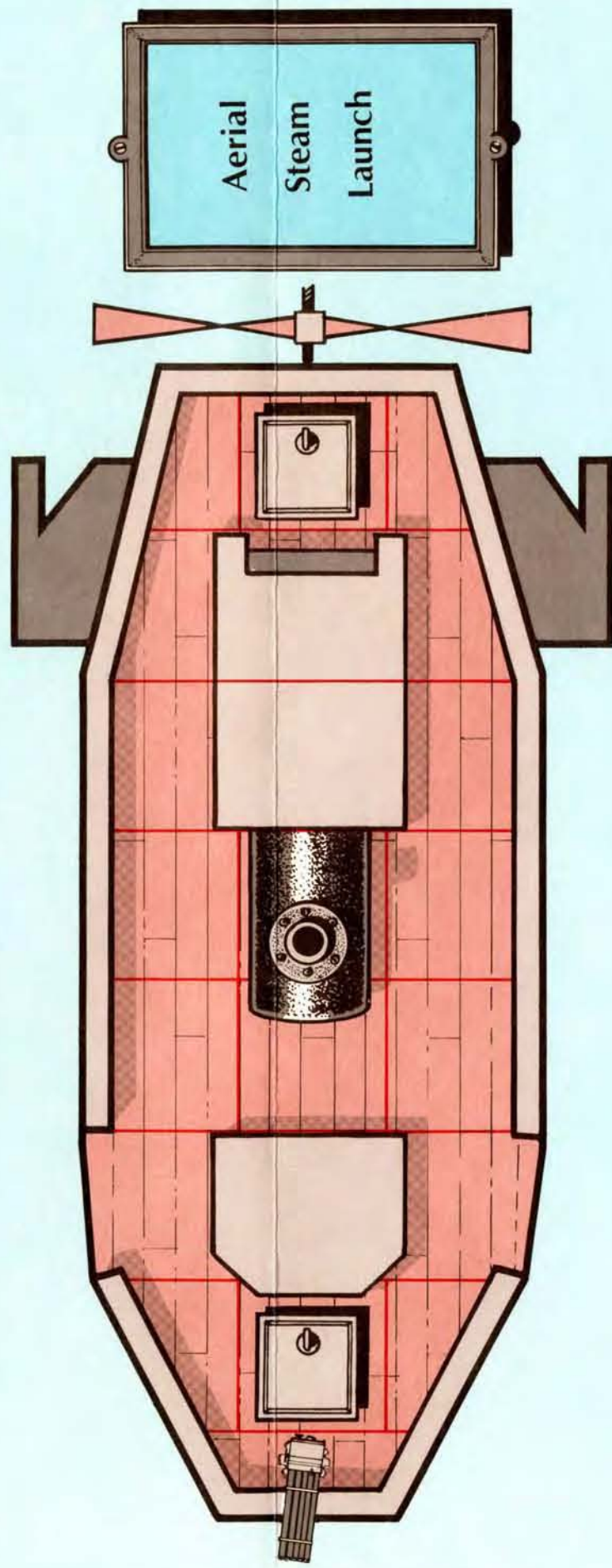
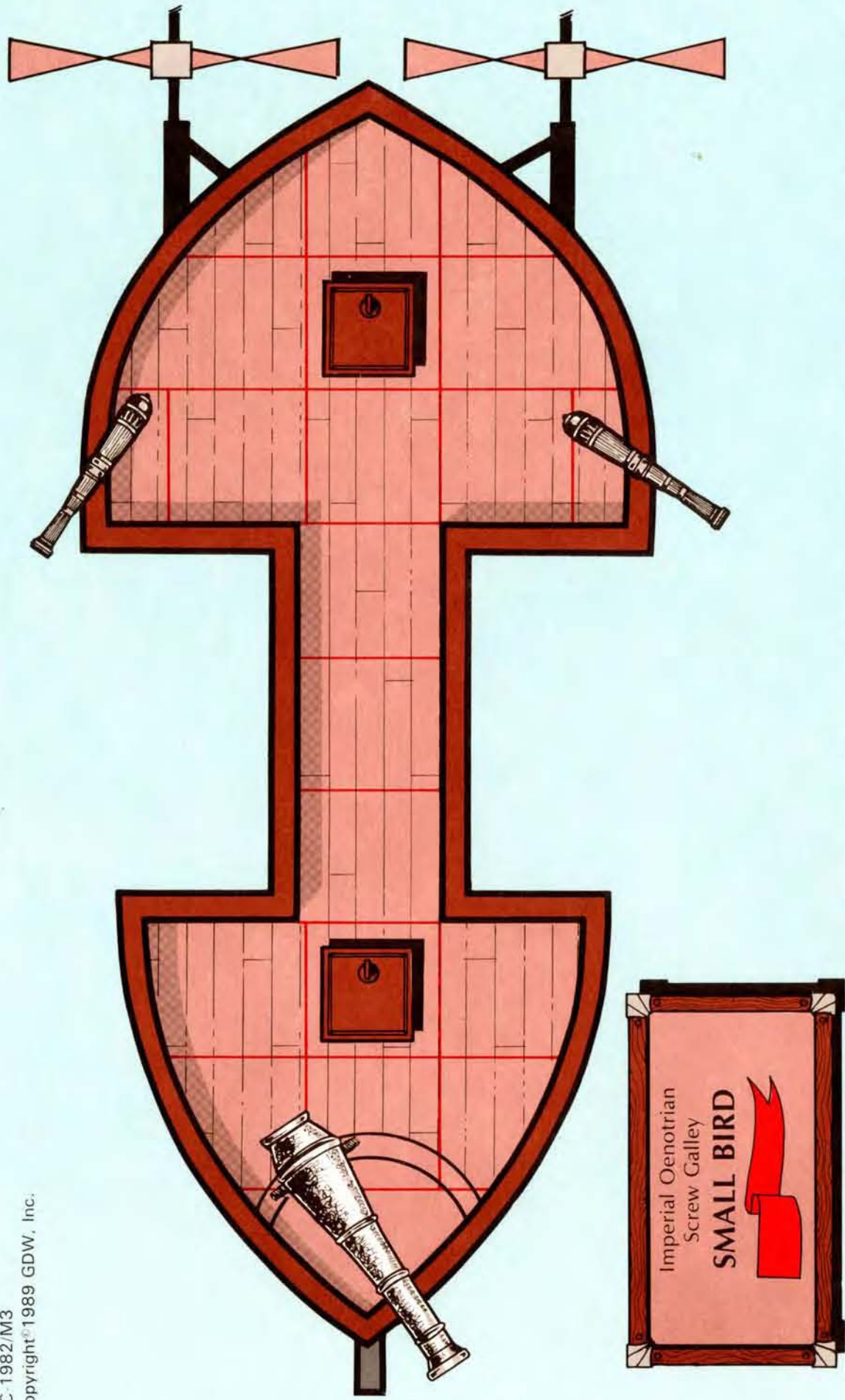
Imperial Genotrian  
 Screw Galley  
**HULLCUTTER**

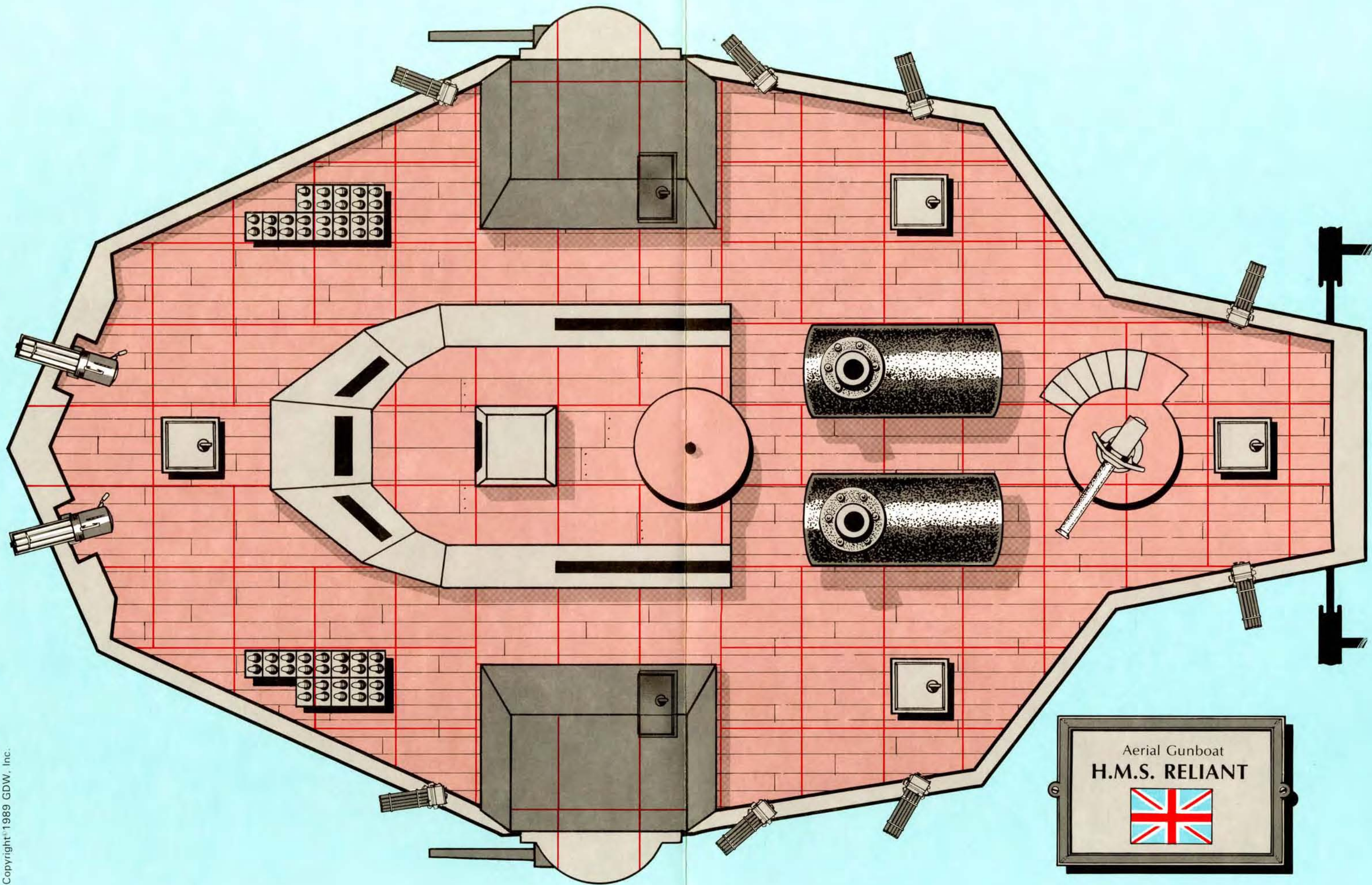












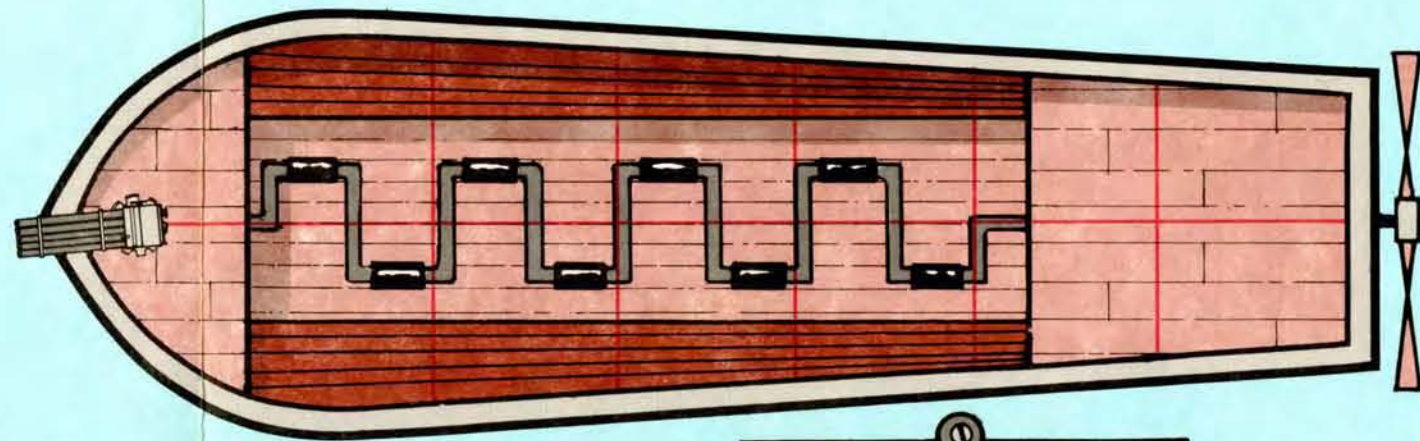
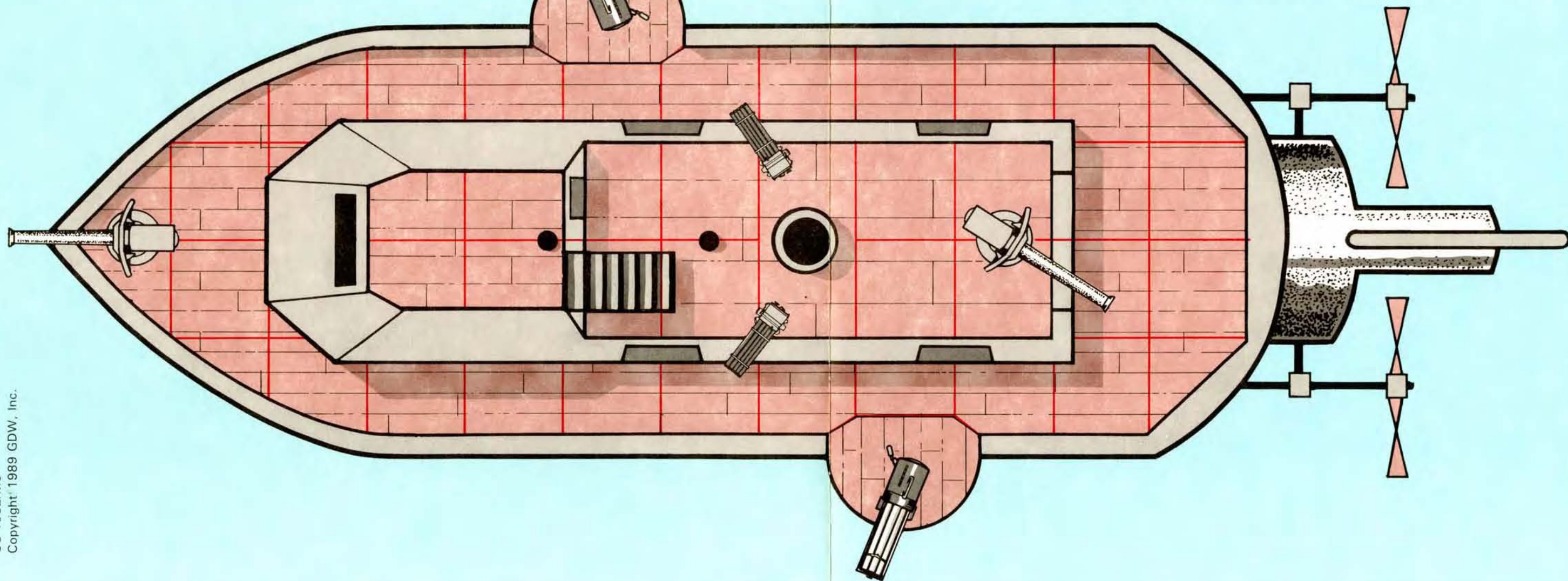


Royal Belgian Gunboat

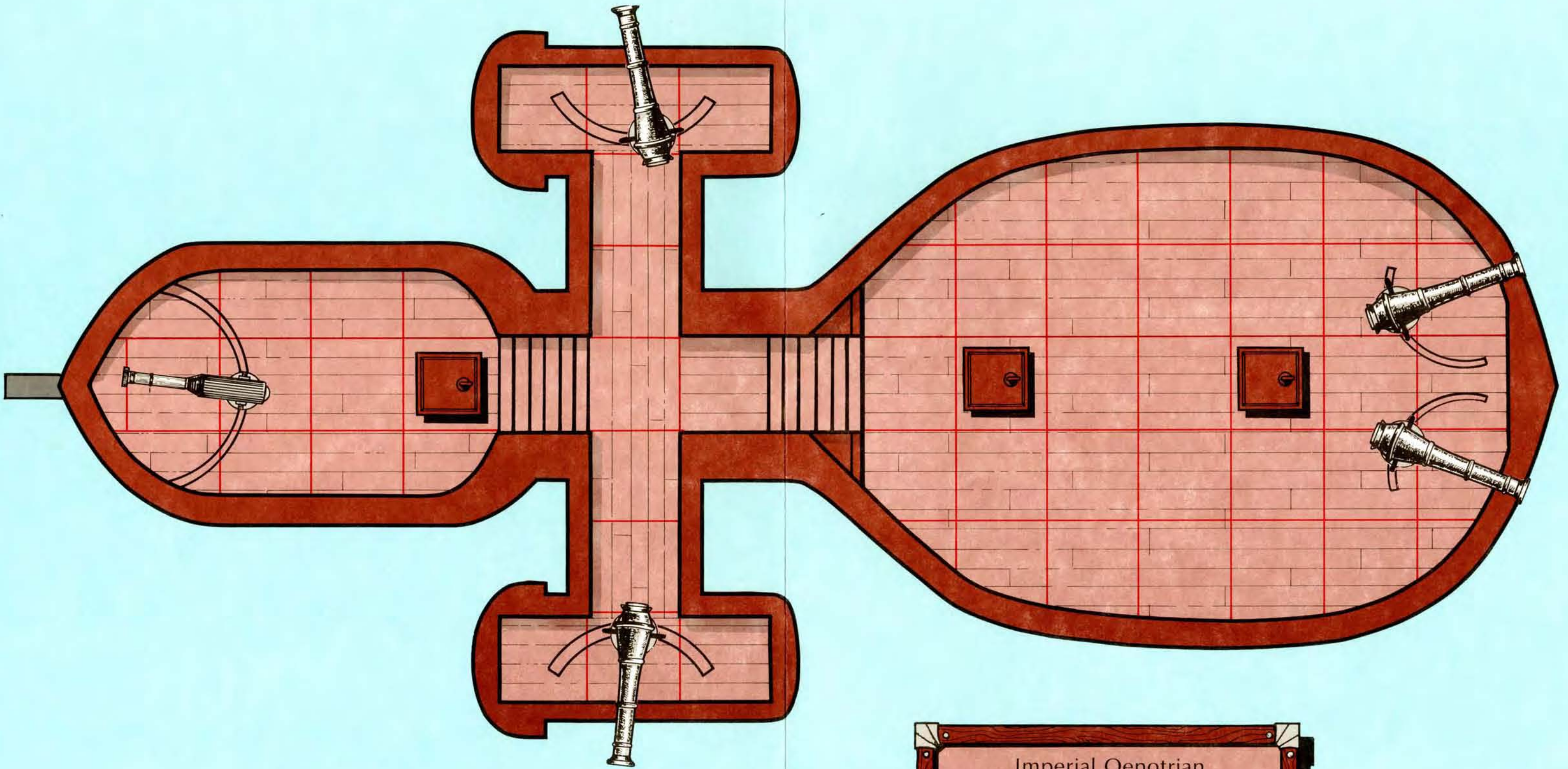
**LEOPOLD**



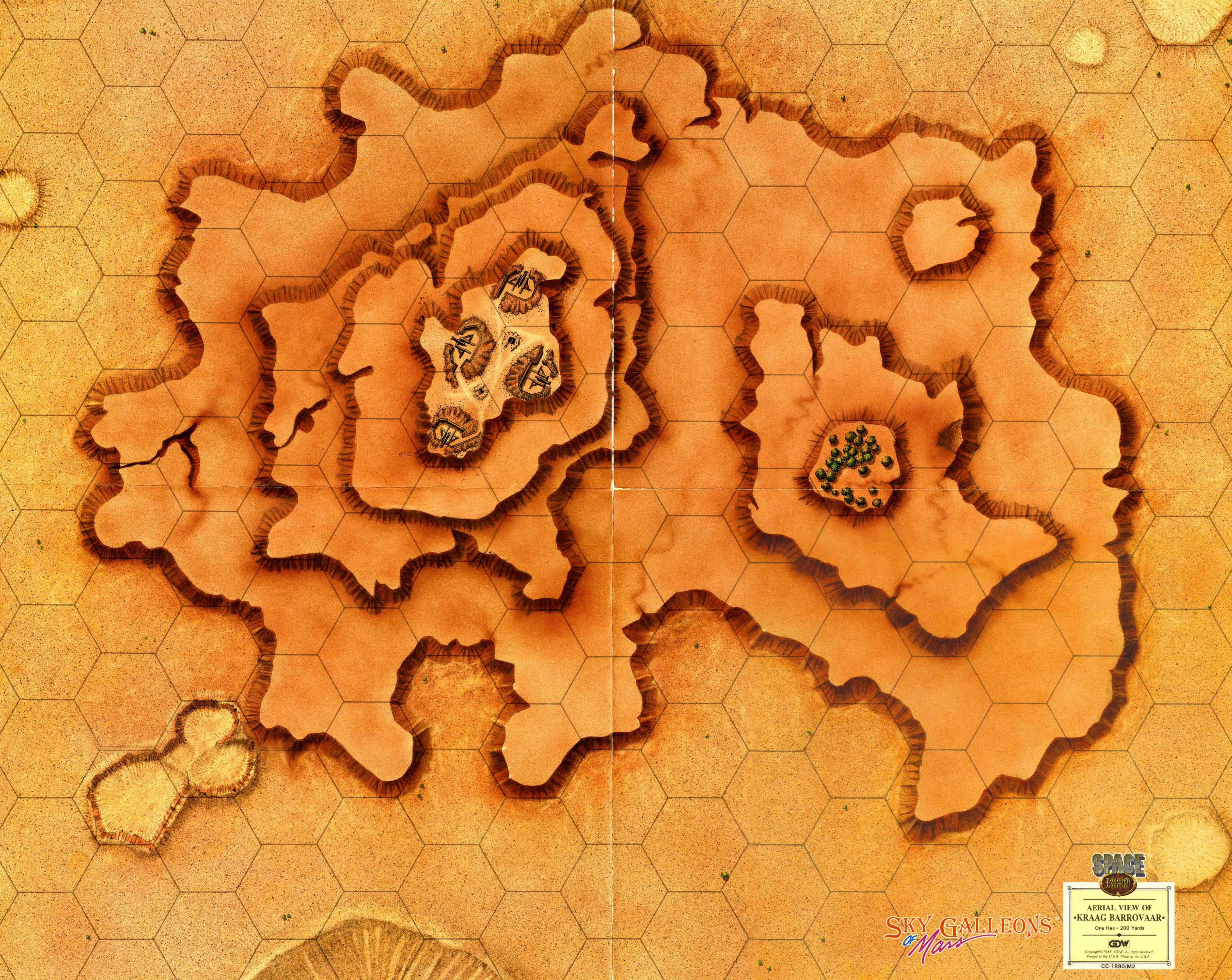
Belgian  
Boarding  
Launch











SPACE  
1009

AERIAL VIEW OF  
•KRAAG BARROVAAR•

One Hex = 200 Yards

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SKY GALLEONS  
of Mars





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1889

AERIAL VIEW OF  
• SHASTAPSH •  
One Hex = 200 Yards

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# SPACE: 1889 PDFs

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## Rulebooks

### **Space: 1889®** by Frank Chadwick

Role-Playing In A More Civilized Time. Everything Jules Verne should have written. Everything H. G. Wells could have written. Everything A. Conan Doyle thought of, but never published because it was too fantastic. Everything you need for adventures of the century! This rulebook contains the complete role-playing rules with the exciting background of Victorian science fiction: ether flyers and Martian cloudships, the canals and civilizations of the red planet, Venus' swamps and dinosaurs, the honeycombed interior of Luna, and the thrills of inventions and inventors—the driving force behind Victoria's multiworld empire! It also includes the errata and additional rules from the *Space:1889 Referee's Screen*. This PDF includes the color pages from the original GDW printing. 224 pages.

### **Soldier's Companion** by Frank Chadwick

Nineteenth-century colonial miniatures rules with the Victorian Science Fiction elements of *Space: 1889*. While allowing for the addition of land juggernauts, combat tripods, and aerial flyers, the rules work well for a rag-tag British column fighting its way through the passes of the Northwest Frontier. *Soldier's Companion* covers the wealth of period military equipment and extensively details the major armies of Earth, Mars, Venus, and Luna. 192 pages.

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by Frank Chadwick

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### **Tales from the Ether** by Frank Chadwick

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### **Beastmen of Mars** by Lester Smith

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### **Canal Priest of Mars** by Marcus Rowland

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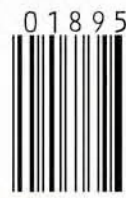


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