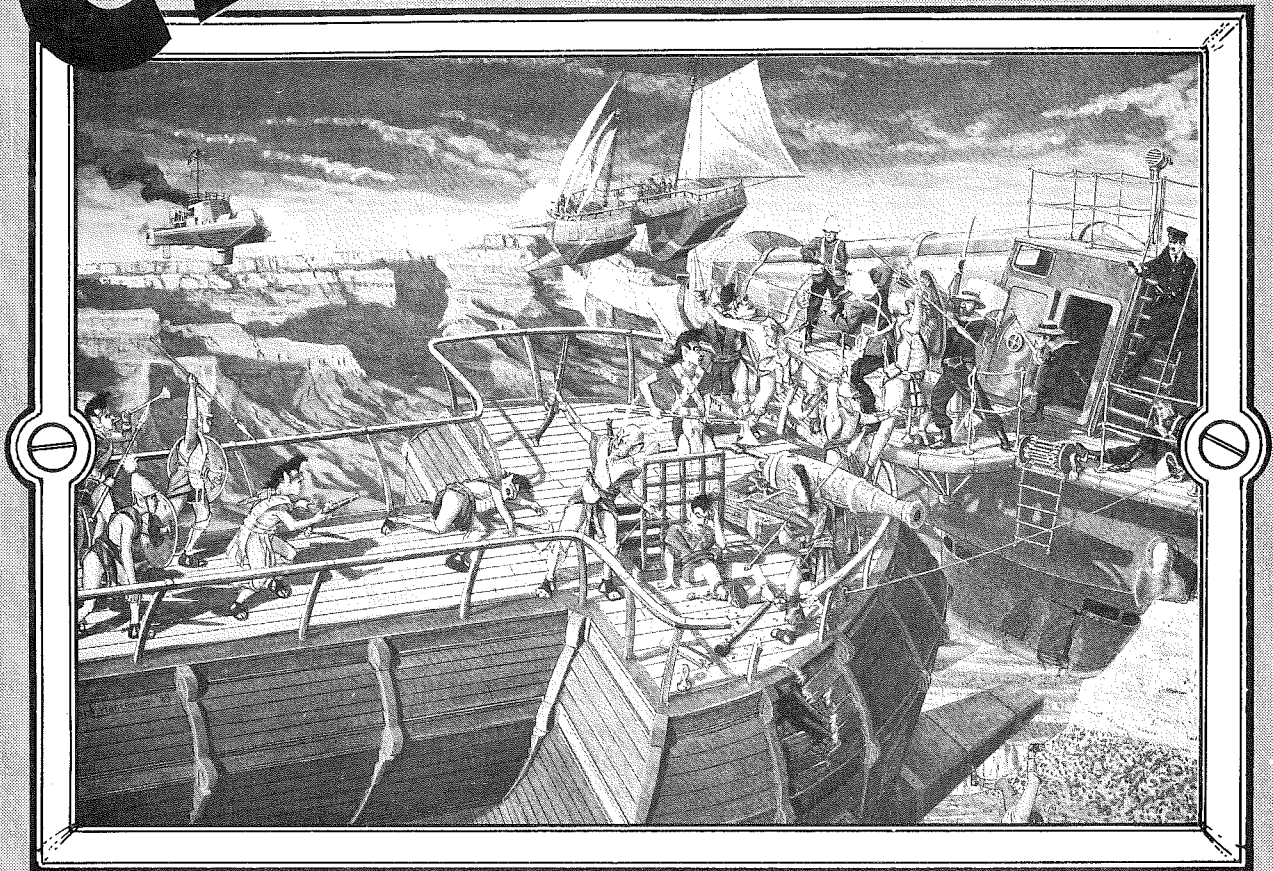
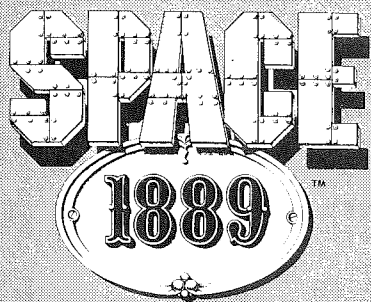


CLOUDSHIPS & GUNBOATS



Rules Manual





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Printed in USA.

ISBN 1-55878-021-1.

Space: 1889 is GDW's trademark for its science-fiction role-playing game of adventure in a more civilized time.

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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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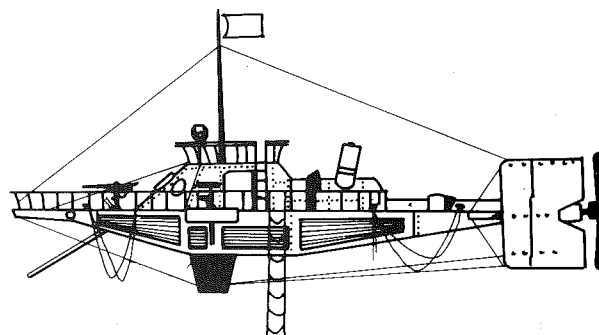


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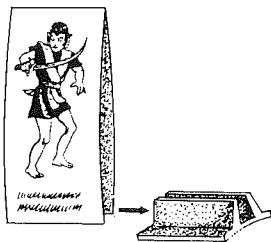
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Part I: Game Rules

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).

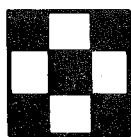
A rocket battery is represented on the ship status sheet by a triangle with a tail. The triangle points in the

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.

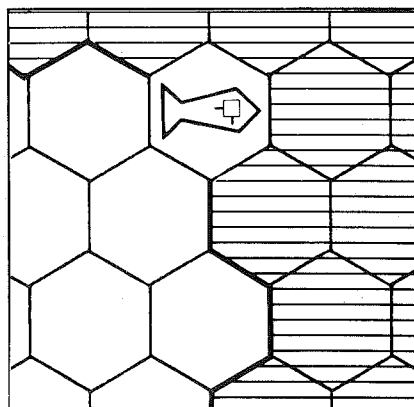
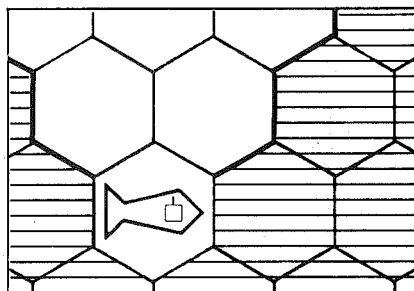
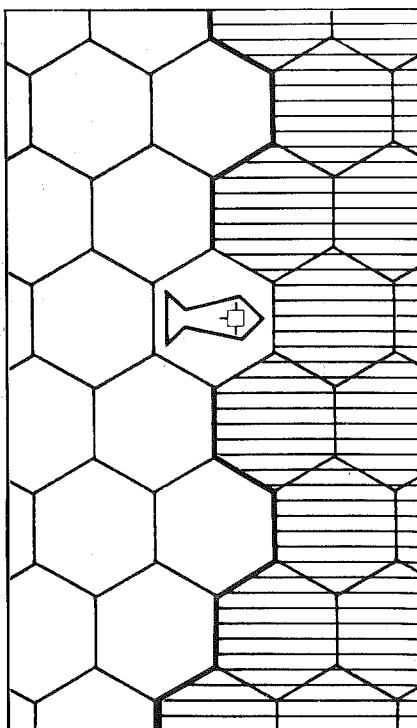
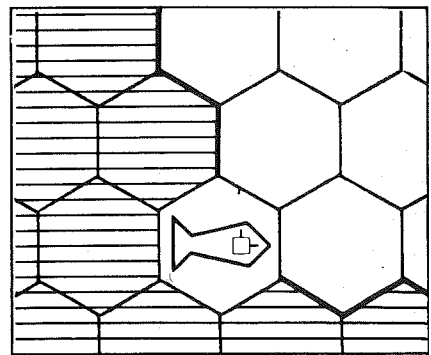
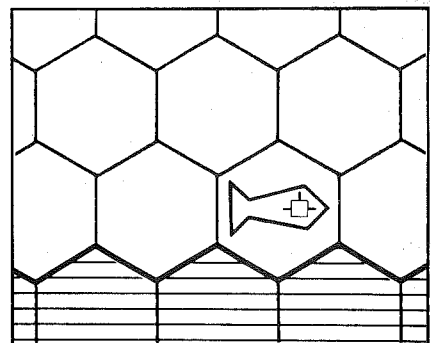
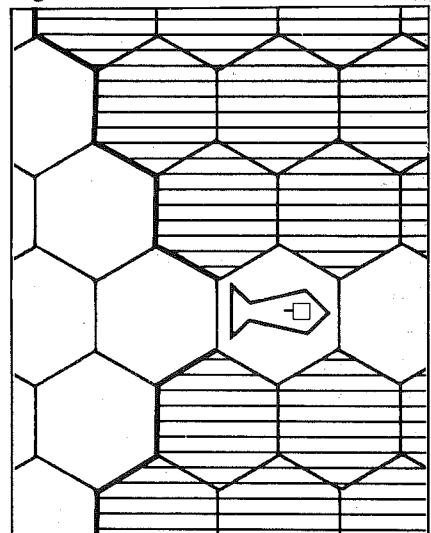
NONEXPLODING ROUNDS: OPTIONAL

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, how- ever, they are repeated here, along with a number of additional embel- lishments. These embellishments for the most part add new equipment and design components to the ships—the uses of which are covered in the ad- ditional 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 charac- teristics and performance. Before beginning the design, however, you must decide whether the ship is to be built in a British or Martian ship- yard—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 de- signer 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 Mar- tian yards. Rams cost £1,000 per hull size at all yards.

2. Propulsion

FOR STEAM-POWERED ves- sels, 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 turn- crank position weighs 10 tons (in- cluding 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 Mar- tian 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 ves- sels, 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 any- thing 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 ar- mor is affixed to the ship's basic structure. Determine the weight of the armor (AW) in tons by multiply- ing the armor value by 10 times the hull size ($AW = 10AVHS$).

As metal is extremely scarce on Mars, armored vessels are not con- structed. 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.

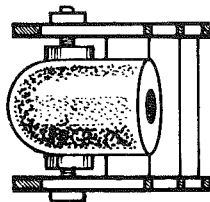
If desired, the weapon may be placed in an enclosed armored mount (turret or sponson). This does not increase the weight of the gun if the

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.

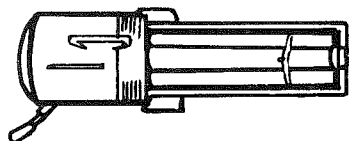
Sweeper



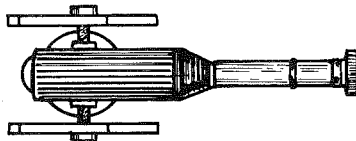
Lob Gun



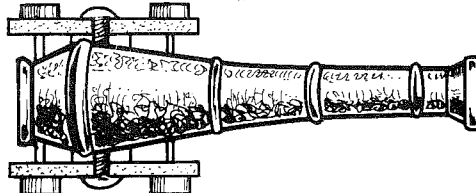
*Hotchkiss Revolving Cannon
3-pounder*



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

[illegible]

Bridge

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

[illegible][illegible]

Hull Hits

[illegible]

Marines

APHID-Class

Aerial Gunboat

[illegible]


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

[illegible][illegible]

Huli Hits

[illegible]

Marines

FENIAN RAM-Class

Screw Galley

Bridge C H T S O O

Deck

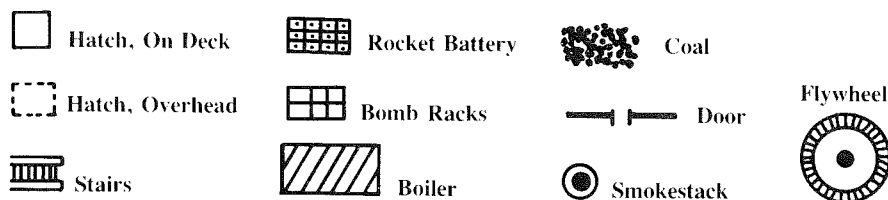
[illegible]

Hull Hits

[illegible]

Marines

KEY TO SHIP PLANS:



Part II: Cloudships

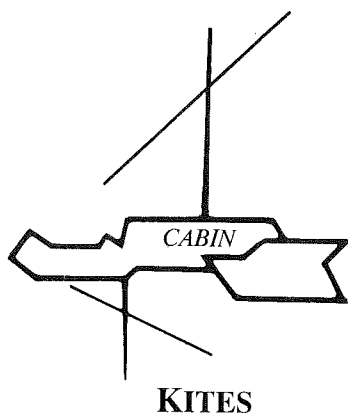
THE MARTIANS have been building cloudships for hundreds of years, although their design has changed little until quite recently. Most cloudships have traditionally been "kites," large sail-powered vessels which are fast but dependent on the wind for propulsion.

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.



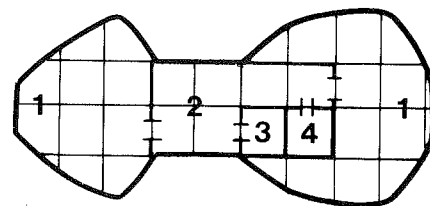
KITES

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

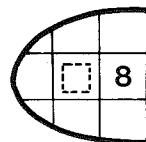
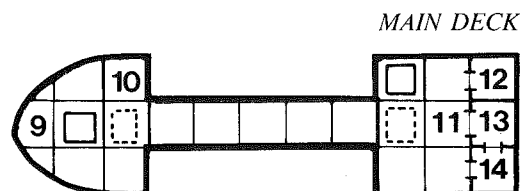
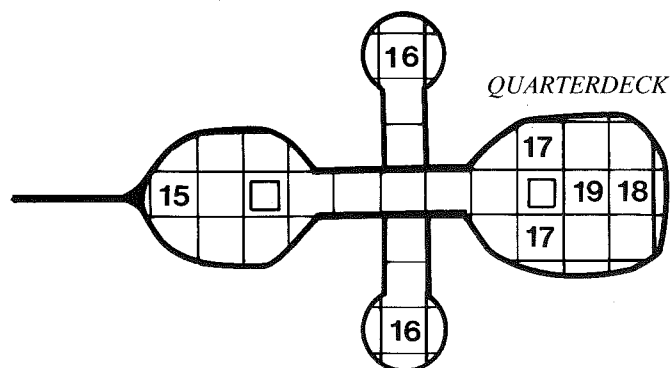
Gunners: 9

Marines: 2 + 18

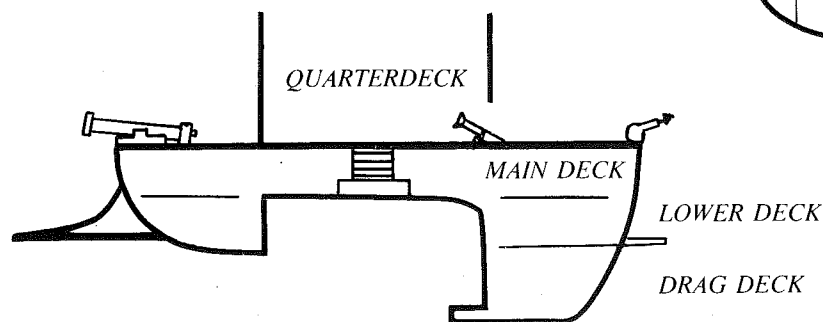
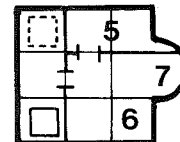
Armament:

- 1 rogue gun, forward
- 2 light guns, wing mounts
- 2 sweepers, broadside
- 1 power grapnel, aft

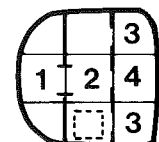
SWIFTWOOD



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

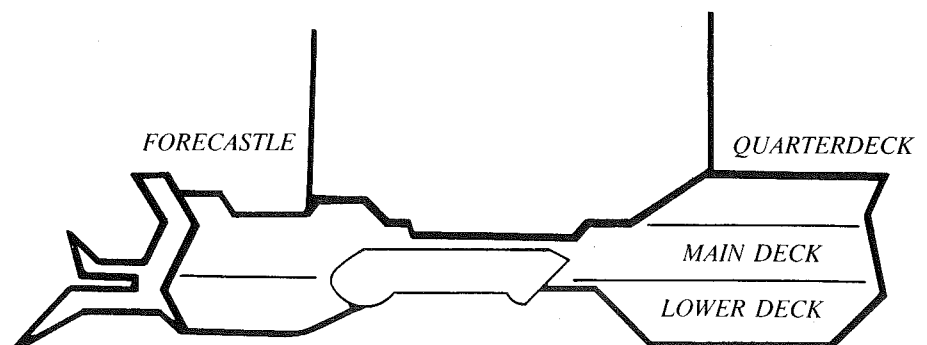
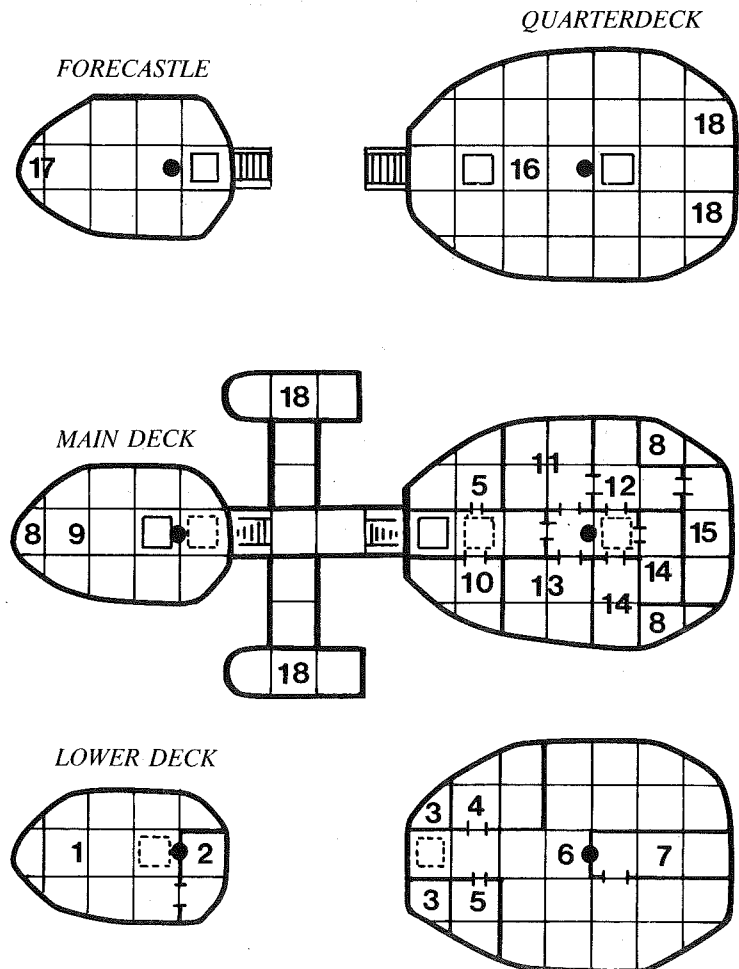
1. Hold
2. Brig
3. Liquid Fire Tank
4. Master Seamen's Quarters
5. Shower and Head
6. Crew's Quarters and Mess
7. Drogue Torpedo Bay
8. Powder Magazine
9. Marines' Quarters
10. Galley
11. Captain's Quarters
12. Captain's Dining Room
13. Wardroom
14. Officers' Quarters
15. Stern Gallery
16. Bridge
17.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

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

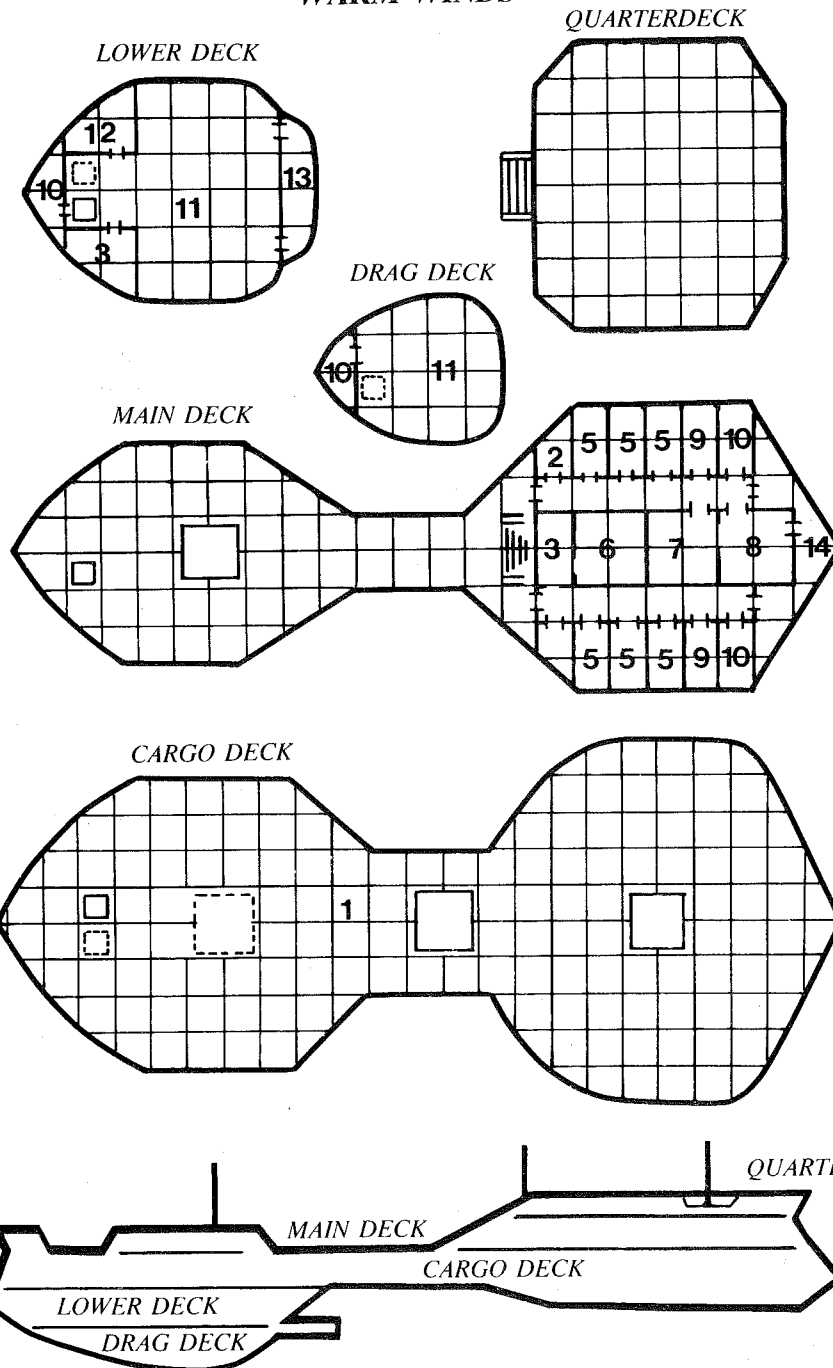


Warm Winds

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

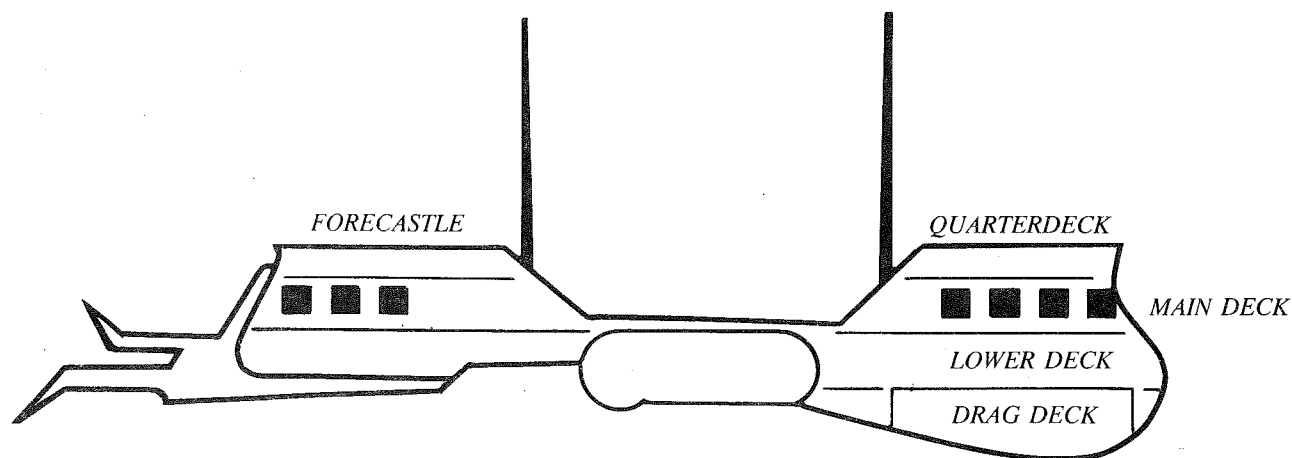
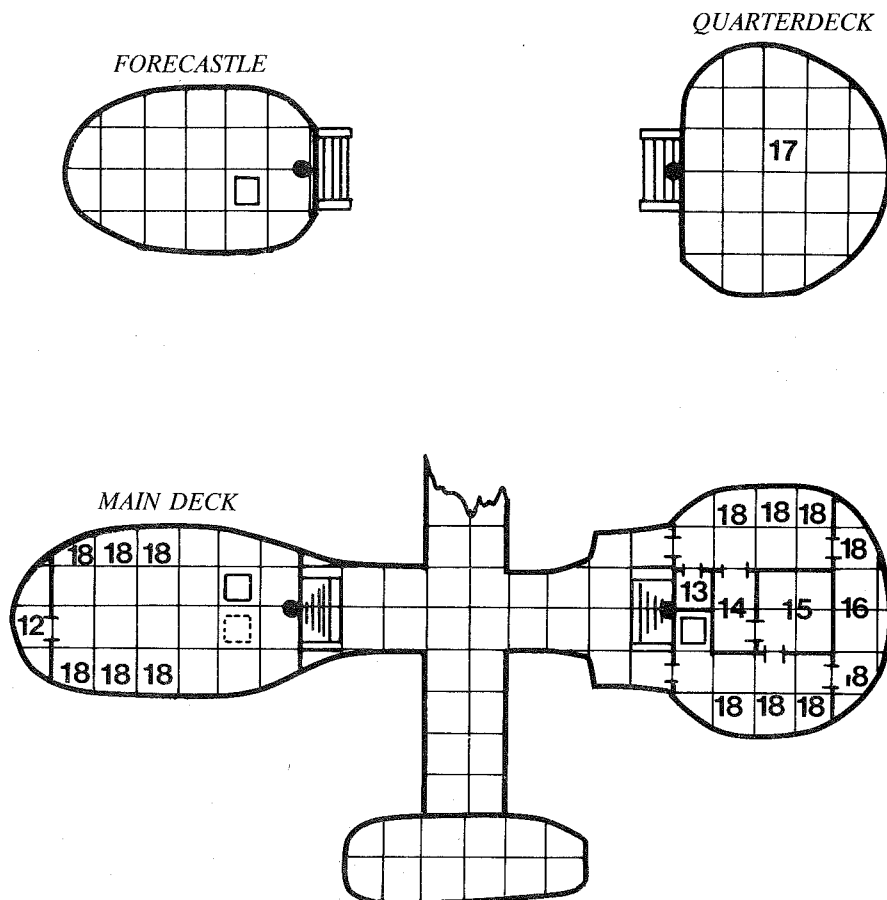
Armament: None

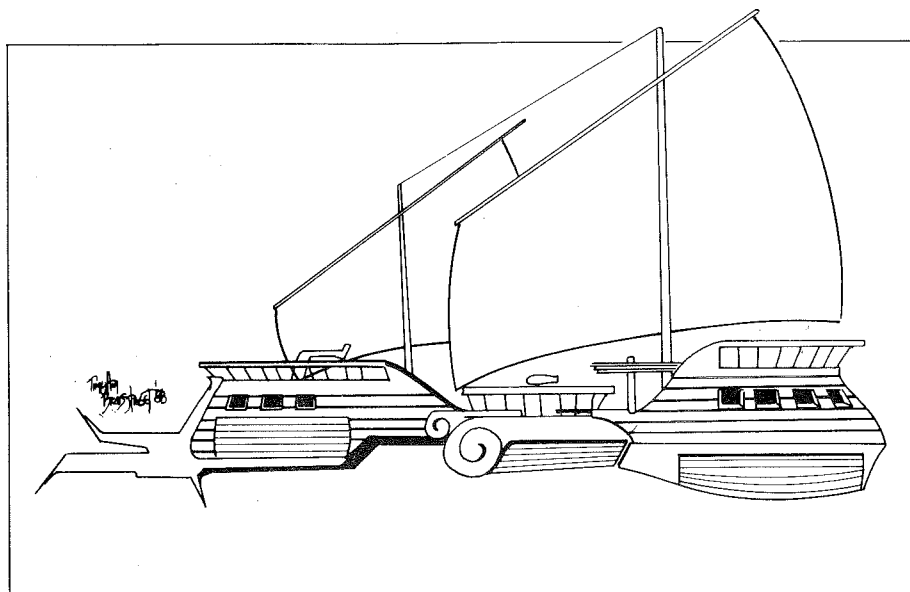
1. Cargo Hold
2. Brig
3. Galley
4. Armory
5. Passenger Cabin
6. Wardroom
7. Dining Room
8. Captain's Quarters
9. Officers' Quarters
10. Shower and Head
11. Crew's Quarters
12. Master Seamen's Quarters
13. Cargo Loading Platform
14. Stern Gallery

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

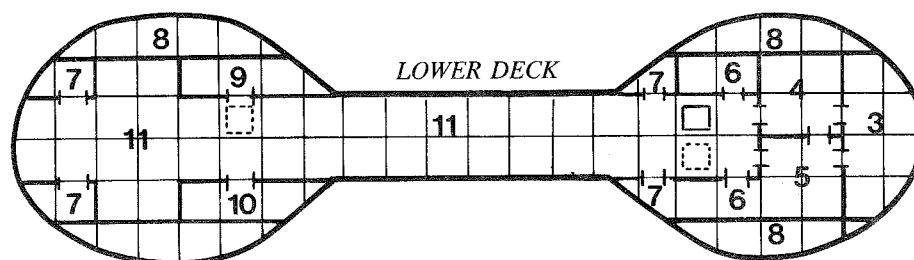
Gunners: 28

Armament:

12 heavy guns, broadside, behind protected bulkheads

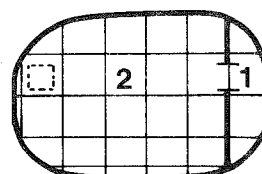
2 heavy guns, aft, behind protected bulkheads

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:

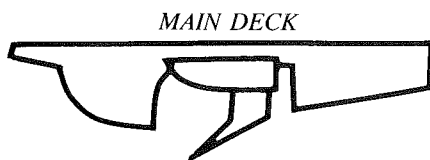
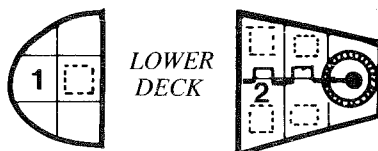
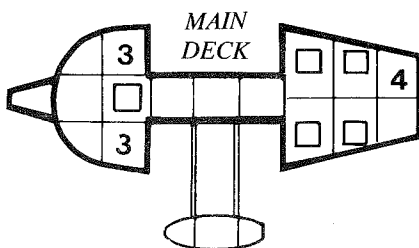
2 sweepers, wing mounts

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

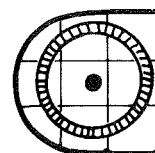
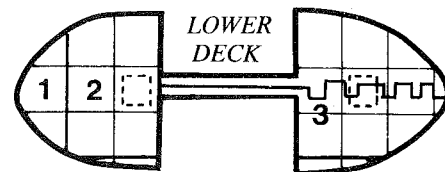
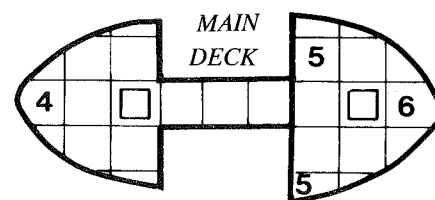


LOWER DECK

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



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

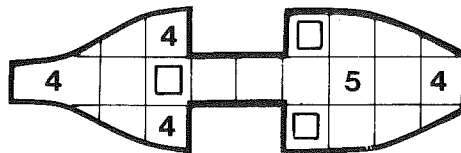
Armament:

1 rogue, forward

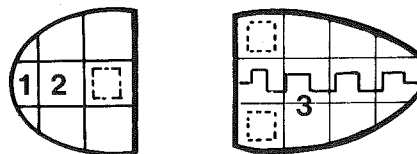
2 sweepers, wing mounts

CLEAR SIGHT

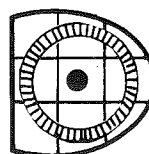
MAIN DECK



LOWER DECK

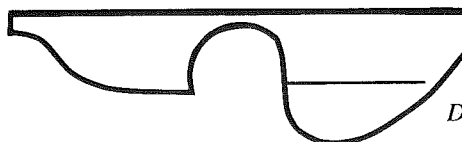


DRAG DECK



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

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



LOWER DECK

DRAG 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

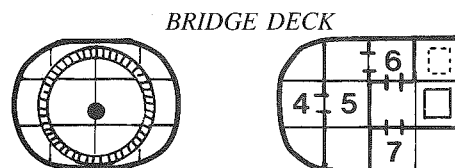
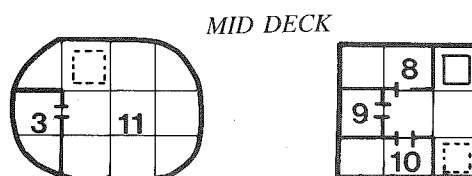
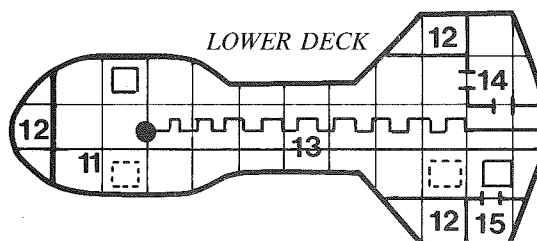
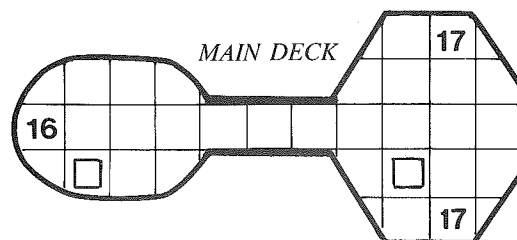
2 heavy guns, wing mounts

Sky Runner

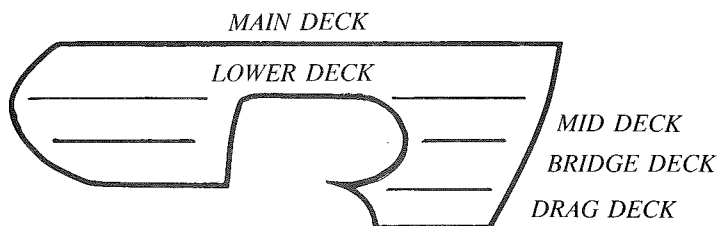
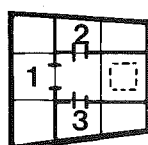
THIS IS A GOOD example of a screw galley in the light-to-medium tonnage range. It is a handy flyer with a good ceiling and is well armed for its size. This class of galley has

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

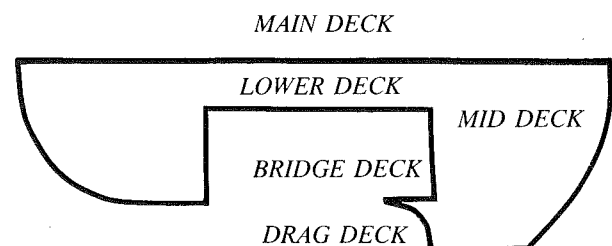
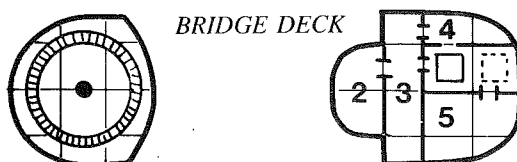
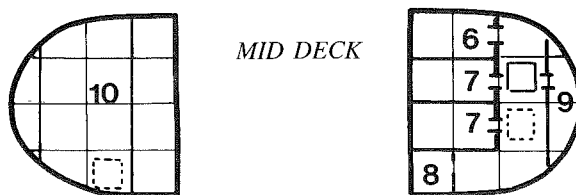
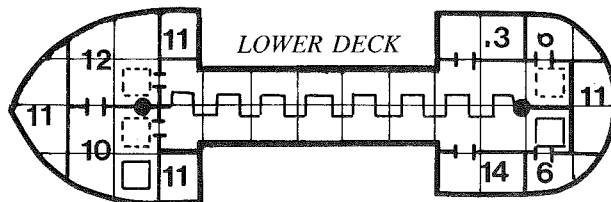
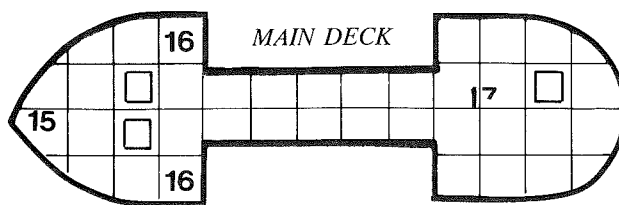


1. Captain's Quarters
2. First Officer's Quarters
3. Shower and Head
4. Flying Bridge
5. Bridge
6. Chart Room
7. Wardroom
8. Master Seamen's Quarters
9. Armory
10. Hold
11. Crew's Quarters
12. Magazine
13. Crankshaft
14. Galley
15. Brig
16. Rogue Gun
17. Heavy Gun

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

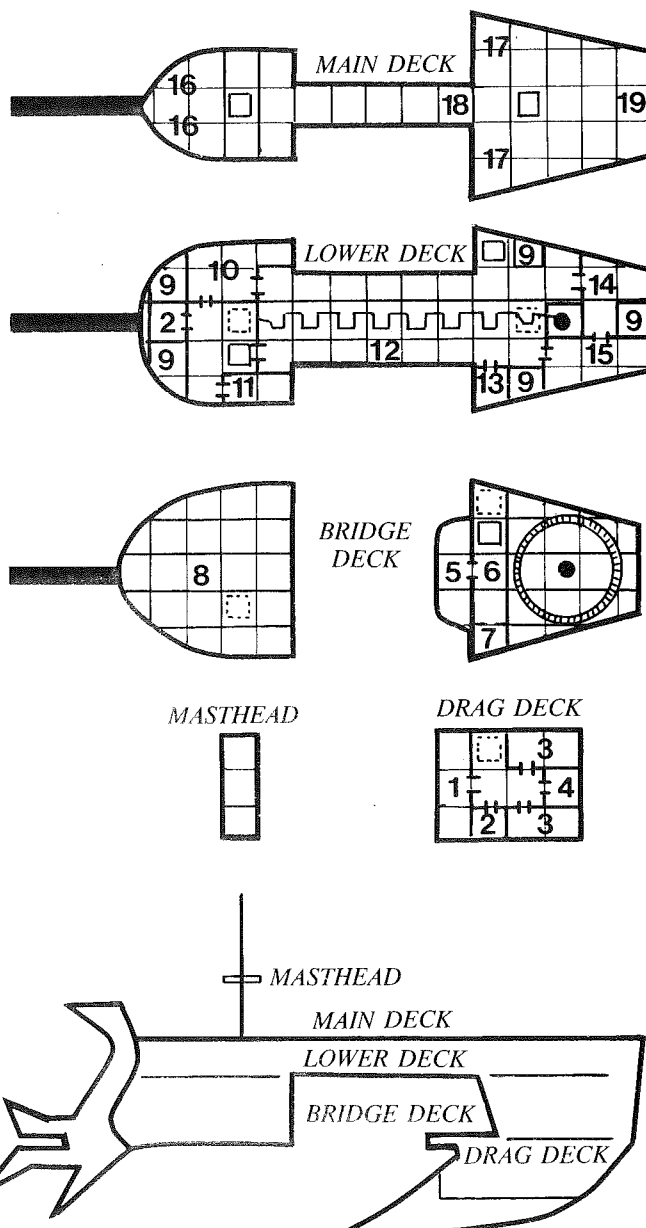
1. Captain's Quarters
2. Head
3. Officers' Quarters
4. Armory
5. Flying Bridge
6. Bridge
7. Chart Room
8. Crew's Quarters
9. Magazine
10. Marine Quarters
11. Master Seamen's Quarters
12. Crankshaft
13. Brig
14. Wardroom
15. Galley
16. Rogue Gun
17. Heavy Gun
18. Lob Gun
19. Rod Gun

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

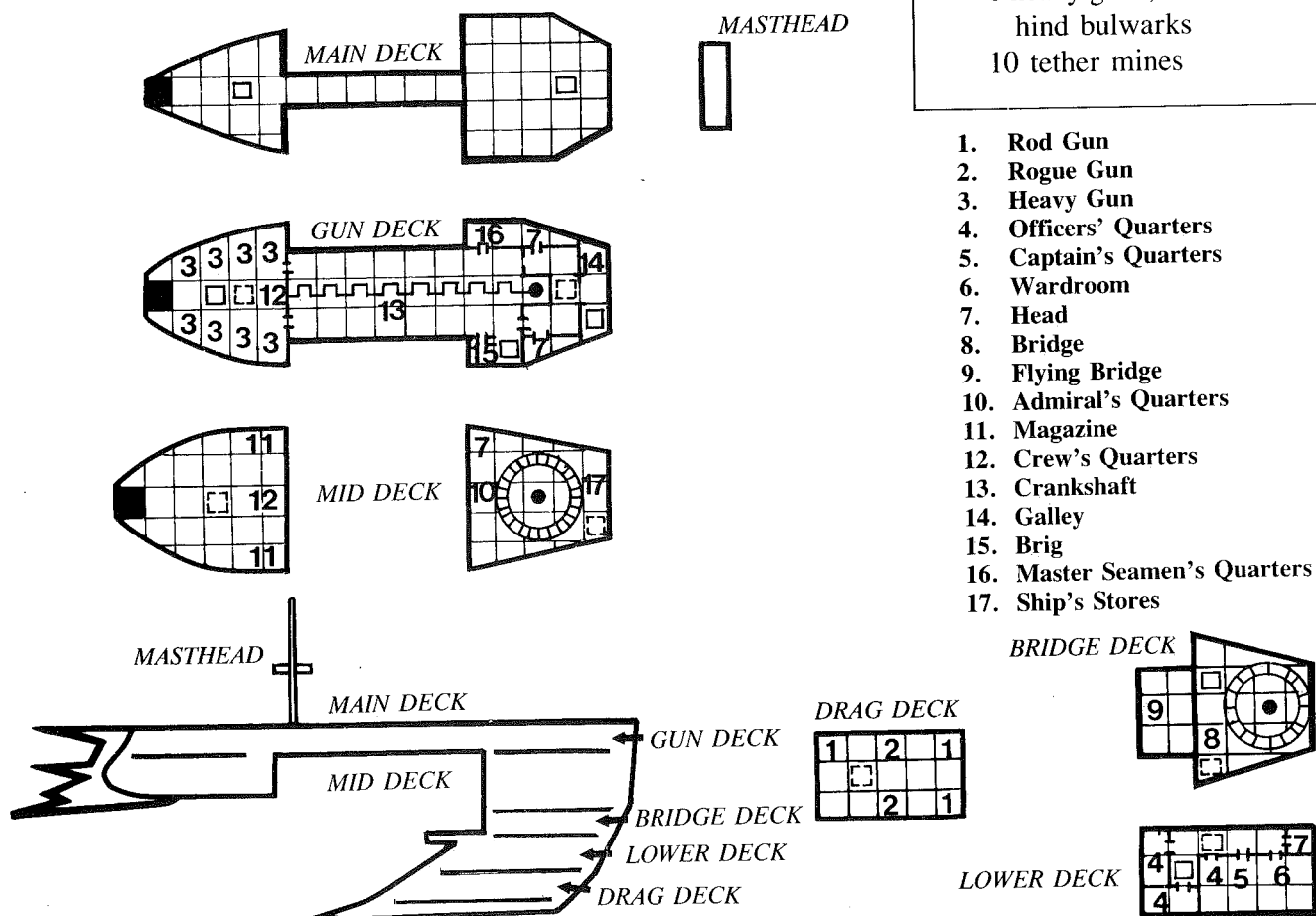


Skyfire

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

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

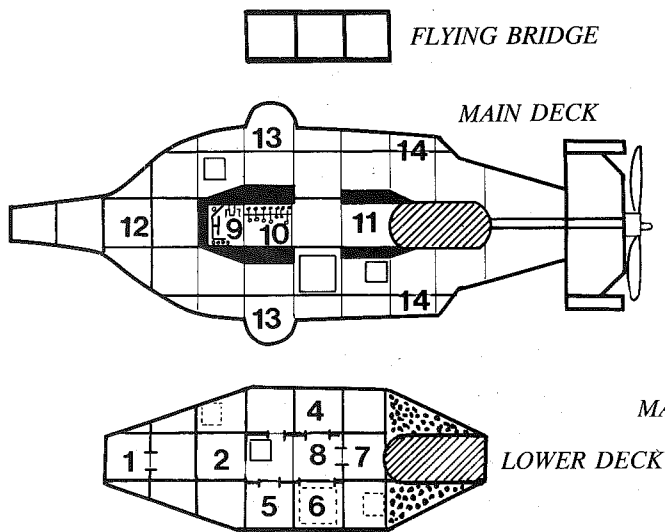
Aphid-Class Gunboat

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

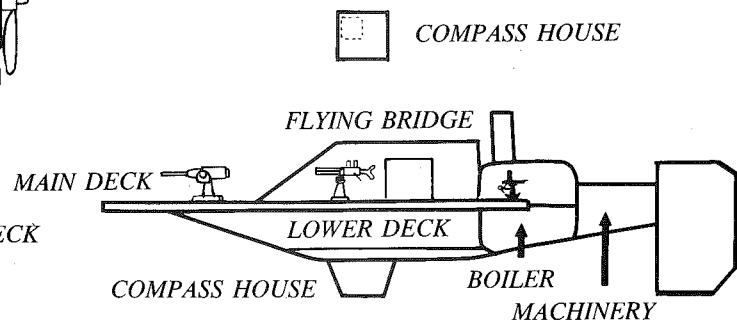


Technical Specifications (Original Design)

Armor: 2
Hull: 2
Speed: 6
Engine: 250 hp (ES = 2)
Coal: 40 tons
Endurance: 20 days
Altitude: Very High
Tonnage: 160
Price: 23,220
Crew: 1 + 3 + 11
Bridge: C,H,T,S
Deck: 1 + 2
Maneuver: 2
Gunners: 6

Armament:

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

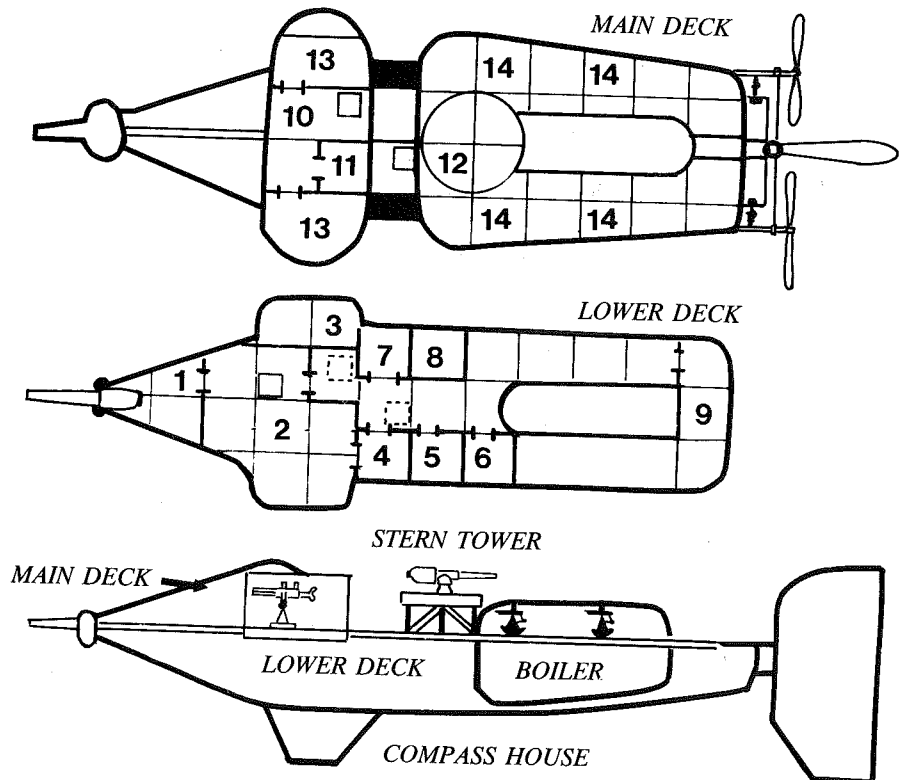
Dauntless-Class Gunboat

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

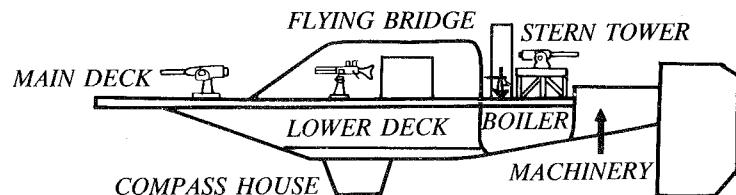
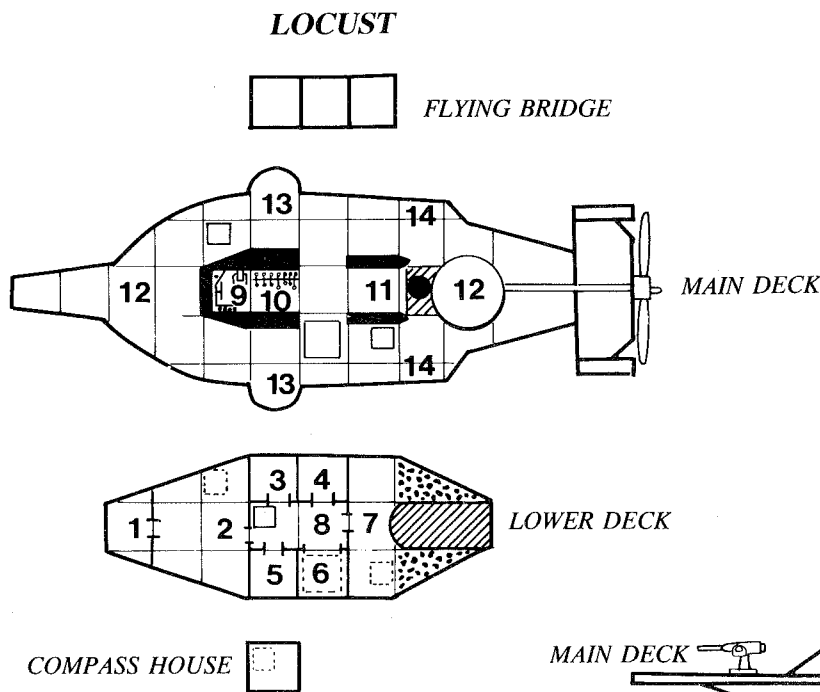
Ship	Launched	Current Station
<i>Dauntless</i>	1884	Syrtis Major
<i>Daring</i>	1886	Lost in action, 1886
<i>Danger</i>	1887	Parhoon

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.

Technical Specifications	
Armor:	1
Hull:	2
Speed:	6
Engine:	250 HP forced draught (ES = 2)
Coal:	40 tons
Endurance:	20 days
Altitude:	Very High
Tonnage:	165
Price:	25,350
Crew:	1 + 3 + 13
	Bridge: C,H,T,S
	Deck: 1 + 2
	Maneuver: 2
	Gunners: 8
Armament:	
	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)



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

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

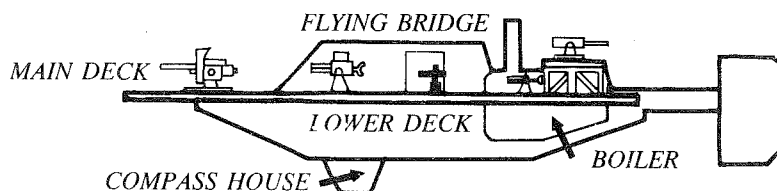
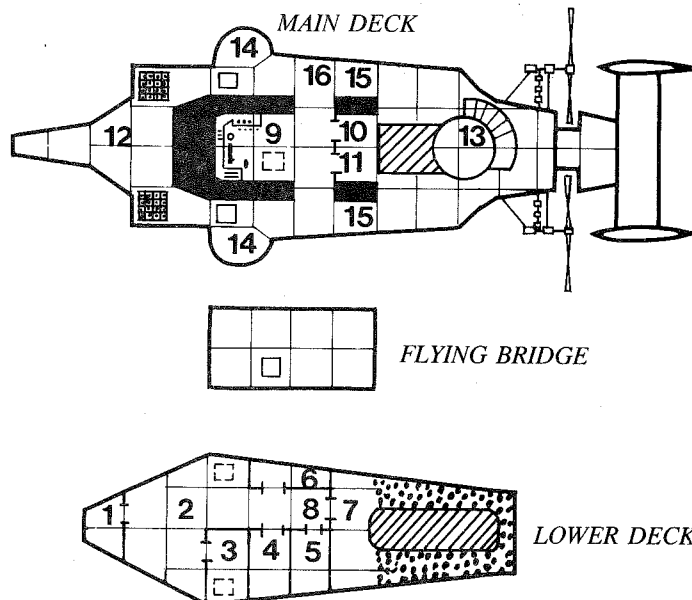
Armor: 2
Hull: 5
Speed: 6
Engine: 625 HP forced draught (ES = 5)
Coal: 100 tons
Endurance: 20 days
Altitude: High
Tonnage: 500 tons
Price: 63,780
Crew: 3 + 4 + 30
Bridge: C, H, T, S, O
Deck: 2 + 5
Maneuver: 5
Gunners: 10
Marines: 1 + 9
Armament:
 1 4.7" QF, forward
 1 4" long, stern tower
 2 6-pounder 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

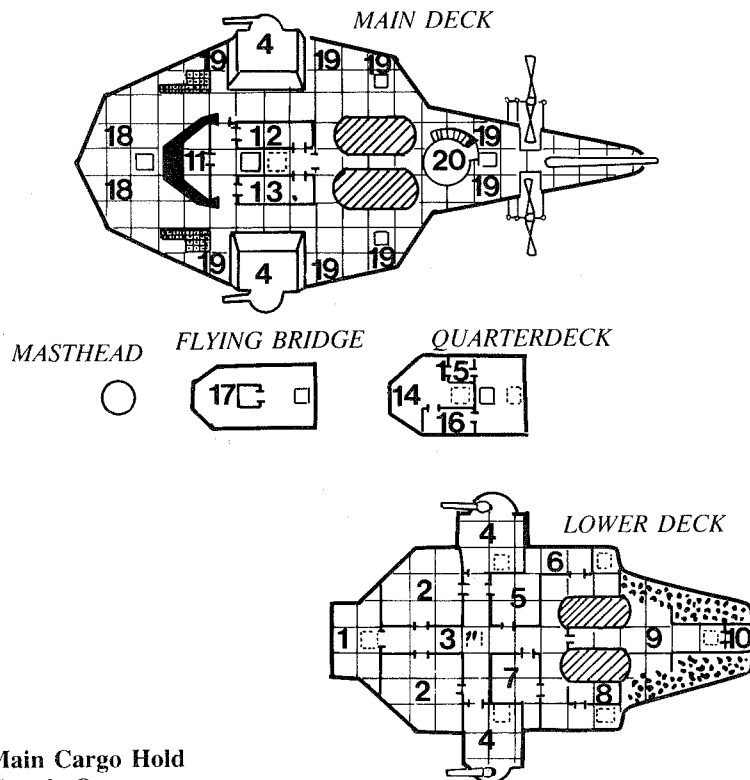
Ship	Launched	Current Station
<i>Macefield</i>	1888	Channel Fleet
<i>St. John</i>	1888	West Indies Squadron
<i>Raglan</i>	1888	West Indies Squadron
<i>Ponsonby</i>	1889	Channel Fleet
<i>Uxbridge</i>	1889	Mediterranean Fleet

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:

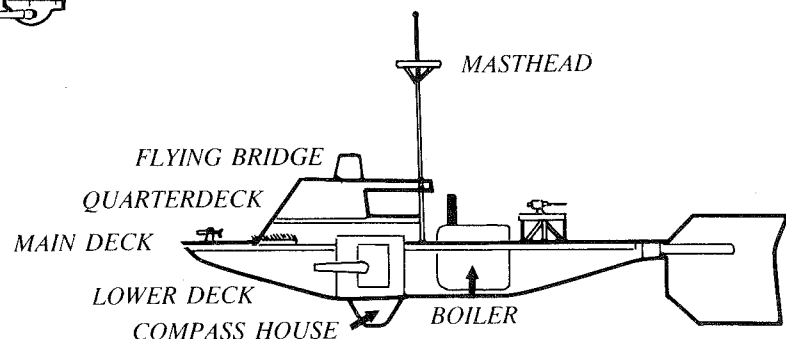
2 6-pdr HRC, forward

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)

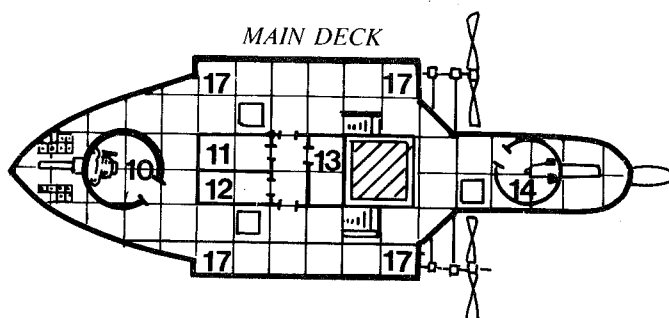
1. 8-inch Magazine
2. Cargo Hold
3. Mess Hall
4. Galley
5. Wardroom
6. Marines' Quarters
7. Crew's Quarters
8. Engine Room
9. 6-inch Magazine
10. 8-inch Gun Turret
11. Officers' Quarters
12. Petty Officers' Quarters
13. Captain's Quarters
14. 6-inch Gun Turret
15. Bridge
16. Chart Room
17. Nordenfelt

Thunderer-Class Monitor

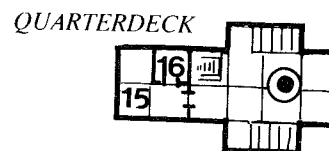
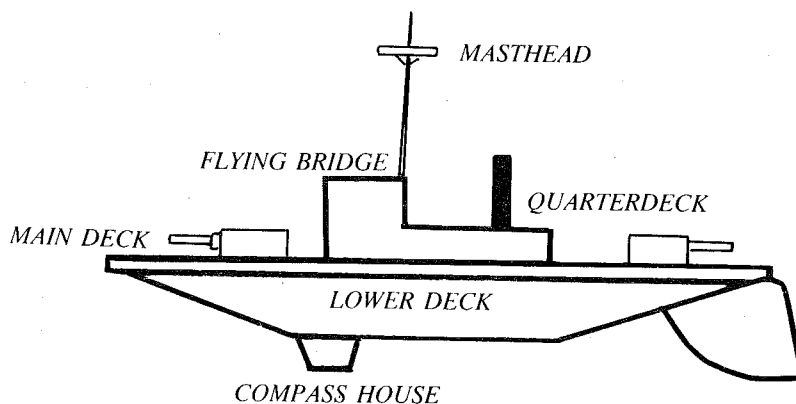
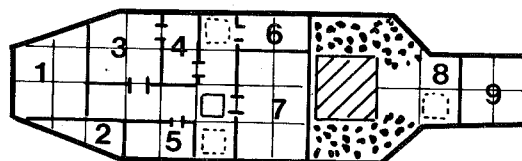
THE *THUNDERER* was built as an experiment which, in retrospect, might have proven more valuable on Earth than Mars. The ship uses most of its available tonnage to mount two large guns in armored, revolving turrets. It is an extremely well armored

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



DEPLOYMENT OF SHIPS IN CLASS

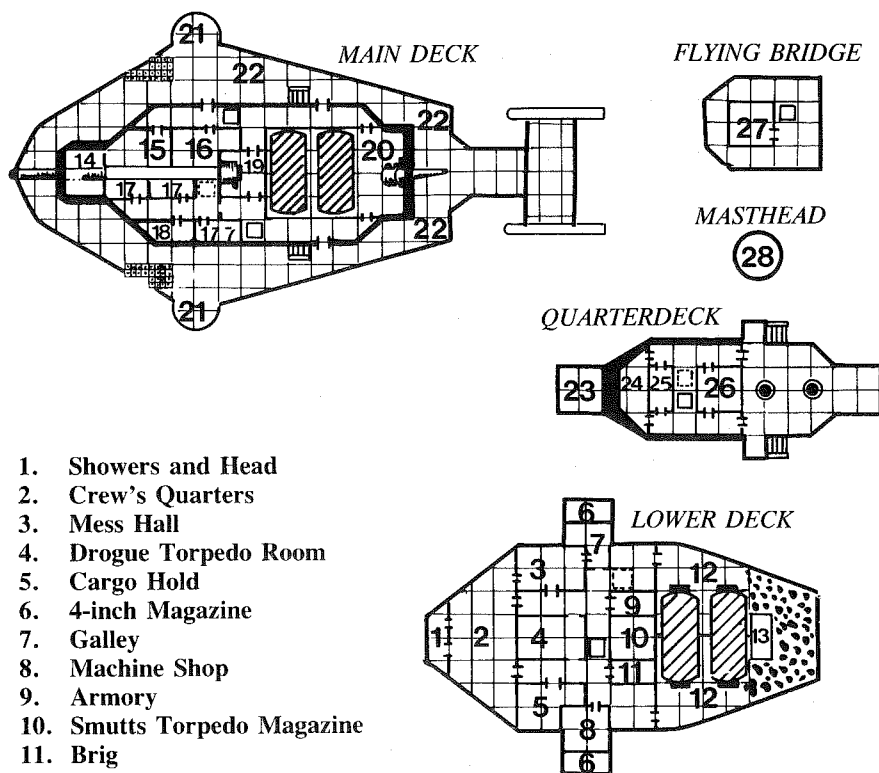
Ship	Launched	Current Station
<i>Thunderer</i>	1885	Syrtis Major

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 center-line 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



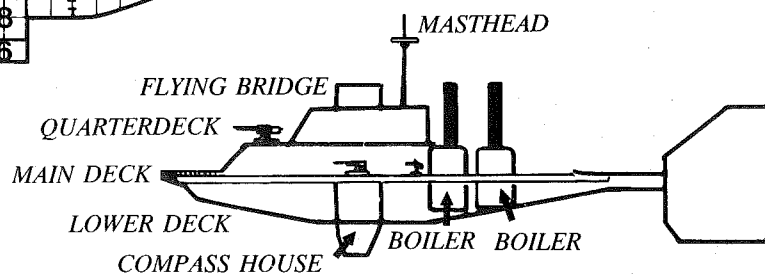
1. Showers and Head
2. Crew's Quarters
3. Mess Hall
4. Droque Torpedo Room
5. Cargo Hold
6. 4-inch Magazine
7. Galley
8. Machine Shop
9. Armory
10. Smutts Torpedo Magazine
11. Brig
12. Engine Room
13. 5-inch Magazine
14. 6-inch Magazine
15. Marines' Quarters
16. Petty Officers' Quarters
17. Officers' 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:

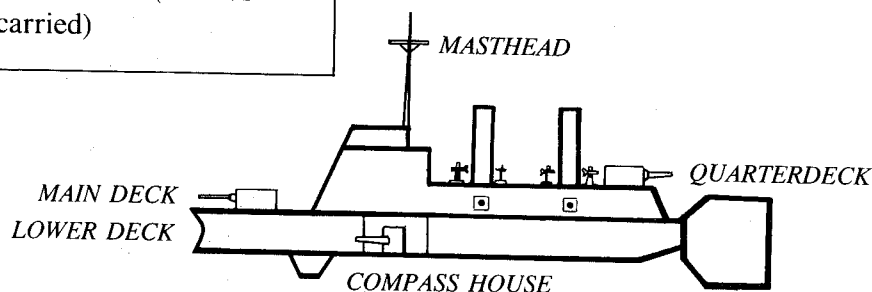
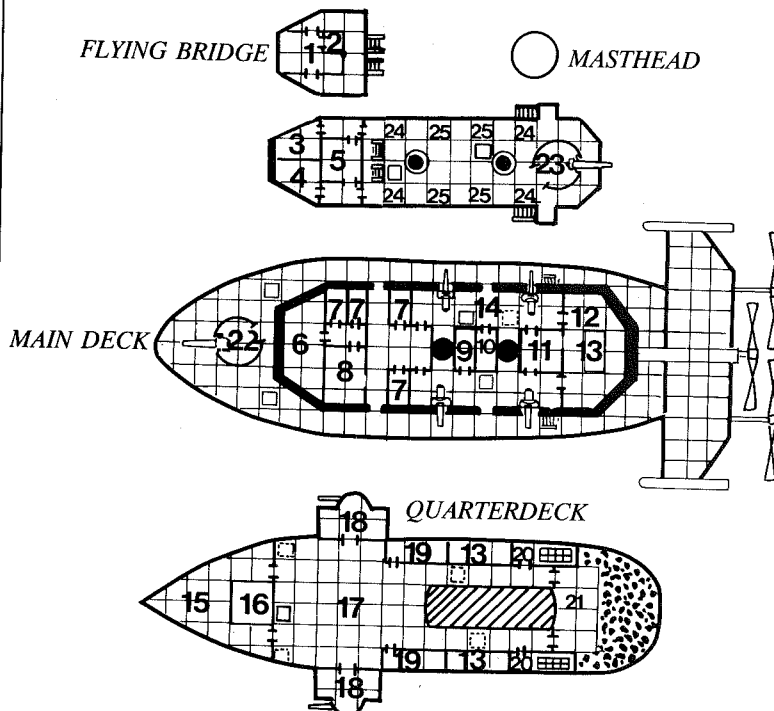
- 1 6" gun, forward in armored turret
- 2 4.7" QFG, armored sponsons
- 1 4" long, aft in armored turret
- 4 4" long, broadside under hull armor
- 4 3-pounder HRC, broadside
- 4 Nordenfelts, broadside
- 2 tether mines
- 4 bomb racks (4 loads carried)

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.

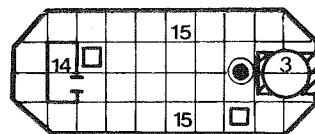
Czarina-Class Gunboat

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 known as Gorloff guns.

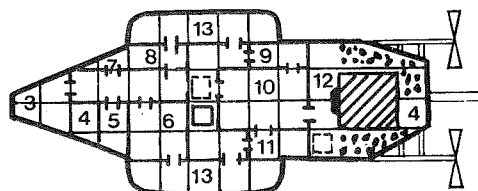
1. Bomb Bay
2. Compass House
3. 3-inch Gun Mount
4. 3-inch Magazine
5. Petty Officers' Quarters
6. Captain's Quarters
7. Brig
8. First Officer's Quarters
9. Showers and Head
10. Crew's Quarters and Mess
11. Galley
12. Engine Room
13. 1-inch Gatling Mount
14. Bridge
15. .50-caliber Gatling Mount

CZARINA

QUARTERDECK



MAIN DECK



COMPASS DECK



QUARTERDECK

MAIN DECK

COMPASS DECK

BOILER

DEPLOYMENT OF SHIPS IN CLASS

Ship	Launched	Current Station
<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

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, broadside
 1 drogue torpedo
 2 bomb racks (2 loads carried)

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 “Zepelins” 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.

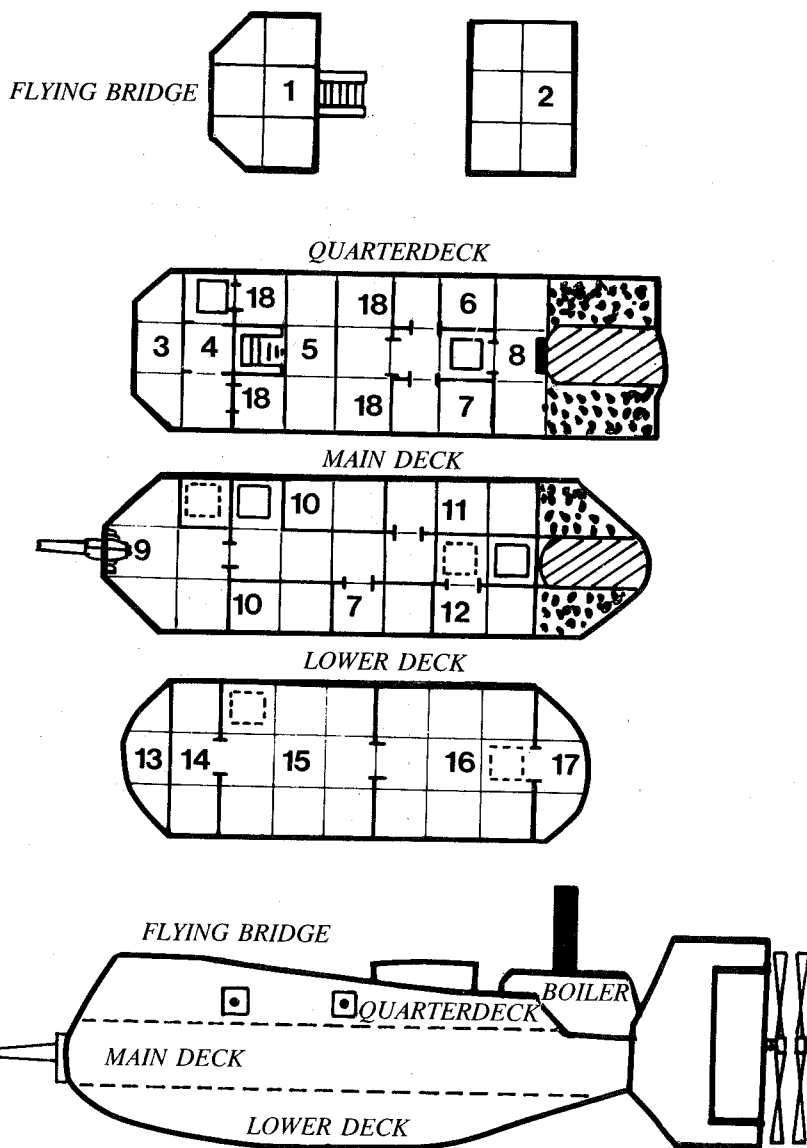
Hamburg-Class Luftkreuzer (Aerial Cruiser)

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

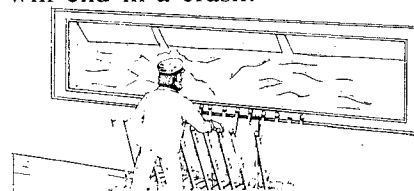
LIFTWOOD IS A product of certain of the Martian highlands. Upon maturity, this tree displays remarkable contra-gravitational properties. Generations of Martian ship builders have used liftwood to make graceful kites (wind-driven aerial ships) and, more recently, screw galleys.

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.

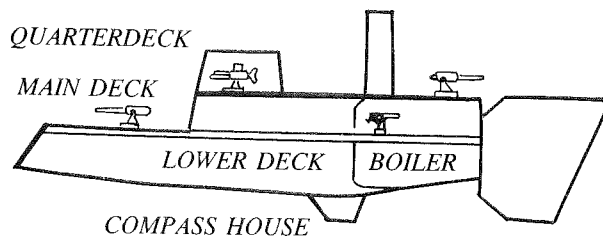
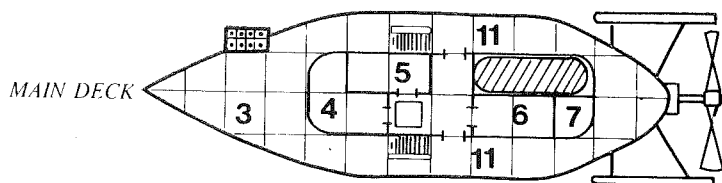
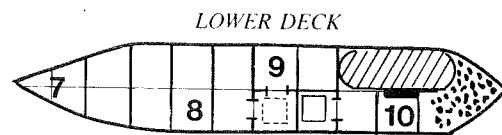
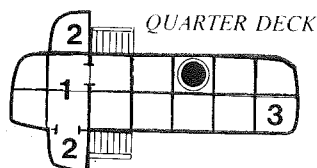


FRANCE

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. Mitrailleuse 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 Mitrailleuse, 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

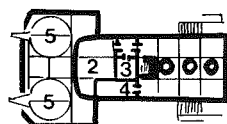
FLYING BRIDGE



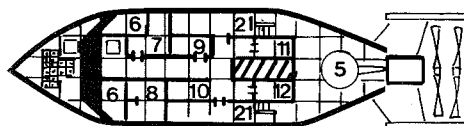
MASTHEAD



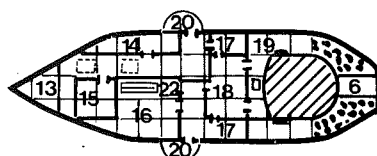
QUARTERDECK



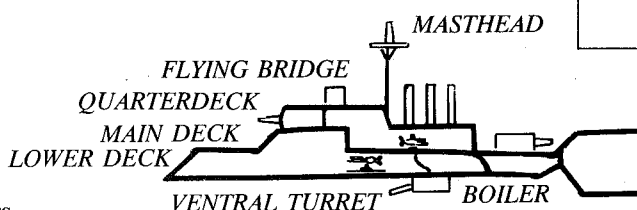
MAIN DECK



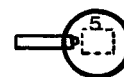
LOWER DECK



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



VENTRAL TURRET



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

DEPLOYMENT OF SHIPS IN CLASS

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

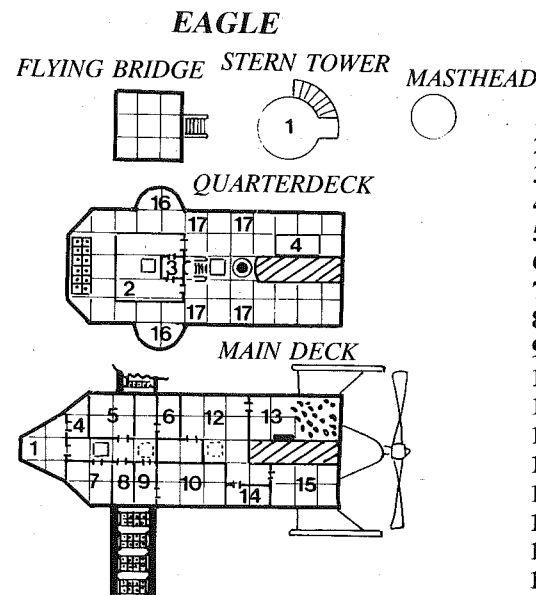
U.S.A.

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.

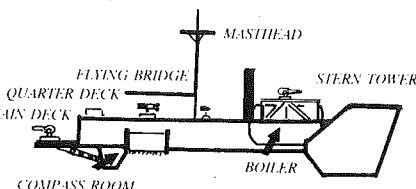
To support the growing U.S. naval force, the Americans have built a number of aerial rocket sloops. These are small vessels heavily loaded with rockets for bombardment of surface naval vessels. They are not intended to fight heavily armed aerial gunboats and would be at a severe disadvantage if called 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.

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: 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)

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

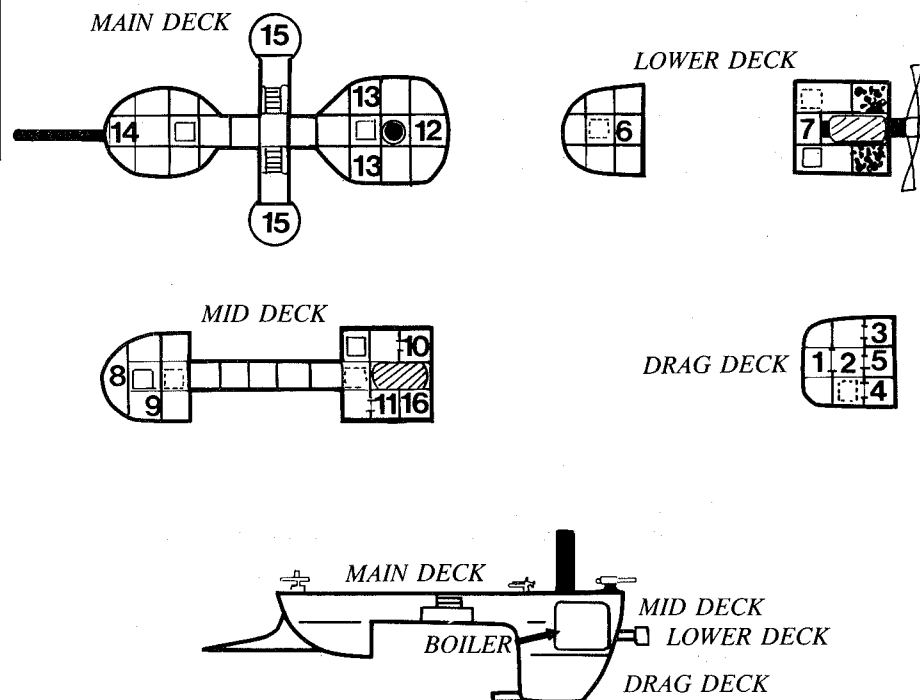
Ranger-Class Gunboat

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

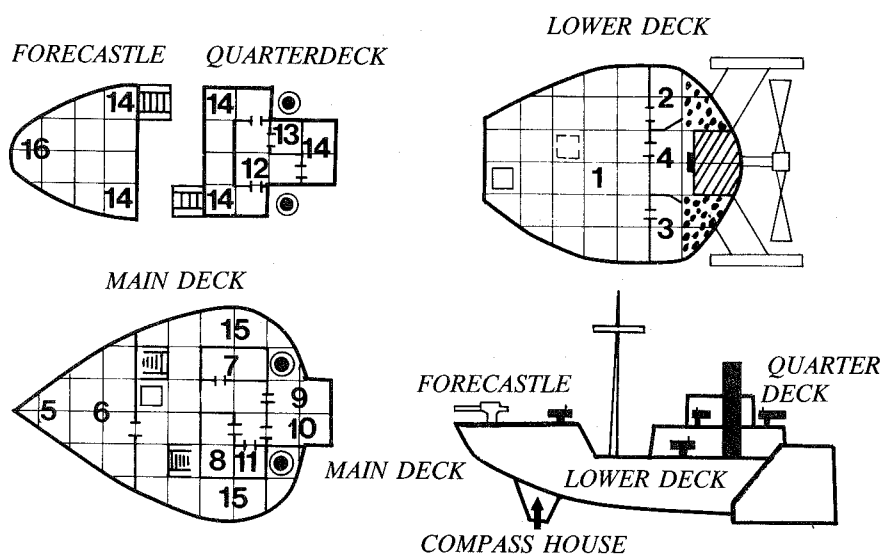
JAPAN MAINTAINS a permanent trading station at Euxinus Lacus on Mars, as well as a military and scientific outpost (Unebi Station) some 100 miles west of the city along the dead canal to Herculis. Relations with the prince of Euxinus Lacus are strained, but there have been no outbreaks of violence to 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



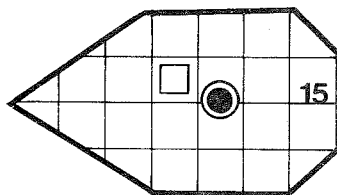
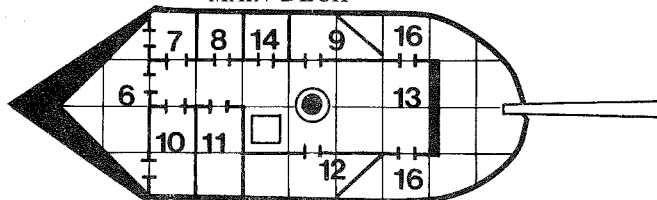
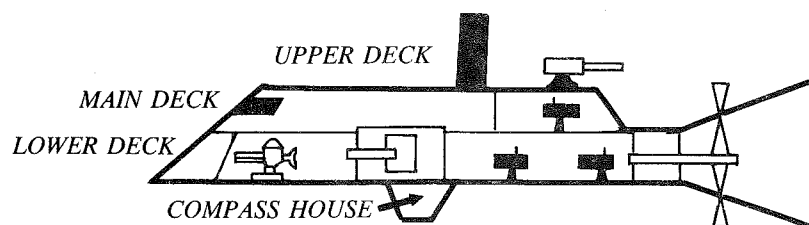
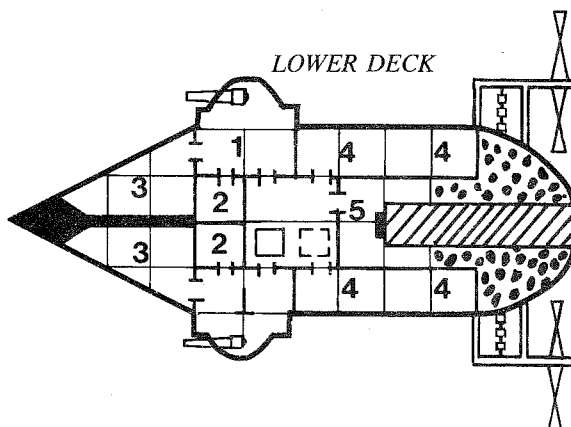
1. Marines' Quarters
2. Showers and Head
3. Brig
4. Engine Room
5. 3-inch Magazine
6. Crew's Quarters
7. Petty Officers' Quarters
8. Galley
9. Captain's Quarters
10. First Officer's Quarters
11. Armory
12. Bridge
13. Chart Room
14. .50-caliber Gatling Mount
15. 1-inch Gatling Mount
16. 3-inch Mount

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

Ship	Launched	Current Station
Yashima	1888	Unebi Station
Fuji	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

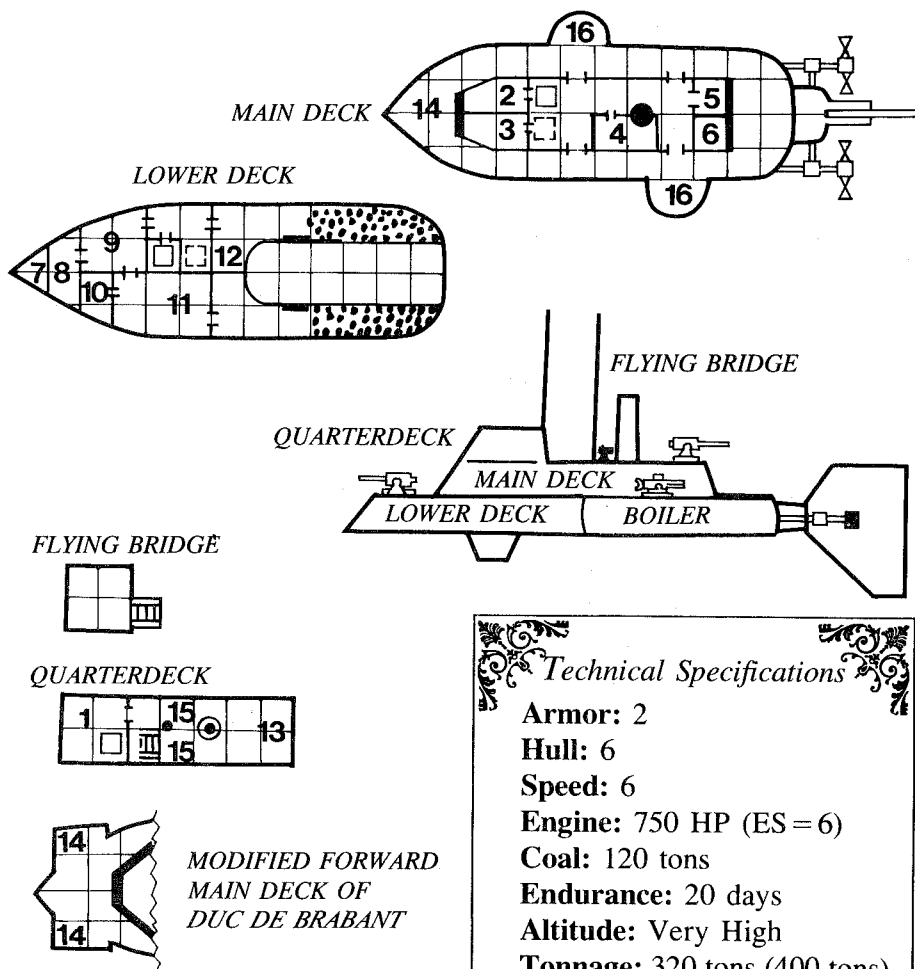
THE BELGIANS currently operate two armored gunboats in the Coprates Rift Valley on Mars. These boats were built under contract at Syrtis Major and are identical in all respects except for armament. They are fairly expensive boats for their size and armament, but are fast and have a good ceiling (both 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 |
| 5. Brig | (6-inch Gun Mount on |
| 6. 4-inch Magazine | <i>Duc de Brabant</i>) |
| (6-inch Magazine on | 14. 4-inch Gun Mount |
| <i>Duc de Brabant</i>) | 15. Nordenfelt Mount |
| 7. 4-inch Magazine | 16. 6-pounder Mount |
| 8. Galley | (Nordenfelt Mounts on |
| 9. Mess Hall | <i>Duc de Brabant</i>) |

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*):

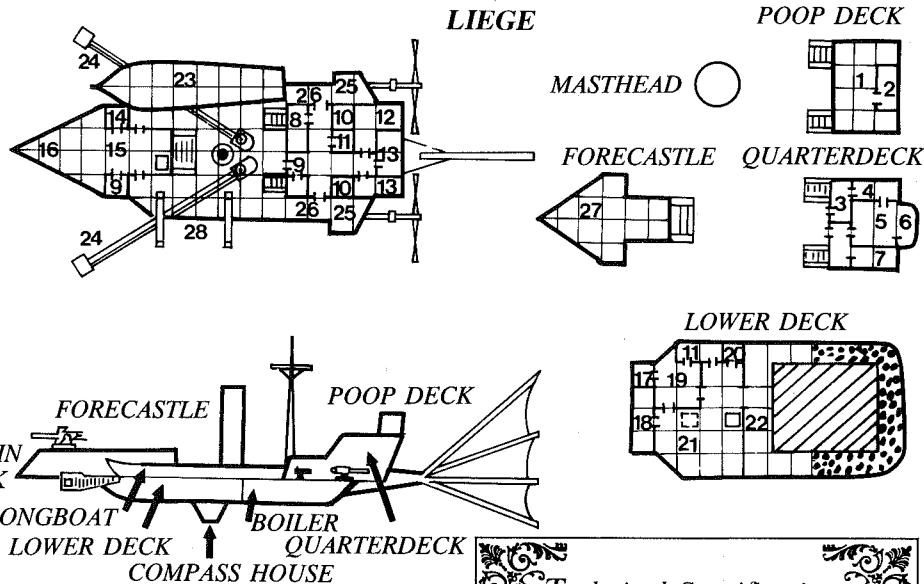
2 4'' long guns, forward
 1 6'' gun, aft
 2 Nordenfelts, wing mounts
 2 Nordenfelts, broadside

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

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*.



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

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

DEPLOYMENT OF SHIPS IN CLASS

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

Since the longboat has no flywheel to take over some of the burden of propelling the ship in combat, the crew will soon tire. The maximum speed of the vessel is reduced by 1 each turn it moves more than half its current maximum speed; the maximum speed is increased by 1 (but never above 8) each turn it moves less than half its current maximum speed. In a campaign game, the cruising speed of the boarding launch is 100 miles (one hex) per day.

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

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

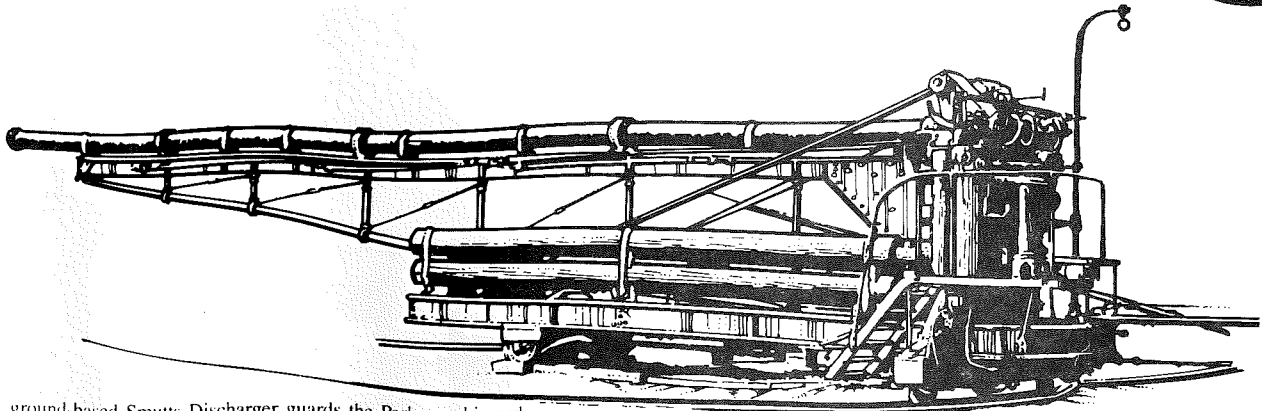
Type	Naval Mount							Field Gun				
	Wt.	Pen	DV	ROF	Crew	Range	Cost	ROF	Range	Burst	Wt.	Cost
Sweeper	10	P	—	2	1	0/1	200	(1)	100	2	1	200
Light Gun	20	0	1	1	2	1/2	400	(3)	200	4	2	400
Heavy Gun	40	1/0	2	1	2	2/4	1000	(4)	300	6	4	1000
Rod Gun	30	3/2	1	(1)	2	3/6	800	(5)	400	4	3	800
Rogue	60	2/1	3	(1)	3	3/6	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 dis-
 charger which was recently de-
 veloped.



A ground-based Smutts Discharger guards the Parhoon shipyards.

WEAPON CHARACTERISTICS: Exotic Martian Weapons

Notes

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

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

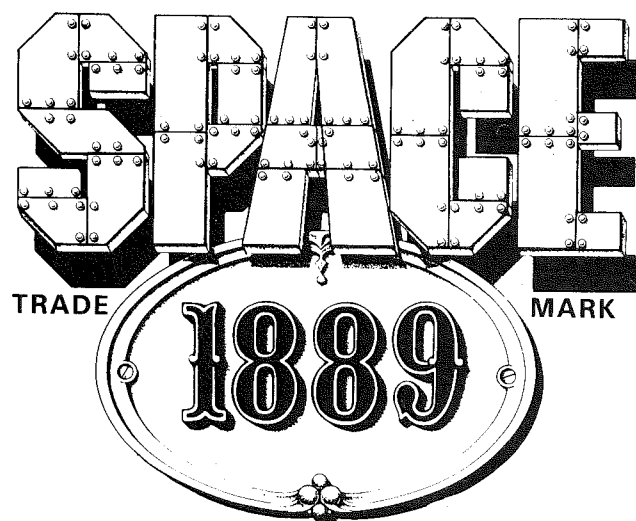
2. Penetration: The first number is the penetration of the weapon at close range; the second is the value at long range. Weapons with a penetration value of "—" are not capable of piercing armor.

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).



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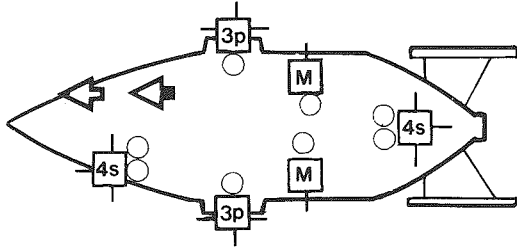
Cloudships and Gunboats and Space: 1889 are trademarks of
GDW. ISBN 1-55878-021-1.

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

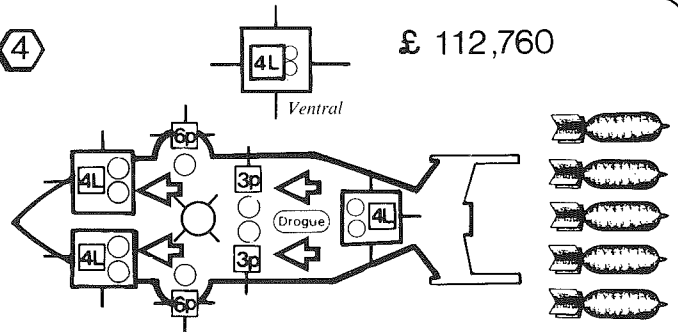
VH					
H					
M					
L					
VL					

France

GLOIRE

4

£ 112,760



10

Boiler = 5

1001 TONS

3

Bridge CHTSOO

Deck P P P

Maneuver

Screw

3
2
1

Hull Hits

H					
M					
L					
VL					

Marines

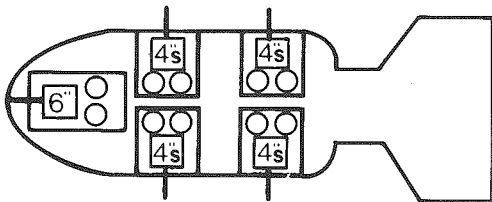
0				

Germany

HAMBURG

3

£ 69,400



6

Boiler = 5

600 TONS

5

Bridge CHTSOO

Deck P P

Maneuver

Screw

5
4
3
2
1

Hull Hits

H					
M					
L					
VL					

Marines

0				
0				

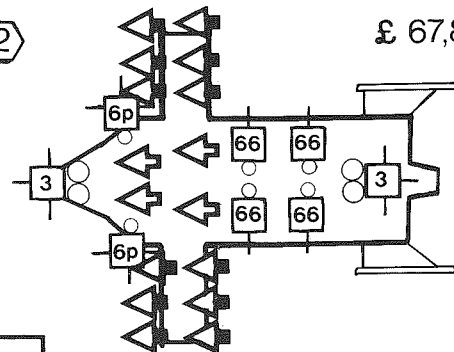
Scenario 3

USA

EAGLE

2

£ 67,870



4

Boiler = 4

400 TONS

6

Bridge CHTSO

Deck P P

Maneuver

Screw

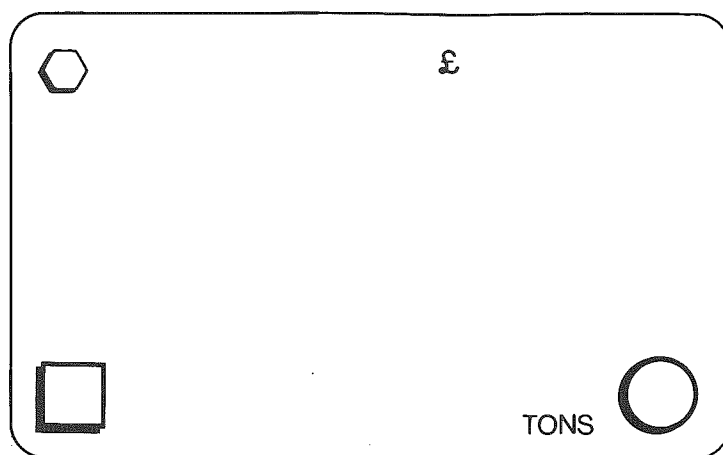
6
5
4
3
2
1

Hull Hits

H					
M					
L					
VL					

Marines

00				

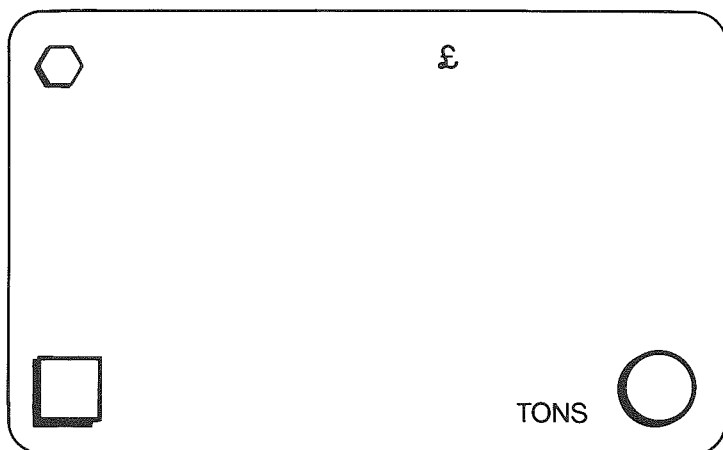


Bridge C H T S O O

Deck

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Marines



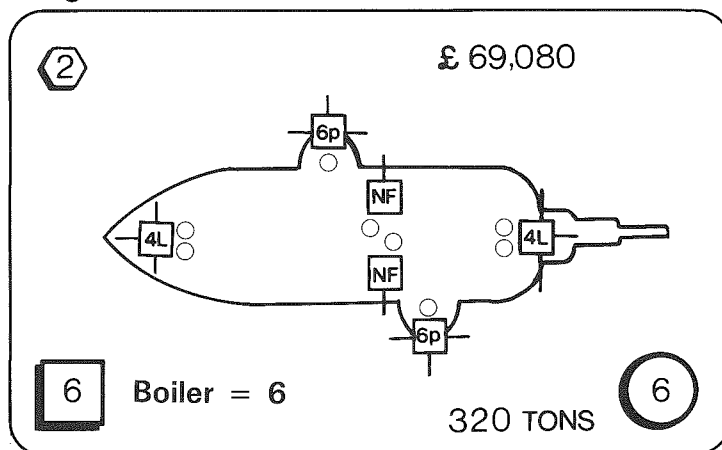
Bridge C H T S O O

Deck

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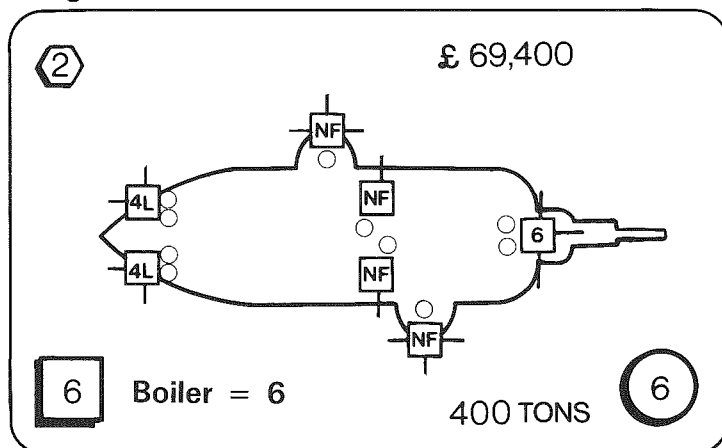
Marines

LEOPOLD

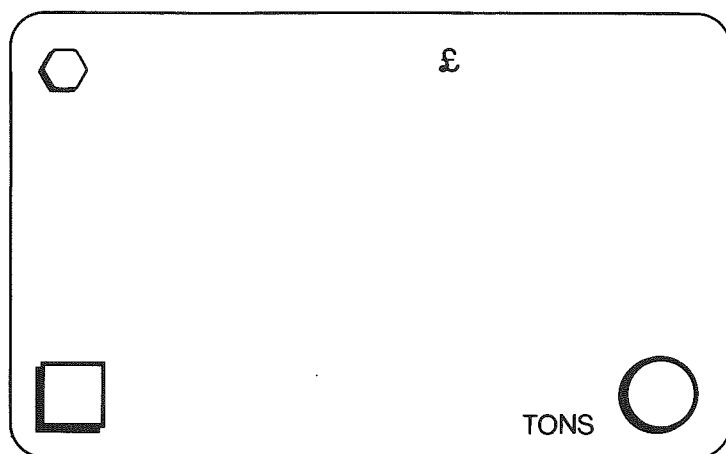


Bridge	C	H	T	S	O	
Deck	P	P				
Maneuver						
Hull						
Hits	VH					
	H					
	M					
	L					
	VL					

DUC DE BRABANT



Bridge	C	H	T	S	O		
Deck	P	P					
Maneuver							
Hull							
Hits							



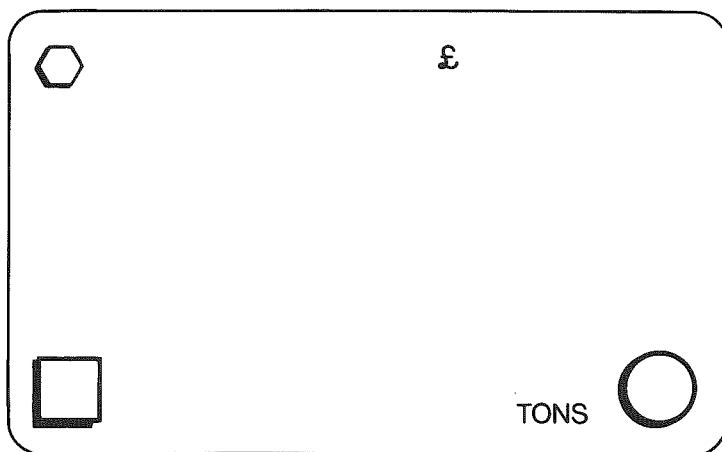
Bridge C H T S O O

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Hull Hits

Marines

[illegible]



Bridge

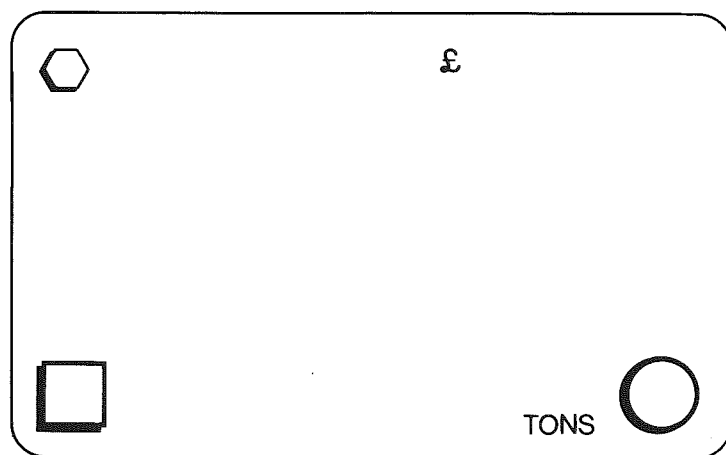
C	H	T	S	O	O
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[illegible][illegible]Hull
Hits

Marines

[illegible]

[illegible]

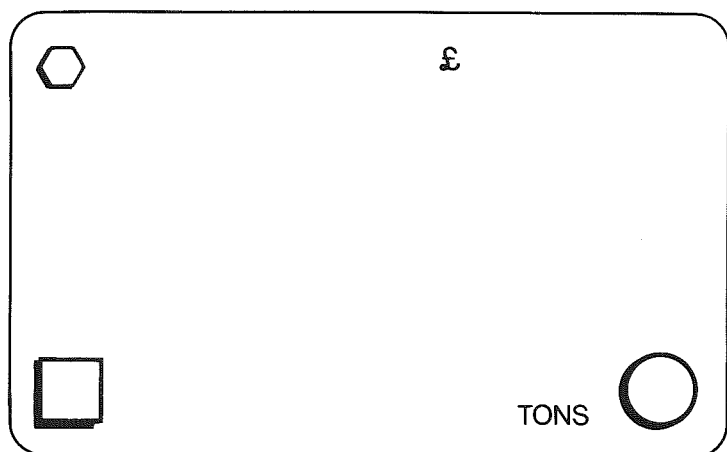


Bridge C H T S O O

[illegible][illegible]

Hull Hits

Marines



Bridge C H T S O O

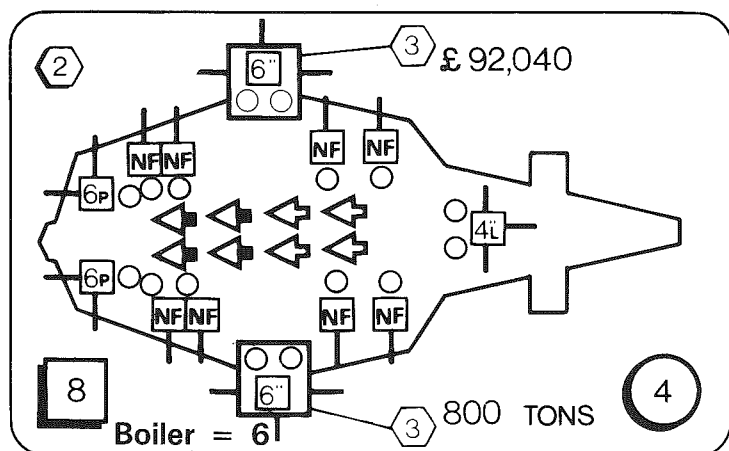
Deck

[illegible]

Hull Hits

Marines

RELIANT



Bridge C H T S O O

Deck

P	P	P									
---	---	---	--	--	--	--	--	--	--	--	--

[illegible]

Screw

4
3
2
1

Hull Hits

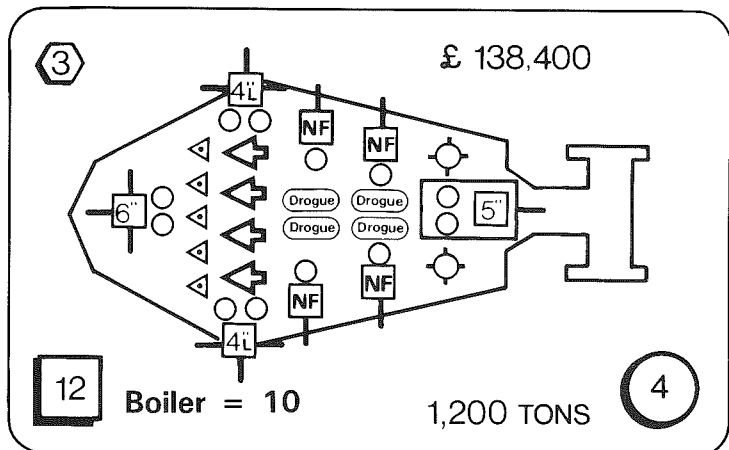
H							
M							
L							
VL							

Marines

0				

Great Britain

TRIUMPH



Bridge

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

Deck	P	P	P	P							
------	---	---	---	---	--	--	--	--	--	--	--

[illegible]

Screw

4
3
2
1

Hull Hits

[illegible]

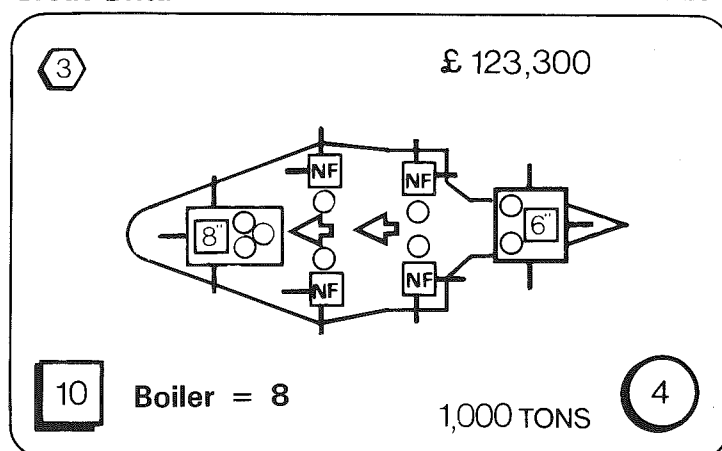
Marines

0				

Scenario 7

Great Britain

THUNDERER



Bridge C H T S O O

Deck

P	P	P								
---	---	---	--	--	--	--	--	--	--	--

[illegible]

Screw

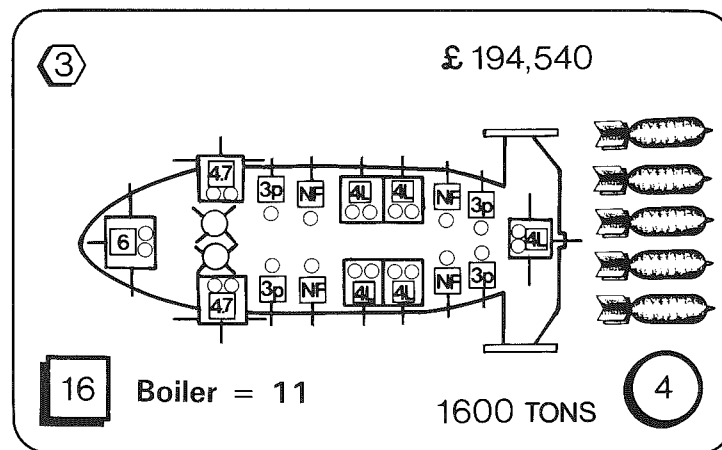
4
3
2
1

Hull
Hits[illegible]

Marines

0				

Great Britain

INTREPID

Bridge C H T S O O

Deck

[illegible]

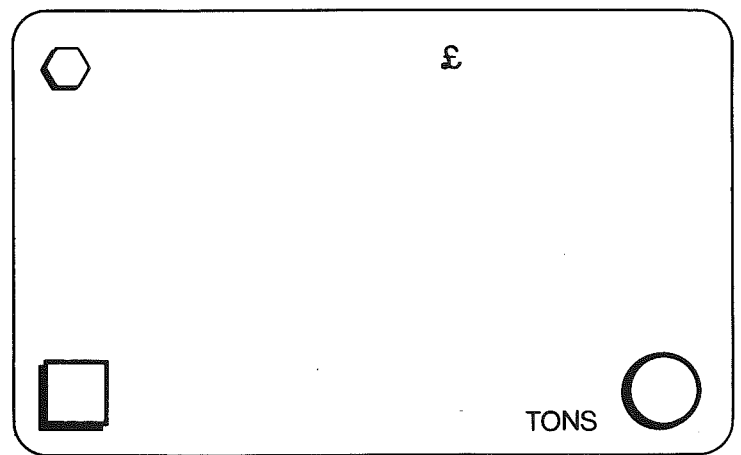
4
3
2
1

Hull Hits

[illegible]

Marines

0	0			



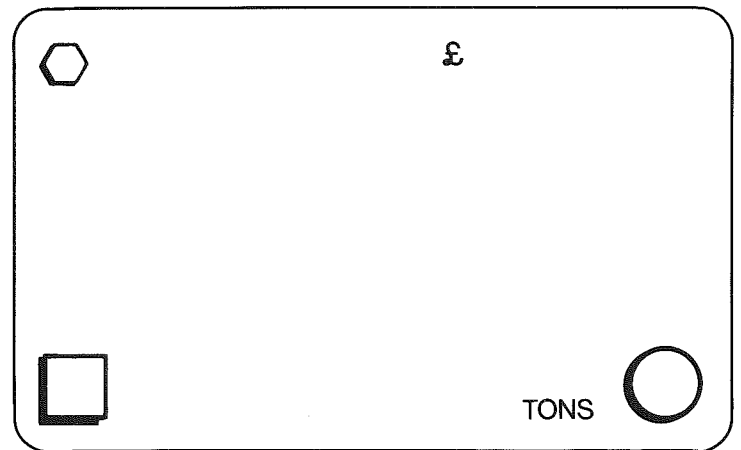
Bridge C H T S O O

Deck

[illegible]

Marines

Marines




Bridge C H T S O O

Deck

[illegible]

Marines

Marines

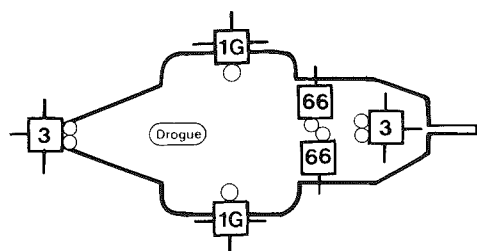


Russia

CZARINA

③

£ 46,000



4 Boiler = 4

330 TONS

6

Bridge C H T S O

Deck P

Maneuver

Screw

6
5
4
3
2
1

Hull Hits

VH			
H			
M			
L			
VL			

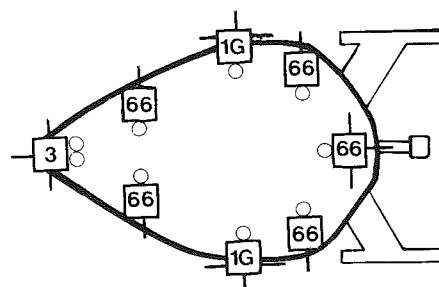
Marines

Japan

MIKASA

⑥

£ 17,780



2 Boiler = 1

200 TONS

3

Bridge C H T S O

Deck P

Maneuver

Screw

3
2
1

Hull Hits

H			
M			
L			
VL			

Troops

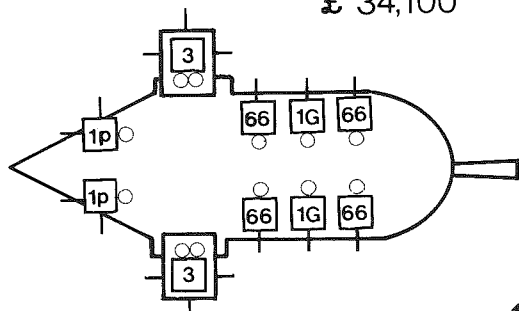
0	0	0	0	0			

Japan

YASHIMA

②

£ 34,100



3 Boiler = 2

250 TONS

4

Bridge C H T S O

Deck P P

Maneuver

Screw

4
3
2
1

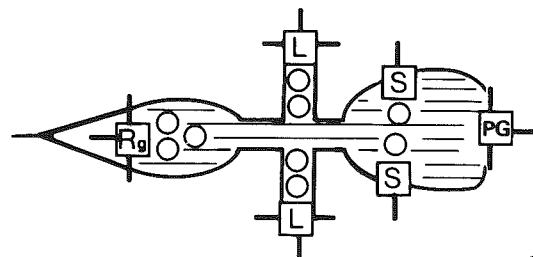
Hull Hits

VH			
H			
M			
L			
VL			

Marines

⑥

£ 20,140



3

250 TONS

K

Bridge C H T S O

Deck

Maneuver

Screw

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

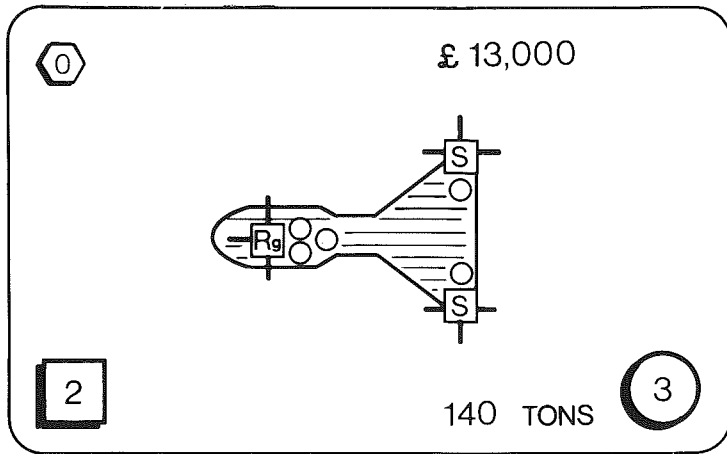
Hull Hits

VH			
H			
M			
L			
VL			

Marines

0	0		

SMALL BIRD



Bridge CHTS

Deck

Maneuver

Screw

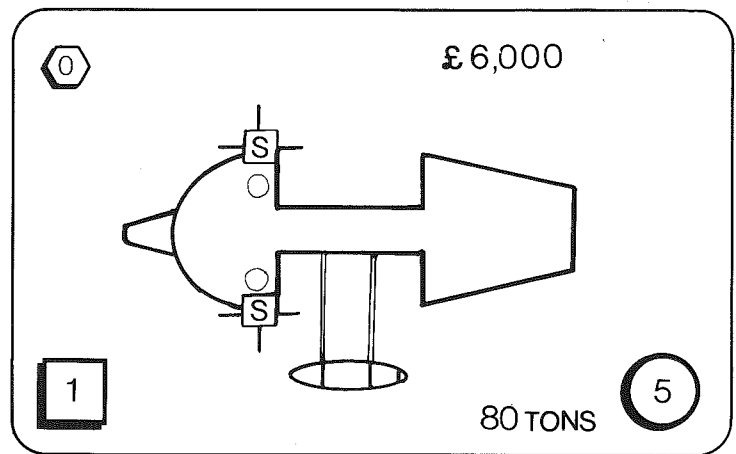
3
2
1

Hull Hits

VH
H
M
L
VL

Marines

FLEETFOOT



Bridge CHTS

Deck

Maneuver

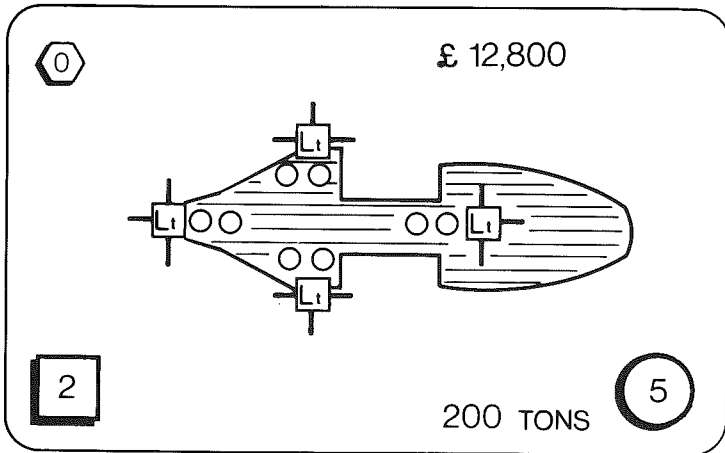
5
4
3
2
1

Hull Hits

VH
H
M
L
VL

Marines

CLEARLIGHT



Bridge CHTS

Deck

Maneuver

Screw

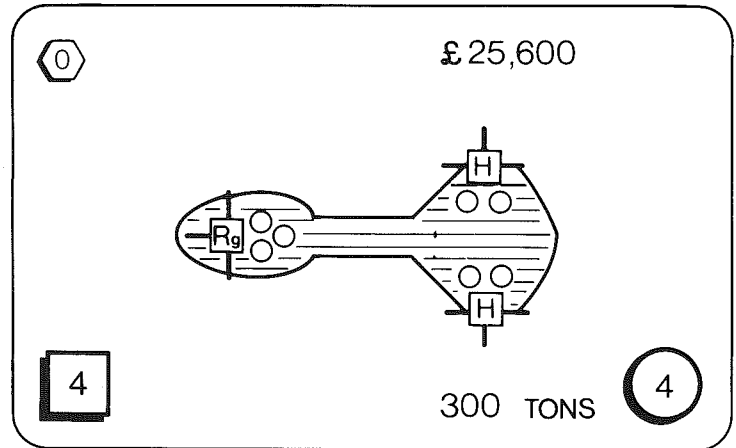
5
4
3
2
1

Hull Hits

H
M
L
VL

Marines

SKY RUNNER



Bridge CHTSO

Deck

Maneuver

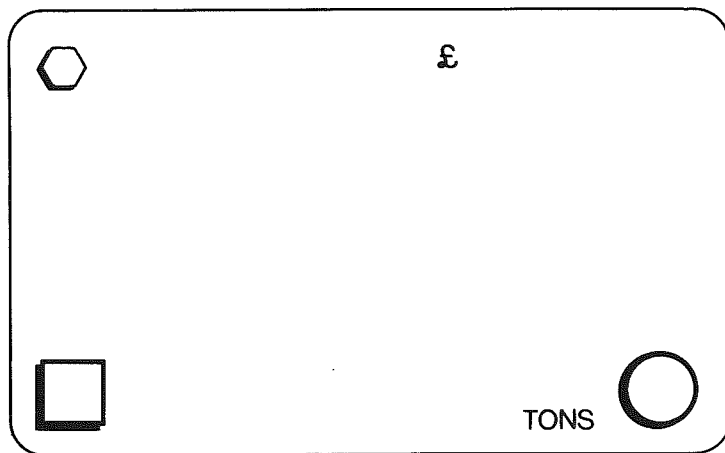
Screw

4
3
2
1

Hull Hits

VH
H
M
L
VL

Marines

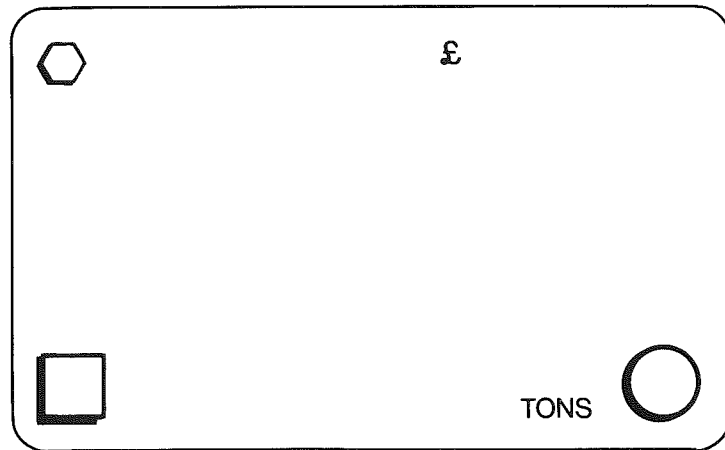


Bridge C H T S O O

Deck

[illegible]

Marines



Bridge C H T S O O

Deck

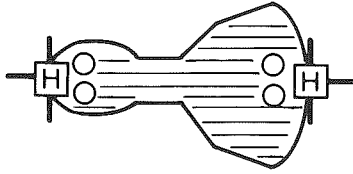
[illegible]

Marines

BLOODRUNNER

0

£ 7,600



1

100 TONS

K

Bridge C H T S

Deck

Maneuver

Masts

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

Hull Hits

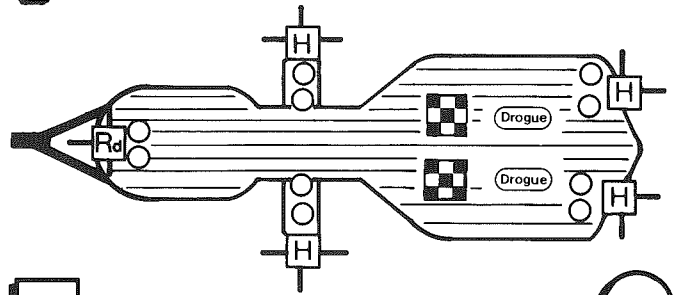
H
M
L
VL

Marines

WHISPERDEATH

2

£ 59,340



7

695 TONS

K

Bridge C H T S O

Deck

Maneuver

Masts

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

Hull Hits

H
M
L
VL

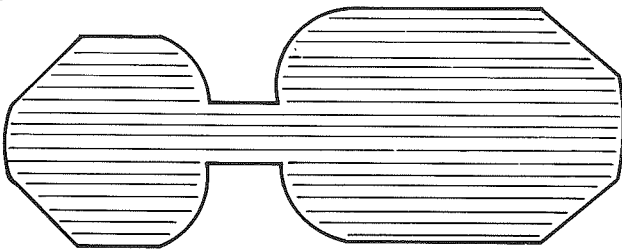
Marines

0

WARM WINDS

0

£ 112,600



20

1,950 TONS

K

Bridge C H T S O O

Deck

Maneuver

Masts

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

Hull Hits

(Each box counts as two)

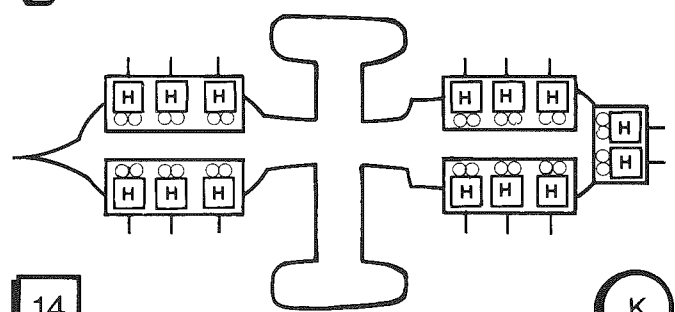
M
L
VL

Marines

SKYLORD

2

£ 1,032,000



14

1400 TONS

K

Bridge C H T S O O

Deck

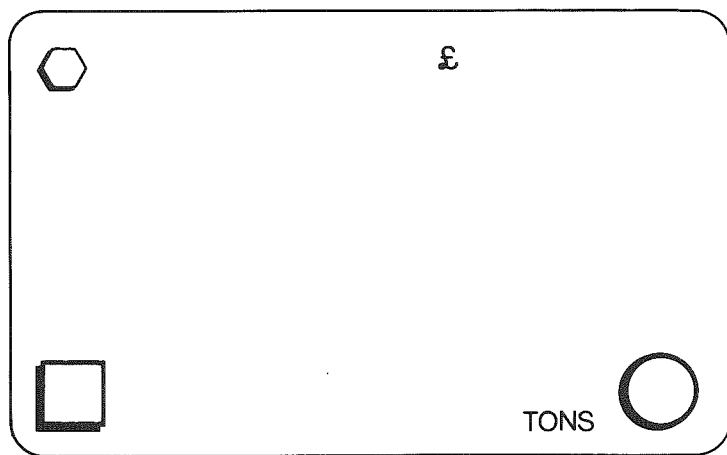
Maneuver

Masts

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

Hull Hits

H
M
L
VL

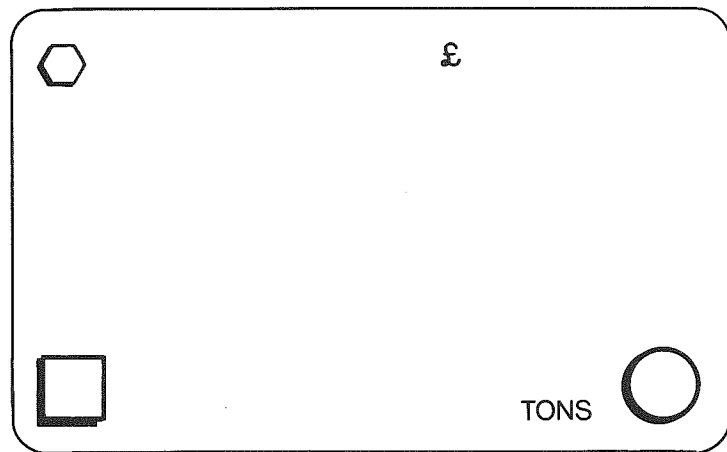


Bridge C H T S O O

Deck

[illegible]

Marines




Bridge C H T S O O

Deck

[illegible]

Marines



ENDTIME

HULLCUTTER

£ 31,500

5

485 TONS

3

£ 46,800

7

695 TONS

3

Bridge CHTS000

Deck

Maneuver

Hull Hits

Marines

Screw

3

2

1

Bridge CHTS000

Deck

Maneuver

Hull Hits

Marines

Screw

3

2

1

Scenario

SKYFIRE

£ 105,400

14

1400 TONS

3

£

TONS

3

Bridge CHTS000000

Deck

Maneuver

Hull Hits

Marines

Screw

3

2

1

Bridge CHTS000

Deck

Maneuver

Hull Hits

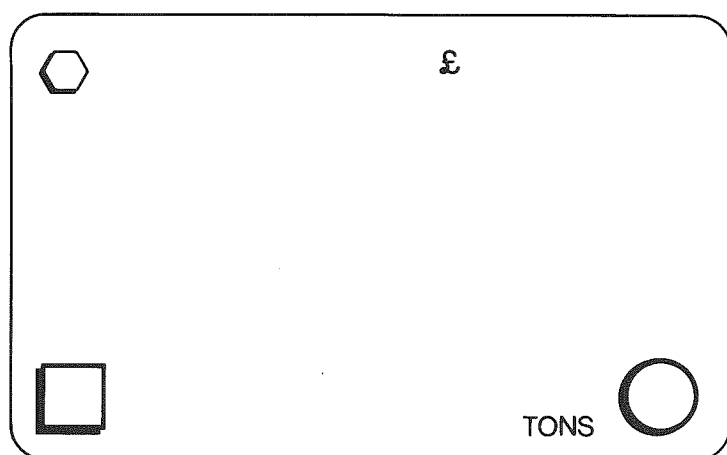
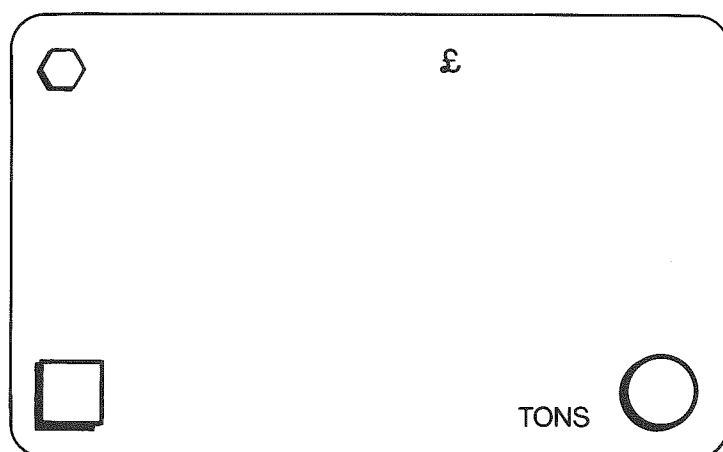
Marines

Screw

3

2

1

[illegible][illegible][illegible][illegible]



 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>German Airman</p>	 <p>German Airman</p>	 <p>German Airman</p>	 <p>Martian Marine</p>	 <p>Martian Marine</p>	 <p>British Soldier</p>	 <p>British Soldier</p>	 <p>British Soldier</p>
 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>German Airman</p>	 <p>German Airman</p>	 <p>German Airman</p>	 <p>Martian Marine</p>	 <p>Martian Marine</p>	 <p>British Soldier</p>	 <p>British Soldier</p>	 <p>British Soldier</p>
 <p>High Martian Warrior</p>	 <p>High Martian King</p>	 <p>High Martian Warrior</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Sailor</p>	 <p>Sailor</p>	 <p>Sailor</p>
 <p>High Martian Warrior</p>	 <p>High Martian King</p>	 <p>High Martian Warrior</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Martian Sailor</p>	 <p>Sailor</p>	 <p>Sailor</p>	 <p>Sailor</p>
 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>Explorer</p>	 <p>British Lady</p>	 <p>British Officer</p>	 <p>Hill Martian Adventurer</p>	 <p>Martian Officer</p>	 <p>German Officer</p>	 <p>British Officer</p>	 <p>Naval Officer</p>
 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>High Martian Warrior</p>	 <p>Explorer</p>	 <p>British Lady</p>	 <p>British Officer</p>	 <p>Hill Martian Adventurer</p>	 <p>Martian Officer</p>	 <p>German Officer</p>	 <p>British Officer</p>	 <p>Naval Officer</p>

