

SPACE

TRADE

MARK



Trademark of Game Designers Workshop Inc.

REFEREE'S SCREEN



PLAYERS' REFERENCE

TASK DIFFICULTY LEVELS

<i>Difficulty</i>	<i>Target Level</i>
Easy	Target 4
Moderate	Target 8
Difficult	Target 12
Formidable	Target 16
Impossible	Target 20

COMBAT TERMS

One turn = 30 seconds.

Four actions are allowed per turn unless within 10 yds.

Within 10 yds. (close combat range), actions are allowed equal to a character's Close Combat skill or Agility attribute, whichever is greater.

Missile attack and melee attack actions may be combined, as may movement and attack actions.

ALLOWED ACTIONS

Remain Stationary
Move
Charge
Attack
• Missile
• Melee
<i>Armed</i>
<i>Unarmed</i>
<i>Grappling</i>
Prepare a Weapon
Reload a Weapon
Change Weapons
Dodge
Block
Special Action

MOVEMENT

<i>Factor</i>	<i>Crawl</i>	<i>Walk</i>	<i>Run</i>
Dry Land	2 yards	8 yards	20 yards + Agility Dice
Shallow Water	2 yards	4 yards	10 yards + Agility Dice
Combined with Attack*	NA	4 yards	10 yards + Agility Dice
Swimming†	Swimming Skill Dice in yards		
Charging‡	Running Action in Relevant Terrain		

*Movement combined with attacks reduces the hit number by 1 when walking and by 2 when running.

†Swimming speed is reduced by 1 per 10 pounds carried and by 1 for adverse water or weather conditions.

‡Charging is a running action and incurs the penalty to required hit number if combined with a melee attack. Charging cannot be combined with missile attacks. If not already in close combat, charging is the only method of moving into close combat range.

ANIMAL TRANSPORTATION

<i>Type</i>	<i>Miles/Day</i>	<i>Price/Day</i>
Riding Animal	20	3s
Howdah	10	2s
Wagon	10	2s
Coach	30	3s

AERIAL TRANSPORTATION TABLE

<i>Vessel</i>	<i>Miles/Day</i>	<i>Price/Day</i>
Zeppelin	300	10s
Steam Flyer	300	10s
Kite	200-400	6s
Screw Galley	200-300	4s
Long Boat	100-200	—
Conveyor	100-200	—
Glider	400	—
Aeroplane	100/hr	—

FOOT TRAVEL

CHARACTERS MAY walk either 10 or 20 miles per day, at their option (if 20 is chosen, the modifier below applies.) Characters may not march 20 miles through mountain or swamp.

Fatigue: Characters must roll Endurance attribute dice for an Easy task to avoid fatigue when marching by foot. Difficulty level is modified as follows:

Marched Additional 10 Miles: +1 level.

Encumbered: +1 level for every 20 percent of body weight carried.

Human on Mars: +1 level.

Human on Venus: +2 levels.

Mountains: +1 level.

WATER TRANSPORTATION TABLE

Inland Waterway		
<i>Vessel</i>	<i>Miles/Day</i>	<i>Price/Day</i>
Man-Powered	20-30	2d
Wind-Powered	1D×10	3d
Steamer	50	5d

Open Sea		
<i>Vessel</i>	<i>Miles/Day</i>	<i>Price/Day</i>
Wind-Powered	100	3s
Steamship	200	5s

Note: First class costs 5×price.

COMMERCIAL SPACE TRAVEL

<i>Vessel</i>	<i>Speed</i>	<i>Price</i>
Liner	2.5	£60
Cargo	2.0	£40

EQUIPMENT

SCIENTIFIC EQUIPMENT

Item	Weight	Price
Binoculars (Field Glasses)	2 lbs	£4
Dissecting Kit	1 lb	8/-
Doctor's Bag and Supplies	10 lbs	£3
Laboratory Apparatus, Chemical	15 lbs	£5
Laboratory Apparatus, Electrical	8 lbs	£6
Magnifying Glass	—	12/-
Microscope	3 lbs	£5
Navigation Instruments	8 lbs	£12
Surveying Instruments	1 lb	8/-
Telegraphic Instruments	1 lb	£1
Telephonic Instrument	3 lbs	£2
Telescope (Spyglass)	1 lb	£2
Wire, Insulated	100 lbs/mi	£1/mi

REFERENCE MATERIALS

Item	Weight	Price
Conklin's Atlas of the Worlds	.5 lb	1/-
Edison's Encyclopedia	1 lb	1/-
The Millwright's Companion	1 lb	8/-
Robb's Medical Companion	1 lb	2/-

TOOLS

Item	Weight	Price
Axe	3 lbs	2/-
Forge, Portable	500 lbs	£6
Knife, Two-Bladed, Jack-	2 lbs	8d
Lockpicks, Set	—	18/-
Photographic Lab, Portable	30 lbs	£7
Pick, Mattock, Shovel, etc.	5 lbs	2/-
Tools, Carpenter	30 lbs	£4
Tools, Instrument-Maker	10 lbs	£7
Tools, Metalworker	60 lbs	£6
Trap, Bear	3 lbs	1/-
Trap, Small Animal	1 lb	6d

TRAVELLING GEAR

Item	Weight	Price
Bag, Carpet	3 lbs	2/-
Blanket	1 lb	8d
Bogshoes	1.5 lbs	4/-
Camera, Portable	1 lb	£4
Camp Stove, Portable, Coal Oil	2 lbs	10/-
Camping Outfit	80 lbs	£2
Carbide	1 lb/tin	5d
Clothing, Foul Weather	3 lbs	8/- to 12/-
Clothing, Rough-Living	3 lbs	£1
Cot, Folding	15 lbs	15/-
Fishing Tackle	1 lb	12/-
Food, Canned, One Day	4 lbs	8d
Food, One Day	3 lbs	4d to £1
Gramophone	3 lbs	£1
Hammock	1 lb	4/-
Lamp, Miner's Safety	.3 lb	8d
Lantern, Carbide	1 lb	1/-
Lantern, Kerosene or Gasoline	1 lb	5/-
Rope, 100 ft.	5 lbs	2/-
Tarp	2 lbs	10d
Tent, 10-Man	35 lbs	£6
Tent, Two-Man	12 lbs	£3
Trunk, Steamer	6 lbs	8/-
Watch	—	5/- to £2 +
Watch, Stop-	—	£3

FIREARMS

Pistols

Item	Weight	Price
Pistol, Light Multibarrel	.7 lb	£1
Pistol, Heavy Multibarrel	2 lbs	£1
Pistol, Single-Barrel	1 lb	8/-
Revolver, Light	1.5 lbs	10/-
Revolver, Heavy	2 lbs	£2

Rifles

Item	Weight	Price
Carbine, Bolt Action	8 lbs	£1 6/-
Carbine, Breech-Loading	7.5 lbs	£1 18/-
Carbine, LM Bolt Action	8 lbs	£2 6/-
Carbine, Lever Action	8 lbs	£2
Carbine, Muzzle-Loading	6 lbs	6/- to 8/-
Carbine, Smoothbore	7 lbs	6/-
Rifle, Bolt Action	9 lbs	£2
Rifle, Breech-Loading	8 lbs	£2
Rifle, Heavy Double	10.5 lbs	£10
Rifle, Lee Metford Bolt Action	9 lbs	£2
Rifle, Lever Action	8 lbs	£2 2/6
Rifle, Long Hunting	10 lbs	£6
Rifle, Muzzle-Loading	7 lbs	8/- to 10/-
Machinegun, Nordenfelt Light	15 lbs	£20
Musket, Smoothbore	8 lbs	8/-

Shotguns

Item	Weight	Price
12-Gauge Double	9 lbs	£3-5
12-Gauge Lever Action	9 lbs	£5
12-Gauge Scattergun	6 lbs	£5
20-Gauge Double	7 lbs	£2

MELEE WEAPONS

Item	Weight	Price
Axe	3 lbs	2/-
Bayonet (attach to rifle)	1 lb	8d
Boarding Pike/Spear	2-5 lbs	1/-
Club	3-4 lbs	Free
Hatchet †	1 lb	6d
Knife	1 lb	1/-
Machete †	2 lbs	8d
Pike	6 lbs	2/-
Sword/Saber	2 lbs	£2
Sword, Great	6 lbs	£10

†Hatchets and machetes can serve as weapons, but are often thought of primarily as tools.

ARMOR

Item	Weight	Price
Breastplate	6 lbs	£1
Doublet	2 lbs	1/-
Helmet	2 lbs	£1 2/-
Mail	4 lbs	18/-
Shield	4 lbs	12/-
Shoulder Scales	2 lbs	2/6

PRIMITIVE MISSILE WEAPONS

Item	Weight	Price
Bow and Arrow	2 lbs	£1
Stone	.1 lb	Free
Throwing Knife	.5 lb	1/-
Thrown Spear/Javelin	2 lbs	10d



EQUIPMENT

EXPLOSIVES

Item	Weight	Price
Dynamite	50 lbs/case	£5
Gunpowder	6 lb/keg	10/-
Nitroglycerin	5 lbs/case	£1

POWER PLANTS

Item	Weight	Price
Conventional Boiler	6 tons/pwr pt	£300/pwr pt
Forced Draught Boiler	3 tons/pwr pt	£600/pwr pt
Internal Combustion Engine	2 tons/pwr pt	£600/pwr pt
Petrol Boiler	6 tons/pwr pt	£300/pwr pt
Solar Boiler	2 tons × pwr	£500 × pwr

LAND TRANSPORTATION

Item	Weight	Price
Bicycle	26 lbs	£5
Bullock (w/pack saddle)	—	£6
Camel (w/saddle)	—	£12
Chaise, Two-Passenger	600 lbs	£8
Carriage, Four-Passenger	900 lbs	£12
Elephant	—	£40
Gashant	—	£5
Gashant Tack	26 lbs	£1-5
Gashant Pack Saddle and Bridle	10 lbs	£1-5
Horse	—	£10
Horse Tack	26 lbs	£1-5
Horse Pack Saddle and Bridle	10 lbs	£1-5
Howdah	250 lbs	£5-20
Human Porter	—	5d per hour
Mule (w/saddle)	—	£8
Pacyosaurus	—	£10
Ruumet Breehr	—	£20
Wagon	1000 lbs	£25

WATER TRANSPORTATION

Item	Weight	Price
Boat, Folding Canvas	35 lbs	£5
Boat, Large	—	£8
Boat, Small	—	£5
River Steamer	—	£100
Steam Launch	—	£10

AERIAL TRANSPORTATION

European

Item	Weight	Price
British Aphid Aerial Gunboat	160 tons	£23,220
British Steam Launch	50 tons	£4840
Zeppelin	200 tons	£20,000

Martian

Item	Weight	Price
Martian Merchant Kite	2000 tons +	£100,000 +
Martian Small Screw Galley	200 tons	£10,000 to £15,000
Martian Large Screw Galley	700 tons	£50,000
Martian Small War Kite	100 tons	£8000
Martian Large War Kite	700 tons	£60,000

MONEY

12 pennies (d) = 1 shilling
 20 shillings (240 pennies) = 1 pound (£)
 ha'penny = half-penny
 farthing = quarter-penny
 £1 = \$5*
 1 shilling = 25¢*
 1 penny = 2¢*

*Rough equivalencies. Actually, £1 = \$4.80.

Prices are written as:

£pounds shillings/pennies

Shillings alone as:

shillings/pennies

Pennies alone are written as a number followed by "d."

MARTIAN ARTILLERY

Item	Weight	Price
Gun, Light	2 tons	£400
Gun, Heavy	4 tons	£1000
Lob Gun	20 tons	£2000
Rod Gun	4 tons	£800
Rogue	6 tons	£2000
Sweeper	1 ton	£200

EUROPEAN ARTILLERY

Item	Weight	Price
Hale Rocket	20 lbs	£5
1-pdr Hotchkiss Rotating Cannon	300 lbs	£160
3-pdr Hotchkiss Rotating Cannon	400 lbs	£180
6-pdr Hotchkiss Rotating Cannon	800 lbs	£220
6-pdr Rifled Breech-Loader	600 lbs	£200
9-pdr Rifled Breech-Loader	800 lbs	£250
12-pdr Rifled Breech-Loader	1000 lbs	£300
15-pdr Rifled Breech-Loader	1200 lbs	£400
20-pdr Rifled Breech-Loader	1600 lbs	£500
40-pdr Rifled Breech-Loader	3500 lbs	£1000
5-inch Howitzer	3000 lbs	£1000
7-pdr Mountain Howitzer	400 lbs	£200

MACHINEGUNS

Item	Weight	Price
Gardner	40 lbs	£50
Gatling .50	200 lbs	£40
Gatling 1-inch	250 lbs	£70
Mitrailleuse	300 lbs	£60
Nordenfelt 1-Barrel	15 lbs	£20
Nordenfelt 3-Barrel	200 lbs	£60
Nordenfelt 5-Barrel	450 lbs	£100

FUEL

Item	Weight	Price
Carbide	1 lb/tin	5d
Coal	—	£1 per ton
Liquid Fuels (oil, gasoline, alcohol, kerosene)	—	£6/ton (bulk) or 1d/pint
Petroleum	—	£3 per ton
Wood, Peat	—	Free

THROWN EXPLOSIVE WEAPONS

Weapon	Exp. Power	To Hit:		Effects ¹
		Power	Throwing	
Dynamite, 1 stick (½ lb)	2	×6		KD, KO, 2D6 wnds/KD, 1D6
2 sticks (1 lb)	4	×3		KD, KO, 4D6 wnds/KD, 1D6
3 sticks (1½ lb)	6	×2		KD, KO, 6D6 wnds/KD, 1D6
4 sticks (2 lb)	8	×1.5		KD, KO, 8D6 wnds/KD, 1D6
"Black Bomb" (4 lb)	3	×0.75		KD, KO, 3D6 wnds/KD, 1D6
Nitroglycerin, 2-oz bottle ²	1	×24		KD, KO, 1D6 wnds/KD, 1D6
8-oz bottle ²	4	×6		KD, KO, 4D6 wnds/KD, 1D6
Firebomb, 16-oz	—	×2		1-yard pool; 1, 2, 3 wnds ³
32-oz	—	×1		2-yard pool; 1, 2, 3 wnds ³
Strong Acid (16 oz)	—	×2		1-yard pool; 0, 1, 2 wnds ⁴

KO: Knocked out **KD:** Knocked down **1:** Damage for explosives if 1st save failed/damage if 2nd save failed. **2:** If someone tries to throw nitroglycerin, roll 1D6. On a 1-2, it reaches the target before exploding; on a 3-5, it blows up midway to the target; on a 6, it blows up in the character's hand. **3:** The burning fluid ignites flammable objects. Damage is given in wounds done for each turn since ignition. After three turns, the fluid burns out. Characters may move out of a fire, roll on the ground, etc. to extinguish themselves early. At least 1 wound will be taken if a save is missed. **4:** Strong acid slowly dissolves substances. Damage is given in wounds done for each turn since exposure. In the fourth turn a character is totally incapacitated by pain (as if stunned by a throw, see below). This sequence may be broken by getting prompt medical attention, by flushing out the wound, or by neutralizing the acid.

EXPLOSIVE BURST SIZE

Power	Burst
1	2
2	4
3- 4	6
5- 8	8
9- 12	10
13- 18	12
19- 24	14
25- 32	16
33- 40	18
41- 50	20
51- 60	22
61- 70	24
71- 85	26
86-100	28
101-115	30
116-130	32
131-145	34
146-160	36

BARRIER TOUGHNESS

Material	Multiplier
Wood	×5
Dirt	×3
Earthworks	×2
Brick, Stone	×1
Iron	×1/3
Steel	×1/4
Superhard Steel	×1/8

RECOVERING CONSCIOUSNESS

End.	Turns	Minutes
1	20	10
2	10	5
3	7	3.5
4	5	2.5
5	4	2
6	3	1.5

For every wound beyond the average of Str. and End., add 10 turns (5 min.) to time spent unconscious.

GRAPPLING SUMMARY*

Attempt	Part	Counts As	Procedure
Disarm	Wrist	Attack Action	Opponent may not use weapon in hand of grasped wrist. Both characters roll Strength dice. If attacker is using two hands, he rolls additional dice equal to half his Strength (round up). If attacker's roll is twice the defender's, defender drops weapon. If defender's roll is twice the attacker's, defender breaks free and may attack with the weapon in hand.
Throw	Torso	Attack Action	Attacker rolls Strength dice against the weight number of opponent (average human weight number is 14). If using one hand, roll half Strength dice (round up). If opponent is thrown, he must roll against Endurance to not be stunned. If not stunned, he must use his next action to regain his balance. If stunned, he rolls 2D6 for the number of turns spent stunned. A character is helpless and may <i>not</i> take <i>any</i> actions while stunned.
Choke	Throat	Attack Action	1D6 is rolled for each character. Attacker adds his Strength to the roll; defender adds his Endurance. If attacker is using two hands to choke, instead add 1½ × Strength (round up) to the die. If defender's modified roll is higher than attacker's modified roll, no effect. If attacker's roll is higher than defender's, defender's Endurance is reduced by the difference. (Reduced Endurance lasts as long as the defender is being choked.) When defender's Endurance is 0 or less, he loses consciousness. When his Endurance is -6 or less, he dies. If a choking weapon is used, 2D6+Strength are rolled for the attacker to oppose the defender's 1D6+Endurance.
Escape Grapple	Any	Special Action	May be attempted each action character is held. Happens <i>before</i> attacker attempts to throw, choke, etc. If successful, no damage from an opponent's grappling attacks during that action is taken. To escape, a grappled character rolls Strength dice, and his opponent rolls Strength dice. If opponent is using one hand, then he rolls half Strength dice (round up). If escaping character's roll is twice his opponent's roll, he breaks free—all of his opponent's holds are broken.

*At least one hand must be free to grapple. Grappling counts as an unarmed melee attack. Hit rolls and save rolls are made as for an unarmed melee attack. On a successful attack, an attacker may grab: *With One Hand:* wrist, torso, throat. *With Two Hands:* One wrist in two hands, two wrists, wrist and throat, wrist and torso, torso and throat, torso in two hands, throat in two hands.

STANDARD ANIMAL CHART NOTES

Number Appearing: A fixed number or a multiple. A general suggestion for play.

Size: The number of two-yard grid squares the animal occupies in combat (the area that is effectively blocked by its presence). Given in squares wide × squares long.

Move: The number of yards the animal moves in one action at top speed. Unless fleeing or charging, the animal will usually move half this speed or less. Land (L), water (W), or flight (F) movement is indicated.

Wounds: The number of wounds it takes to kill the animal.

Save: This is the animal's save number against melee attacks, and it is added to (or subtracted from) the save number of any missile weapon which hits it.

Weight: The weight of an average full-grown example of the animal (in pounds). Ten percent is edible meat if the animal is killed for food.

Weapons: Weapons with which the animal may attack and their combat values. These combat values are, in order: number of hit dice rolled, required hit number, reach, and wound value of the weapon.

UNARMED MELEE

Hit Dice: All unarmed melee attacks roll hit dice equal to the Agility of the attacker.

Reach: All unarmed melee attacks have a reach of 0. If used against another weapon with a longer melee reach, subtract the difference in reach from the chance of hitting with the shorter weapon.

Save Number: The save number is the sum of the Strength and Endurance of the defender minus the Strength of the attacker. If a character is mounted, add 1 to his save number.

Wounds: All successful unarmed melee attacks inflict one wound.

MISSILE COMBAT

SMALL ARMS FIRING TABLE

Weapon	Shots	Mag	Reload	Wnd	Required		
					Strength	Save	Range
Pistols							
Single-Barrel Pistol	1	—	1	2	2	1	15
Light Revolver	3	6	(3)	1-2†	1	2	10
Heavy Revolver	3	6	(3)	1-2†	2	2	15
Light Multibarrel	2	2	(2)	1-2†	1	2	5
Heavy Multibarrel	2	4	(2)	2	2	1	15
Rifles							
Bolt Action Rifle (LM)	1	8	(4)	2	3	1	120
Bolt Action Carbine (LM)	1	8	(4)	2	2	1	90
Bolt Action Rifle	1	5	(5)	2	3	1	120
Bolt Action Carbine	1	5	(5)	2	2	1	90
Lever Action Rifle	2	12	(3)	1-2†	2	1	75
Lever Action Carbine	2	6	(3)	1-2†	1	1	45
Breech-loading Rifle	1	—	1	2	3	1	90
Breech-loading Carbine	1	—	1	2	2	1	60
Muzzle-loading Rifle	1	—	3	2	3	1	75
Muzzle-loading Carbine	1	—	2	2	2	1	45
Smoothbore Musket	1	—	2	2	3	1	45
Smoothbore Carbine	1	—	2	2	2	1	30
Long Hunting Rifle	1	—	1	3	3	1	200
Heavy Double Rifle	2	2	1	4	4	1	150
Shotguns							
20-gauge Double	2	2	1	1D/2	2	0	30*
12-gauge Double	2	2	1	1D	3	0	30*
12-gauge Scattergun	2	2	1	1D	3	0	15**
12-gauge Lever Action	2	5	(2)	1D	3	0	30*
Nonfirearms							
Bow	1	—	1	1	2	2	30
Spear	1	—	—	2	3	2	10
Throwing Knife	1	—	—	1	2	3	5
Stone	1	—	—	1	1	4	5††

Notes: (LM): Lee-Metford. *Shotguns halve their chances of hitting (round fractions up) at double range and may not fire beyond double range. **Scatterguns follow the same rule on range as shotguns, as noted above. In addition, however, they add two to their hit number at close range. †These weapons inflict one wound unless used within 10 yards of the target, in which case they inflict two wounds. ††Triple the range when these are used with a sling. (#): Number of rounds which can be reloaded per combat action.

MACHINEGUN FIRING TABLES

Weapon	Shots	Mag	Reload	Wnd	Save	Range
Gatling 0.50	2/6	36	3	3	1	300
Gatling 1-inch	2/6	18	4	4	1	300
Mitrailleus	8	8	3	3	1	300
Gardner	2/4	20	2	3	1	300
Nordenfelt 1-B	3	15	2	3	1	150
Nordenfelt 3-B	5	48	2	3	1	300
Nordenfelt 5-B	8	48	2	3	1	300
Maxim	10	50	2	3	1	300

SPECIAL SITUATIONS

Firing in Melee: Characters making a melee attack may also fire a loaded weapon (only rifles, muskets, shotguns, or pistols) at the same time. Only one shot may be fired, regardless of the normal number of allowed shots per attack action. If a weapon is fired in addition to a melee attack, the required hit number for *all* attacks is reduced by 1 for that action.

Mounted Combat: Riding skill for the mount being ridden serves as a limit to all other skills or attributes used in combat (generally, number of actions per turn and hit numbers for melee and missile attacks). See page 96 of *Space: 1889*. Mounted characters add 1 to their save numbers.

SMALL ARMS SAVING THROW MODIFIERS

Target	Modifier
Mass Formation	-1
Charging	-1
Close Range	-1
Airborne	+1
Mounted	+1
Light Cover	+1
Medium Cover	+2
Hard Cover	+3
Concealed	+Fieldcraft/2 (round up)

BRITISH FIELD GUN FIRING TABLE

Weapon	ROF	Range	Burst
1-pr HRC	2	400	2
6-pr RBL	(1)	600	4
7-pr MH	(1)	600	4
9-pr RBL	(3)	600	6
12-pr RBL	(3)	600	8
15-pr RBL	(3)	600	10
20-pr RBL	(3)	600	12
40-pr RBL	(3)	800	14
5'' Hwtzr.	(3)	800	14
Hale Rocket	1	600	16

HRC: Hotchkiss Rotating Cannon
RBL: Rifled Breech-Loader
MH: Mountain Howitzer
ROF: Weapons which list a number in parentheses have a rate of fire of 1. It then takes the number in parentheses in combat actions to reload the weapon.

MARTIAN CANNON FIRING TABLE

Weapon	ROF	Range	Burst
Sweeper	(1)	100	2
Light Gun	(3)	200	4
Heavy Gun	(4)	300	6
Rod Gun	(5)	400	4
Rogue	(6)	400	8

ROF: Weapons which list a number in parentheses have a rate of fire of 1. It then takes the number in parentheses in combat actions to reload the weapon.

ARTILLERY AMMUNITION EFFECTIVENESS

Ammunition	Hit	Save
Shot	3	0
Shell	2	1
Grapeshot	3	2
Shrapnel	4	2

EQUIPMENT

SCIENTIFIC EQUIPMENT

Item	Weight	Price
Binoculars (Field Glasses)	2 lbs	£4
Dissecting Kit	1 lb	8/-
Doctor's Bag and Supplies	10 lbs	£3
Laboratory Apparatus, Chemical	15 lbs	£5
Laboratory Apparatus, Electrical	8 lbs	£6
Magnifying Glass	—	12/-
Microscope	3 lbs	£5
Navigation Instruments	8 lbs	£12
Surveying Instruments	1 lb	8/-
Telegraphic Instruments	1 lb	£1
Telephonic Instrument	3 lbs	£2
Telescope (Spyglass)	1 lb	£2
Wire, Insulated	100 lbs/mi	£1/mi

REFERENCE MATERIALS

Item	Weight	Price
Conklin's Atlas of the Worlds	.5 lb	1/-
Edison's Encyclopedia	1 lb	1/-
The Millwright's Companion	1 lb	8/-
Robb's Medical Companion	1 lb	2/-

TOOLS

Item	Weight	Price
Axe	3 lbs	2/-
Forge, Portable	500 lbs	£6
Knife, Two-Bladed, Jack-	2 lbs	8d
Lockpicks, Set	—	18/-
Photographic Lab, Portable	30 lbs	£7
Pick, Mattock, Shovel, etc.	5 lbs	2/-
Tools, Carpenter	30 lbs	£4
Tools, Instrument-Maker	10 lbs	£7
Tools, Metalworker	60 lbs	£6
Trap, Bear	3 lbs	1/-
Trap, Small Animal	1 lb	6d

TRAVELLING GEAR

Item	Weight	Price
Bag, Carpet	3 lbs	2/-
Blanket	1 lb	8d
Bogshoes	1.5 lbs	4/-
Camera, Portable	1 lb	£4
Camp Stove, Portable, Coal Oil	2 lbs	10/-
Camping Outfit	80 lbs	£2
Carbide	1 lb/tin	5d
Clothing, Foul Weather	3 lbs	8/- to 12/-
Clothing, Rough-Living	3 lbs	£1
Cot, Folding	15 lbs	15/-
Fishing Tackle	1 lb	12/-
Food, Canned, One Day	4 lbs	8d
Food, One Day	3 lbs	4d to £1
Gramophone	3 lbs	£1
Hammock	1 lb	4/-
Lamp, Miner's Safety	.3 lb	8d
Lantern, Carbide	1 lb	1/-
Lantern, Kerosene or Gasoline	1 lb	5/-
Rope, 100 ft.	5 lbs	2/-
Tarp	2 lbs	10d
Tent, 10-Man	35 lbs	£6
Tent, Two-Man	12 lbs	£3
Trunk, Steamer	6 lbs	8/-
Watch	—	5/- to £2 +
Watch, Stop-	—	£3

FIREARMS

Pistols

Item	Weight	Price
Pistol, Light Multibarrel	.7 lb	£1
Pistol, Heavy Multibarrel	2 lbs	£1
Pistol, Single-Barrel	1 lb	8/-
Revolver, Light	1.5 lbs	10/-
Revolver, Heavy	2 lbs	£2

Rifles

Item	Weight	Price
Carbine, Bolt Action	8 lbs	£1 6/-
Carbine, Breech-Loading	7.5 lbs	£1 18/-
Carbine, LM Bolt Action	8 lbs	£2 6/-
Carbine, Lever Action	8 lbs	£2
Carbine, Muzzle-Loading	6 lbs	6/- to 8/-
Carbine, Smoothbore	7 lbs	6/-
Rifle, Bolt Action	9 lbs	£2
Rifle, Breech-Loading	8 lbs	£2
Rifle, Heavy Double	10.5 lbs	£10
Rifle, Lee Metford Bolt Action	9 lbs	£2
Rifle, Lever Action	8 lbs	£2 2/6
Rifle, Long Hunting	10 lbs	£6
Rifle, Muzzle-Loading	7 lbs	8/- to 10/-
Machinegun, Nordenfelt Light	15 lbs	£20
Musket, Smoothbore	8 lbs	8/-

Shotguns

Item	Weight	Price
12-Gauge Double	9 lbs	£3-5
12-Gauge Lever Action	9 lbs	£5
12-Gauge Scattergun	6 lbs	£5
20-Gauge Double	7 lbs	£2

MELEE WEAPONS

Item	Weight	Price
Axe	3 lbs	2/-
Bayonet (attach to rifle)	1 lb	8d
Boarding Pike/Spear	2-5 lbs	1/-
Club	3-4 lbs	Free
Hatchet†	1 lb	6d
Knife	1 lb	1/-
Machete†	2 lbs	8d
Pike	6 lbs	2/-
Sword/Saber	2 lbs	£2
Sword, Great	6 lbs	£10

†Hatchets and machetes can serve as weapons, but are often thought of primarily as tools.

ARMOR

Item	Weight	Price
Breastplate	6 lbs	£1
Doublet	2 lbs	1/-
Helmet	2 lbs	£1 2/-
Mail	4 lbs	18/-
Shield	4 lbs	12/-
Shoulder Scales	2 lbs	2/6

PRIMITIVE MISSILE WEAPONS

Item	Weight	Price
Bow and Arrow	2 lbs	£1
Stone	.1 lb	Free
Throwing Knife	.5 lb	1/-
Thrown Spear/Javelin	2 lbs	10d



EQUIPMENT

EXPLOSIVES

Item	Weight	Price
Dynamite	50 lbs/case	£5
Gunpowder	6 lb/keg	10/-
Nitroglycerin	5 lbs/case	£1

POWER PLANTS

Item	Weight	Price
Conventional Boiler	6 tons/pwr pt	£300/pwr pt
Forced Draught Boiler	3 tons/pwr pt	£600/pwr pt
Internal Combustion Engine	2 tons/pwr pt	£600/pwr pt
Petrol Boiler	6 tons/pwr pt	£300/pwr pt
Solar Boiler	2 tons × pwr	£500 × pwr

LAND TRANSPORTATION

Item	Weight	Price
Bicycle	26 lbs	£5
Bullock (w/pack saddle)	—	£6
Camel (w/saddle)	—	£12
Chaise, Two-Passenger	600 lbs	£8
Carriage, Four-Passenger	900 lbs	£12
Elephant	—	£40
Gashant	—	£5
Gashant Tack	26 lbs	£1-5
Gashant Pack Saddle and Bridle	10 lbs	£1-5
Horse	—	£10
Horse Tack	26 lbs	£1-5
Horse Pack Saddle and Bridle	10 lbs	£1-5
Howdah	250 lbs	£5-20
Human Porter	—	5d per hour
Mule (w/saddle)	—	£8
Pacyosaurus	—	£10
Ruumet Brechr	—	£20
Wagon	1000 lbs	£25

WATER TRANSPORTATION

Item	Weight	Price
Boat, Folding Canvas	35 lbs	£5
Boat, Large	—	£8
Boat, Small	—	£5
River Steamer	—	£100
Steam Launch	—	£10

AERIAL TRANSPORTATION

European

Item	Weight	Price
British Aphid Aerial Gunboat	160 tons	£23,220
British Steam Launch	50 tons	£4840
Zeppelin	200 tons	£20,000

Martian

Item	Weight	Price
Martian Merchant Kite	2000 tons +	£100,000 +
Martian Small Screw Galley	200 tons	£10,000 to £15,000
Martian Large Screw Galley	700 tons	£50,000
Martian Small War Kite	100 tons	£8000
Martian Large War Kite	700 tons	£60,000

MONEY

12 pennies (d) = 1 shilling
 20 shillings (240 pennies) = 1 pound (£)
 ha'penny = half-penny
 farthing = quarter-penny
 £1 = \$5*
 1 shilling = 25¢*
 1 penny = 2¢*

*Rough equivalencies. Actually, £1 = \$4.80.

Prices are written as:

£pounds shillings/pennies

Shillings alone as:

shillings/pennies

Pennies alone are written as a number followed by "d."

MARTIAN ARTILLERY

Item	Weight	Price
Gun, Light	2 tons	£400
Gun, Heavy	4 tons	£1000
Lob Gun	20 tons	£2000
Rod Gun	4 tons	£800
Rogue	6 tons	£2000
Sweeper	1 ton	£200

EUROPEAN ARTILLERY

Item	Weight	Price
Hale Rocket	20 lbs	£5
1-pdr Hotchkiss Rotating Cannon	300 lbs	£160
3-pdr Hotchkiss Rotating Cannon	400 lbs	£180
6-pdr Hotchkiss Rotating Cannon	800 lbs	£220
6-pdr Rifled Breech-Loader	600 lbs	£200
9-pdr Rifled Breech-Loader	800 lbs	£250
12-pdr Rifled Breech-Loader	1000 lbs	£300
15-pdr Rifled Breech-Loader	1200 lbs	£400
20-pdr Rifled Breech-Loader	1600 lbs	£500
40-pdr Rifled Breech-Loader	3500 lbs	£1000
5-inch Howitzer	3000 lbs	£1000
7-pdr Mountain Howitzer	400 lbs	£200

MACHINEGUNS

Item	Weight	Price
Gardner	40 lbs	£50
Gatling .50	200 lbs	£40
Gatling 1-inch	250 lbs	£70
Mitrailleuse	300 lbs	£60
Nordenfelt 1-Barrel	15 lbs	£20
Nordenfelt 3-Barrel	200 lbs	£60
Nordenfelt 5-Barrel	450 lbs	£100

FUEL

Item	Weight	Price
Carbide	1 lb/tin	5d
Coal	—	£1 per ton
Liquid Fuels (oil, gasoline, alcohol, kerosene)	—	£6/ton (bulk) or 1d/pint
Petroleum	—	£3 per ton
Wood, Peat	—	Free



REFEREE'S SCREEN

COMBAT IS an exciting, tension-filled part of **Space: 1889**. The easiest way to referee any combat situation is to have all the relevant charts right before your eyes. The **Space: 1889 Referee's Screen** is engineered to do just that. In doing so, it will help you, the referee, maintain the fast pace of adventure which makes a good role-playing session enjoyable.

This referee aid is composed of three parts:

- The four-panel, full-color referee's screen.
- This 16-page chart and reference booklet.
- Two Stikkit Clips.

Not only is the **Referee's Screen** meant to help you speed combat resolution, but the 16-page booklet is designed to facilitate standard encounters. All the standard encounter information for each planet is presented on two facing pages, including animal statistics and weather encounter information specific to the

planet featured. All the information a referee needs about stock NPCs and NPC generation is brought together in another section, reducing the time necessary to develop NPCs.

Most importantly, brand-new rules information about character generation, wound recovery, resolving task attempts, and throwing explosive weapons is presented. These rules expand upon the detailed **Space: 1889** rules to make role-playing in the Victorian Era more fun than ever.

Using the Clips: The Stikkit Clips will allow you to easily attach current scenario information to your screen. If you intend to laminate your **Space: 1889 Referee's Screen** or cover it with contact paper (write your name on the name plate first), do so before you affix the clips. To attach a clip to your screen, peel the paper from the back and press it firmly in place on the screen in one of the indicated boxes.

CONTENTS

Rules Expansions	2
Additional Default Skill.....	2
Healing Wounds.....	2
Zero Skill Task Attempts.....	2
Throwing Explosives.....	3
Aerial Combat Charts	4
Critical Hits Chart.....	5
Travel Charts	6
Land, Water & Air Travel....	6
Space Travel.....	7
Non-Player Characters	8
Encounter Charts	10
Martian Encounters.....	10
Venusian Encounters.....	12
Lunar Encounters.....	14
Earth Encounters.....	14

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ADDITIONAL DEFAULT SKILL

SWIMMING IS an additional default skill for the Endurance attribute in much the same way that Throwing is for Strength. Each player starts with a Swimming skill equal to half his Endurance attribute (rounding fractions down).

HEALING WOUNDS

TWO SPECIAL aspects of recovering from wounds are encountered in an adventurer's career: recovering consciousness and recovering from unarmed, hand-to-hand combat damage. The standard healing rule is also reprinted here, for your convenience.

Recovering Consciousness

AFTER A character takes wounds equal to the average of his Strength and Endurance (rounding up), he loses consciousness. If the character has taken just enough wounds to make him lose consciousness, then he will recover consciousness in 20 turns divided by his Endurance, rounded to the nearest whole number:

RECOVERING CONSCIOUSNESS

Endurance	Turns	Minutes
1	20	10
2	10	5
3	7	3.5
4	5	2.5
5	4	2
6	3	1.5

For every wound a character has taken beyond the average of his Strength and Endurance, add 10 turns (five minutes) to the time which

he spends unconscious above the base time given in the table.

For example, Carstairs has an Endurance of 5 and a Strength of 3. He will lose consciousness if he takes four wounds. Unfortunately, Carstairs has a nasty encounter with a tyrannosaurus and in one attack is bitten for six wounds. If he had taken four wounds, he would recover consciousness in four turns (two minutes). Because he has taken six wounds, it will take him 20 extra turns to recover consciousness, for a total of 24 turns (12 minutes) before he is conscious again.

After a character recovers consciousness, he maintains the same wound level at which he lost consciousness (subject to normal healing). If he engages in combat or any other activity which wounds him again, he immediately loses consciousness once more, and the new wound total is used to calculate when he will once again regain consciousness.

Normal Healing

WOUNDS WILL heal normally at the rate of one wound every two days spent resting and under medical care. If a character is travelling or suffering from fever, wounds heal at the rate of one per week.

Temporary Damage

ALL SUCCESSFUL unarmed melee attacks from kicks, punches, or even head butts inflict one wound. However, this damage is actually, for the most part, temporary damage due to stunning, bruising, and pain. Half of all wounds caused by unarmed melee attacks (round fractions up) are actually temporary damage. Temporary damage "heals" at a rate

of one wound every two hours (longer, at the referee's discretion, if constant strenuous activity is being undertaken, but never longer than one wound every five hours).

If a character receives enough wounds so that he would die while he is still recovering from temporary damage, he does not die. Instead, he is unconscious until enough of the temporary damage has healed to bring his wound total down under the point at which he would die.

For example, Eileen, whose Strength is 3 and whose Endurance is 4, was roughed up by some dastardly Fenians an hour ago and took three unarmed combat wounds, two of which are temporary damage. Now she is bitten by a giant turtle and takes six wounds. Nine wounds would normally kill Eileen, but since she is still recovering from temporary damage, she is instead unconscious for three hours. When she awakens, she will have seven wounds and will undoubtedly seek immediate medical attention.

TASK ATTEMPTS AT ZERO SKILL LEVEL

IF A CHARACTER wishes to do something which is resolved by the use of a skill in which the character has no skill (zero skill level), consider the overall situation. If the character can present a good reason for making the attempt, such as just having seen someone else perform the task, and if the situation is an emergency, the referee may institute this procedure: The player makes a quick roll against the attribute under which the skill falls. If the roll is successful, the referee awards the character with a skill level of 1 in that skill and allows the character to at-

tempt the requisite task with this skill level. When the current adventure or episode is finished, the experience point which this skill would have cost to purchase is deducted from the number of experience points which the character receives.

THROWING EXPLOSIVE WEAPONS

EXPLOSIVES WHICH can be thrown include dynamite, the infamous anarchist's "black bomb," and (for the daring or foolish) nitroglycerin. Grenade-like thrown weapons include bottles of alcohol or oil rigged to ignite on impact (firebombs), and bottles of strong acid.

To attack with an explosive or grenade-like weapon:

(1) Determine the range, in yards, to the object. The referee's decision is final.

(2) Roll the task to throw an object for accuracy.

(3) Determine the explosive power of the object by consulting the Thrown Explosive Weapons Table, or the "Combat" and "Equipment" chapters of **Space: 1889**.

(4) Determine the burst size by consulting the Explosive Burst Size Table.

(5) If the task roll is successful, the weapon hits exactly where desired. All people in the burst area are knocked down. Roll a die for each character or NPC in the burst area. A result of 2 or under is a hit. If a character is hit, he takes a number of wounds equal to one die roll for each level of power of the explosion and is knocked out by the blast. Characters may make a save to avoid being hit. The save number is 1, modified by any cover modifiers which may apply (see the Small

Arms Saving Throw Modifiers Table). If the die roll indicates a hit by an explosive weapon, but a save is made, the character must make a second, identical save. If this save is failed, the character takes 1D6 wounds from the fragments kicked out by the explosion. If the save is made, no wounds are taken. Certain grenade-like weapons have special attack and damage effects.

(6) If the task roll is unsuccessful, the weapon deviates by a die roll in yards. Roll a die, rerolling a 5 or 6. If the result is a 1, the weapon went long. On a 2, it landed to the right of the target. On a 3, it was short, and on a 4, it landed to the left.

Throw an Object for Accuracy: The range of the target, in yards, is the target number. Roll Throwing dice. If a character has a Throwing skill of 0, he has a skill level of 1/2 for the purposes of rolling this task (he rolls a die and divides the result by two). The distance the object is thrown is three times the dice roll divided by the weight of the object in pounds. (This formula has been condensed on the Thrown Explosive Weapons Table.) If the target number or greater is rolled, the task succeeds.

Dynamite: If multiple sticks are thrown together, they must be fastened together and fused to ignite simultaneously. Roll a die when dynamite is thrown by characters with no Explosives skill: On a 2-5, nothing unusual occurs. On a 1, the fuse is short, and the dynamite goes off midway to the target. On a 6, the fuse is long, and characters in the burst area may take two allowed actions before the dynamite goes off. (They may run or even try to throw the dynamite back.)

Black Bomb: Black bombs are composed of a one-pound casing and three pounds of gunpowder. If someone with no Explosives skill fuses one, follow the procedure under "dynamite."

Nitroglycerin: To move nitroglycerin hastily is extremely dangerous. If it is thrown, roll a die: On a 1-2, it reaches the target before exploding. On a 3-5, it explodes midway to the target. On a 6, it blows up in the throwing character's hand.

Firebomb: Firebombs are glass or ceramic bottles filled with flammable liquids which have been prepared with a lighted wick to ignite on impact. When a firebomb breaks, it ignites flammable substances like paper, cloth, or wood, which may burn on after the firebomb has burnt out. Characters in the burst radius of a firebomb are not knocked down. Characters hit by a firebomb take one wound the first turn they are alight, two wounds the second turn, and one wound the third turn. The firebomb then burns out. Characters may move out of the fire, roll on the ground, or take other actions to extinguish themselves before the full course of the damage has been run. However, if a character misses his save, at least one wound will be taken.

Strong Acid: Strong acid will dissolve substances it reacts with, but it takes awhile to work. Characters in the burst radius of strong acid are not knocked down. A character hit by strong acid takes no damage the first turn, one wound the second, and two wounds the third. The fourth turn he is totally incapacitated by pain for 2D6 turns (he can take no actions). This sequence may be broken by prompt medical attention, flushing out the wound, or neutralizing the acid.

WEAPON CHARACTERISTICS:**Martian Cannon**

<i>Weapon</i>	<i>Pen</i>	<i>DV</i>	<i>ROF</i>	<i>Rng</i>
Sweeper	—	P	2	0/1
Light	0	1	1	1/2
Rod Gun	3	1	(1)	2/4
Heavy	1	2	1	1/3
Rogue	2	3	(1)	2/4
Lob Gun	2	4	(1)	-/3

WEAPON CHARACTERISTICS:**Royal Navy Guns**

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

TO HIT

<i>Range</i>	<i>Die Roll</i>
Close	3-6
Long	5-6

TO HIT MODIFIERS

<i>Condition</i>	<i>Modifier</i>
Different Altitude	-1
Green Crew	-1
Burning	-1
Crack Crew	+1
Shrapnel or Grape	+1

**Weapon Characteristics Notes
(Both Charts)**

Pen: If target's armor value exceeds penetration, halve gun's damage value (DV). If armor value is more than twice penetration, gun has no effect.

DV: A damage value of "P" means that only personnel are affected by the weapon; all hits become crew hits, and the weapon's fire is treated as small arms fire.

ROF: Rates of fire in parentheses indicate that the weapon fires once and then takes the number of rounds in parentheses to reload.

Rng: Short range/long range.

HIT LOCATION

<i>Die Roll</i>	<i>Location</i>
1	Hull
2	Hull
3	Crew
4	Crew
5	Gun
6	Critical*

*Roll on table below and see the Critical Hits Chart.

CRITICAL HIT TABLE

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

COLLISIONS

<i>Conditions</i>	<i>Roll</i>	<i>Effects</i>
Enter from Bow or Stern:	-1 5, 6	Hull hit if roll less than other ship's hull size.
Turn In Hex:	+2	Smaller ship suffers loss of trim if rolls less than half the difference in hull sizes (round down).

RAMMING

<i>Conditions</i>	<i>Roll</i>	<i>Effects</i>
Avoid: -1/2 movement (round up)	3-6	<p>Ram Mounted: Rammed ship suffers hull hits equal to half the hull size of the ramming ship (round fractions up).</p> <p>Rammed ship suffers loss of trim if rolls less than half the hull size of the ramming ship (round fractions up).</p> <p>Rammed ship is grappled unless it plummets due to a loss of trim.</p> <p>No Ram Mounted: Same as for a collision, but if the ramming ship is smaller there is no chance of a loss of trim. Rammed ship is grappled unless it plummets due to a loss of trim.</p>

CRITICAL HITS CHART

THE FOLLOWING are possible critical hits in aerial combat.

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

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

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

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

Fires may be fought at the end of the player's movement phase. Roll 1 die for each deckhand and each extra petty officer, and 1 die for every two marines

detailed to fight the fire. For each die roll result of 6, the fire is reduced one level. On steel ships, the fire is reduced one level for every 5 or 6 rolled. Treat all British ships as being steel and all Martian ships as being wood.

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

If the boiler does not blow, the ship's speed is reduced by the damage value of the firing gun. However, this speed reduction is not permanent, and the ship regains one point of speed (up to its previous level) each subsequent turn (as the engine gang patches the boiler, wraps rags around split steam lines, etc.)

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

Loss of Trim: The ship's trim controls are damaged, and the ship suffers a sudden loss of trim. The owning player immediately attempts to recover trim by rolling greater than the damage value of the firing gun on a die. (If the loss of trim was caused by a collision, the player recovers by rolling greater than half the difference in hull sizes, rounding fractions down.) If the trimmer is dead, the captain makes the attempt, but with a die roll modifier of -1 . If the

captain is dead, any surviving officer or petty officer may make the attempt, but with a die roll modifier of -2 . If all officers and petty officers are dead, any crewmember may make the attempt, but with a die roll modifier of -3 . Ships with hull sizes of 5 or larger have a $+1$ modification to the die roll. Ships with hull sizes of 10 or larger have a $+2$ modification, etc.

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

If the ship recovers trim, it remains at its current altitude but may not voluntarily change altitude during its next movement phase. If the ship does not recover trim, it immediately drops one altitude level, and the attempt to recover is repeated. This procedure is repeated until either the ship recovers trim or it crashes. If the ship drops one or more altitude levels, then the ship may not move, fire, fight fires, or change any crew assignments until the end of the next movement phase (the crew is still stunned). If the ship is boarded, the crew may defend itself.

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

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

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

ANIMAL TRANSPORTATION TABLE

Type	Miles/ Day	Price/ Day
Riding Animal	20	3s
Howdah	10	2s
Wagon	10	2s
Coach	30	3s

WATER TRANSPORTATION TABLE

Inland Waterway

Vessel	Miles/ Day	Price/ Day
Man-Powered	20-30	2d
Wind-Powered	1D×10	3d
Steamship	50	5d

Open Sea

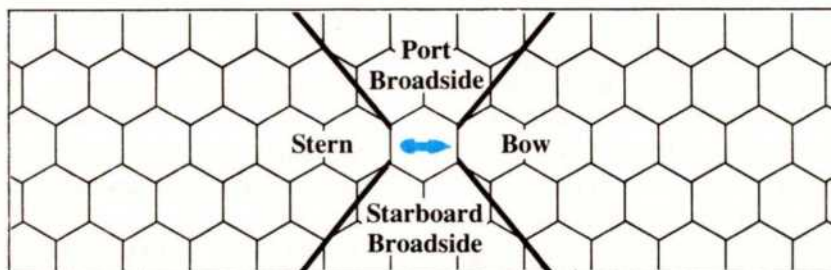
Vessel	Miles/ Day	Price/ Day
Wind-Powered	100	3s
Steamship	200	5s

Note: First-class passage costs five times the listed rate.

NAVIGATION HAZARDS

Roll	Result
1	Boat aground. Ten miles travel lost pulling it off.
2	Boat aground. One full day lost pulling it off.
3	Screw or rudder damaged. Speed halved until boat reaches port.
4	Hull damaged. Two full days lost making repairs.
5	Hull damaged. One die roll of days lost making repairs.
6	Hull crushed. Vessel grounded to avoid sinking. Cannot be refloated unless a large work crew and a large vessel are brought to the site.

FIRING ASPECTS DIAGRAM



FOOT TRAVEL

CHARACTERS MAY walk either 10 or 20 miles per day, at their option (if 20 is chosen, the modifier below applies.) Players may not march 20 miles through mountain or swamp.

Fatigue: Roll Endurance attribute dice for an Easy task to avoid fatigue when marching by foot. Difficulty level is modified as follows:

Marched Additional 10 Miles: +1 level.

Encumbered: +1 level for every 20 percent of body weight carried.

Human on Mars: +1 level.

Human on Venus: +2 levels.

Mountains: +1 level.

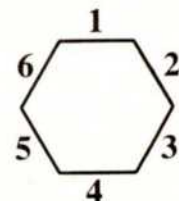
CLIMBING ACCIDENT

Roll	Result
1	Climb delayed. Subtract 1 from faces climbed in day.
2	Climb delayed. Subtract 2 from faces climbed in day.
3	Climb delayed. Subtract 3 from faces climbed in day.
4	Climb delayed. No faces climbed in day.
5	Injury. Treat as level 1 fatigue. Lasts for one week. No rock faces climbed in day.
6	Injury. Broken leg. Climber cannot walk or climb and must be carried up mountain. Cut number of faces per day in half (round fractions up) and add one to difficulty to avoid accident. Leg mends in one month.

AERIAL TRANSPORTATION TABLE

Vessel	Miles/ Day	Price/ Day
Zeppelin	300	10s
Steam Flyer	300	10s
Kite	200-400	6s
Screw Galley	200-300	4s
Long Boat	100-200	—
Conveyor	100-200	—
Glider	400	—
Aeroplane	100/hr	—

WIND DIRECTION



THE INNER WORLDS (Cisasteroidal)

Name	Orbit	Day	Year	Diameter	Circum.	Gravity
Mercury	36	—	88	3030	4760	40%
Venus	67	23	248	7526	11,821	100%
Earth	93	24	365	7927	12,457	100%
Luna	0.3*	28**	365	2160	3392	16%
Mars	141	24	687	4200	6597	90%

THE OUTER WORLDS (Transasteroidal)

Name	Orbit
Jupiter	480
Saturn	900
Uranus	1800
Neptune	2800

Notes: Orbit is in millions of miles from the Sun, except that Luna's orbit (*) is measured from the Earth. Lengths of days are given in hours, but Luna's day (**) is 28 Earth days long. Mercury, since it is gravitationally locked facing the Sun, has no days. Years are given in Earth days. Diameter and circumference are given in miles. Gravity is the gravity at the surface as a percentage of that found on the Earth.

NAVIGATION AIDS

Device	Die Mod
Orrery	-1
Analytical Engine	-1
Astrogation Computer*	-4
Telescope	-1
Improved Telescope**	-2

Notes: The astrogation computer (*) is used instead of the orrery and the analytical engine, not in addition to them. The improved telescope (**) is used in place of the regular telescope. All other devices may be used together and their modifiers added.

HERTZIAN COMMUNICATORS

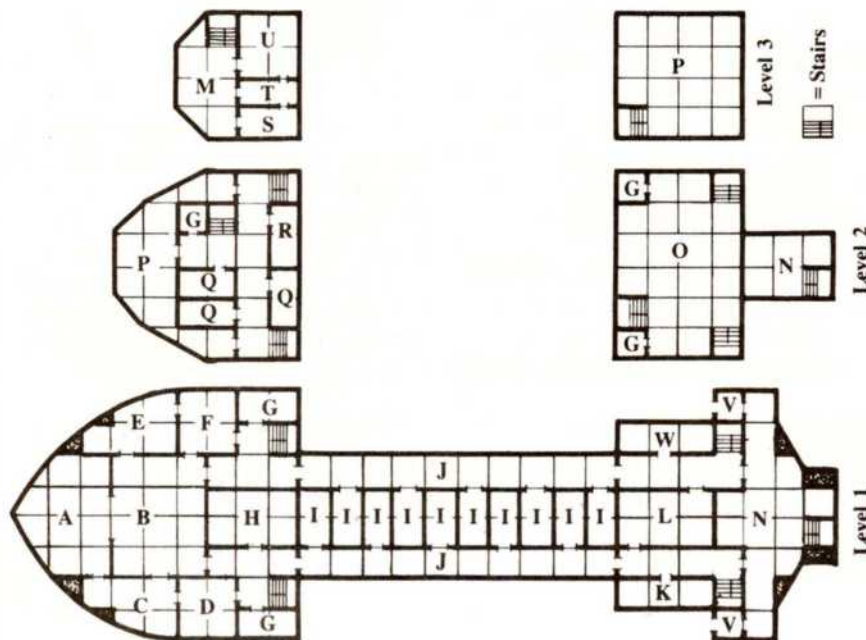
Reliability	Range (Miles)
1	10
2	100
3	1000
4	100,000
5	1,000,000
6	10,000,000

TURBULENCE/METEOR DAMAGE

Die	Damage
1-2	Injury
3-5	Minor
6-7	Major

COMMERCIAL SPACE TRAVEL

Vessel	Speed	Price
Liner	2.5	£60
Cargo	2.0	£40



A TYPICAL COMMERCIAL ETHER FLYER

- A. Gallery
- M. Bridge
- B. Dinning Room
- N. Engine Room
- C. Bar
- O. Steerage
- D. Library
- P. Greenhouse
- E. Kitchen
- Q. Officer's Stateroom
- F. Private Dining Room
- R. Captain's Quarters
- G. Head
- S. Captain's Day Cabin
- H. Billards Room
- T. Chart Room
- I. Stateroom
- U. Ward Room
- J. Promenade
- V. Air Lock
- K. Crew's Mess
- W. Petty Officer's Quarters
- L. Crew's Quarters

MARTIAN STOCK NPCs

<i>NPC Type</i>	<i>Experience</i>	<i>Marksman</i>	<i>Att.</i>	<i>Arms</i>
Bandit	Trn/Exp	2	Phys	Musket
Pirate	Exp/Vet	3	Phys	Musket
Swamp Pirate	Trn/Exp	2	Phys	Musket
Merchant	Grn	1	Ment	Knife
Thief	Grn/Trn	1	Phys	Knife
Hill Warrior	Exp/Vet	4	Phys	Musket, Great Sword
Hill Brave	Grn/Trn	2	Phys	Bow, Sabre
High Martian	Exp/Vet	3	Phys	Bow or Pike
Caravan Guard	Trn/Exp	4	Phys	Rifle, Sabre
Soldier	Trn/Exp	3	Phys	Rifle, Bayonet
Marine	Exp/Vet	4	Phys	Rifle, Sabre
Traveller	Grn/Trn	1	Ment	Variable

VENUSIAN STOCK NPCs

<i>NPC Type</i>	<i>Experience</i>	<i>Marksman</i>	<i>Att.</i>	<i>Arms</i>
Hunter	Grn	5	Phys	Bow, Club
Porter	Grn	2	Phys	Club
Headman	Trn	2	Ment	Hatchet
Merchant	Trn	2	Ment	Knife
Guard	Trn	4	Phys	Bow, Spear
Raider	Trn/Exp	4	Phys	Bow, Club
Fisherman	Grn	2	Phys	Knife
Pirate	Trn/Exp	4	Phys	Bow, Club
Barge Crewman	Grn	2	Phys	Knife

HUMAN STOCK NPCs

<i>NPC Type</i>	<i>Experience</i>	<i>Marksman</i>	<i>Att.</i>	<i>Arms</i>
Soldier	Trn/Exp	4	Phys	Bolt Action Rifle
Officer	Exp/Vet	3	Phys	Revolver, Sabre
Merchant	Grn	1	Ment	Revolver
Explorer	Trn/Exp	3	Ment	Revolver
Hunter	Grn/Trn	5	Ment	Hunting Rifle
Scientist	Grn	2	Ment	Lt. Revolver
Administrator	Grn/Trn	2	Ment	Lt. Revolver
Anarchist	Grn/Trn	3	Ment	Lt. Revolver, Bomb
Fenian	Trn/Exp	4	Phys	Shotgun
Sailor	Grn/Trn	2	Phys	Cutlass
Adventuress	Exp	3	Ment	Lt. Multibarrel Pistol

LUNAR STOCK NPCs

<i>NPC Type</i>	<i>Experience</i>	<i>Marksman</i>	<i>Arms</i>	<i>Str</i>	<i>Agl</i>	<i>End</i>	<i>Int</i>
Drone	Grn	0	—	1	2	3	1
Custodian	Exp	3	Spear	1	3	2	2
Specialist	Vet	3	Spear	1	3	3	4

GENERATING NPCs

Attributes: NPC abilities are determined largely by the NPC's occupation. Occupation usually dictates Social Level (see pages 10, 14-17, and 26-29 of **Space: 1889** for more on occupation and Social Level.) A *mentally oriented* occupation has Intellect and Agility attributes of 4 with Strength and Endurance attributes of 2. *Physically oriented* occupations have these numbers reversed. Roll a die for Charisma, or decide on it yourself.

Skills: If a skill is needed for the character's job, give him a level of 2 or 3. Exceptionally experienced NPCs might have a 4, or very young ones a 1. If the skill is one probably picked up by chance, roll a die and subtract 2, 3, or 4 from the result. (The more experienced the character or the more closely related the skill is to his occupation, the less you subtract.) Close Combat skill and morale are determined by experience categories: Green, Trained, Experienced, Veteran, and Elite.

NPC MORALE AND CLOSE COMBAT

<i>Experience</i>	<i>Morale Level</i>	<i>Close Combat</i>
Green	8	1
Trained	9	2
Experienced	10	3
Veteran	11	4
Elite	12	5

Wounds: Most non-player characters lose consciousness after taking only two wounds. Some special characters may take more wounds than this. NPCs die if they take more than two wounds.

Motivations: Choose or roll randomly two or three motivations for detailed NPCs to have from the NPC Motivation Table on the opposite page.

NPC MOTIVATIONS TABLE

ROLL TWO differently colored dice; read results as two separate numbers (do not total).

1: Danger

11: Coward. The NPC is a total coward and will run from danger at every opportunity.

12: Cautious. He is particularly mindful of the potential hazards of a venture and is often suspicious of potential tricks being played upon him or his group.

13: Steady. He is not frightened or intimidated by violence or threats of violence.

14: Aggressive. He is aggressive and accepts the necessity of violence as an occasional means of solving problems.

15: Adventurousome. He loves danger and adventure, and will actively seek them out for the excitement and variety they bring.

16: Sadistic. He is a sadistic brute who enjoys inflicting pain on others.

2: Honor

21: Liar. The NPC is a liar, perhaps a thief, and probably a traitor. He is completely untrustworthy.

22: Disgraced. He has been disgraced, either by his own actions or by events beyond his control. This has left him a broken man with little hope or self-esteem.

23: Driven. He has been disgraced, as above, but he now bends all his efforts toward redeeming himself and recovering his honor by means of a deed of great heroism or some exceptional service.

24: Proud. He is concerned with proving that he is honorable and is likely to take offense at any suggestion that he is not.

25: Honest. He is scrupulously honest, and his word of honor is his absolute bond. He has contempt for liars and anyone who breaks his word.

26: Just. He sees justice as the greatest virtue and the only important consideration in deciding on a course of action. He hates cheaters, liars, and crooks, will always assist any attempt to right an injustice, and would sooner die than turn away from the obligations that his concept of honor imposes on him.

3: Wealth

31: Generous. The NPC is generous to a fault and gladly gives whatever he has to those in need.

32: Spendthrift. He is a reckless spendthrift or is addicted to gambling. He is either squandering what money he has or is already heavily in debt.

33: Mercantile. Making money is always his first consideration, and he will always haggle over prices and wages.

34: Frugal. He is cost-conscious and interested in making money. He has a good eye for a bargain.

35: Greedy. His lust for money makes him easy to bribe, and he might even betray his friends if the price were right.

36: Miser. He is obsessed with money, believes that everything has a price, and will do literally anything if offered enough cash or valuables.

4: Power

41: Boastful. He is a self-important braggart who wishes to impress everyone with his worth.

42: Responsible. His desire for a position of greater importance and social status makes him self-reliant and willing to accept responsibility. He has a healthy ambition that makes him a go-getter.

43: Ambitious. He is ambitious and has a tendency to manipulate those around him. He does so for what he believes to be the common good, however, not for personal gain.

44: Ruthless. He is ruthlessly ambitious and will let nothing stand between him and his goals. He can appear to be considerate, generous, loyal, or anything else which serves his purpose. But beneath this exterior he has no genuine concern for anyone else and will use anyone or anything to achieve his ends.

45: Arrogant. He is pompous and arrogant. He clearly believes himself superior to everyone around him and makes no secret of the fact.

46: Leader. He is a charismatic natural leader who draws others to him and inspires extreme loyalty.

5: The Mind

51: Eccentric. The NPC is an eccentric. He is actually harmless and may be quite entertaining but insists on engaging in bizarre behavior.

52: Knowledge. He is driven by an overpowering thirst for knowledge. This may be knowledge of a particular ancient race or civilization, knowledge in a particular field of science, etc.

53: Stubborn. He is stubborn and nearly impossible to persuade once he has made up his mind.

54: Wise. He is very wise, shows good judgement, and offers sound advice.

55: Rage. He is subject to sudden, violent, and uncontrollable rages.

56: Mad. He may appear to be a harmless eccentric or, perhaps, completely normal. However, he is genuinely and completely insane. This condition may render him helpless and bewildered, or may turn him into a dangerous and cunning killer.

6: The Heart

61: Lust. The NPC is driven by lust for members of the opposite sex and a desire to control or dominate them. This desire can be directed either toward one particular person or just toward the opposite sex in general.

62: Hatred. He is consumed with hatred for a person or group, usually because of a real or imagined injury, and will direct much of his energy toward seeking revenge.

63: Friendly. He is amiable, friendly, and cooperative.

64: Fair. He has a strong commitment to fairness, and reacts with anger to injustice and brutality.

65: Loyal. He feels a strong bond of loyalty to his group. This bond may be toward his band of fellow adventurers, his regiment (in the army), his country, his family, or any other suitable group.

66: Love. He loves a person (friend, spouse, parent, child, etc.) so completely that he would willingly sacrifice himself for that person.

WILDERNESS ENCOUNTERS

Terrain	Dry Canal Bed	Steppe	Hills	Swamp
Encounter #	4	3	2	2
Die Roll	Encounter Type			
1	Caravan	Nomad Village	Nomad Hunters	Swamp Pirates
2	Caravan	Nomad Hunters	Nomad Hunters	Swamp Pirate Camp
3	Bandits	Nomad Hunters	Bandits	Ruumet Breehr Herd
4	Ruumet Breehr Herd	Gashant Herd	Gashant Herd	Cissawaan
5	Gashant Herd	Eegaar Herd	Eegaar Herd	Green Koko
6	Nomad Hunters	Steppe Tiger	Roogie Pack	Knoe Shoshu

WILDERNESS ENCOUNTERS

Terrain	Mountain	Desert	Mountain	Nonmountain
Encounter #	1	1	2	1
Die Roll	Encounter Type		Encounter Type	
1	High Martian Hunters	Oasis	High Martian Galley	Merchant Kite
2	High Martian Hunters	Lone Traveller	High Martian Galley	Merchant Kite
3	Flying Skrill	Lone Nomad	Flying Skrill	Armed Merchant Kite
4	Eelowaan	Roogie Pack	Eelowaan	Small Warship
5	Great Kommota	Lone Eegaar	Great Kommota	Large Warship
6	High Martian Galley	Lone Gashant	High Martian Hunters	Pirate

AERIAL ENCOUNTERS

WILDERNESS ENCOUNTERS

Bandits: A band of 30 bandits preparing an ambush for a caravan. They will immediately attack the characters, and attempt to kill or capture them to prevent them from warning any nearby caravans.

Caravan: A large caravan of perhaps 20 ruumet breehrs carrying howdahs and protected by 20 guards mounted on gashants. Its members will be suspicious of the characters at first but if not threatened or offended, will treat the characters with hospitality.

High Martian Hunters: A party of 20 High Martians on a hunt. They will attack the characters, and attempt to kill or capture them.

High Martian Galley: On a roll of 1-3 it is a small galley; on a roll of 4-6 it is a large one. It is either returning from or preparing to leave for trading or raiding. It will attack the characters and attempt to capture them.

Lone Nomad: A brave on his manhood quest, this lone nomad may attempt to steal from the party at night but will not otherwise be hostile. He may travel with the characters for awhile and will help them avoid a fight if they encounter other nomads.

Lone Traveller: The lone survivor of a bandit attack, this wealthy merchant is suffering from exposure and starvation, and will reward the characters for helping him get home. Alternatively, the traveller is an enemy dispatch rider, an eccentric European hunter, a lost explorer, a fugitive from justice, a holy man on a cleansing sojourn, or any number of other possibilities.

Nomad Village: A village of perhaps a dozen families, either camped or on the move with their possessions carried on gashants. Twelve warriors and as many braves will be with the village. They will react with suspicion toward the characters but will probably not attack unless the characters provoke them or have something of obvious value the nomads want.

Nomad Hunters: A party of six nomad braves led by two warriors. They will react to the characters with more curiosity and less restraint, as there is no village present which would be endangered by a fight. If the characters are helpless, they may offer assistance; if the characters are well off, the nomad hunters may ask for gifts or attack the characters.

Oasis: At this oasis, the characters can find life-giving water. The oasis may be relatively large or may be only a small pool, well, or spring. A caravan, nomads, or even bandits could be camped around it (or lurking nearby).

Swamp Pirates: Four small boats, each with six pirates. They will attack and attempt to capture the characters.

AERIAL ENCOUNTERS

Armed Merchant Kite: One large merchant kite as above, but armed with two heavy guns and a dozen marines. It will exercise caution but will defend itself vigorously if attacked.

High Martian Galley: On a roll of 1-3 it is a small galley; on a 4-6, a large one. It will attack and try to capture the characters' vessel.

Large Warship: One warship of the nearest state. On a roll of 1-3 it is a galley; on a 4-6, a kite. It will attempt to board and inspect the characters' vessel, and will attack if resistance is shown.

Merchant Kite: One unarmed large merchant kite which will try to flee if shown any sign of hostility and will be cautious anyway.

Pirate: On a roll of 1-4 it is a small ship; on a 5-6, a large one. On a second roll of 1-4 it is a galley; on a 5-6, a kite. It will attack and attempt to capture the characters' vessel.

Small Warship: One warship of the nearest state. On a roll of 1-3 it is a galley; on a 4-6, a kite. It attempts to board and inspect the characters' vessel, and attacks if resistance is shown.

ANIMAL CHART: Mars

Type	#App	Size	Move	Wnds	Save	Wt (lbs)	Weapons
Predators							
Steppe Tiger	1	1×2	L50 ¹	10	1	1500	Teeth (2, 4, 0, 2), Claws (3, 3, 1, 1)
Cissawaan	1D×10	1×1	W20 ²	1	—	100	Teeth (3, 2, 0, 1)
Green Koko	1	1×3	W20	3	1	200	Fangs (2, 3, 0, 1), Coils (2, 3, 0, 4)
Eelowaan	1	1×3	F40	3	—	200	Fangs (1, 3, 0, 1), Coils (2, 3, 0, 4)
Scavengers							
Great Kommota	1	3×3	F40	10	1	1 ton	Talons (2, 3, 3, 1), Drop (1, 1, —, 1D)
Roogies	1D×3	1×1	L40	1	-1	100	Teeth (2, 2, 0, 1)
Knoe Shoshu	1	2×2	W10	6	—	600	Tentacles (4, 4, 3, 3), Sting (1, 2, 0, 1)
Plant Eaters							
Flying Skrill	1D	2×2	F50 ³	4	—	500	Horns (1, 2, 2, 2), Talons (2, 2, 1, 1), Drop (1, 1, —, 1D)
Gashant	1D×10	1×2	L50 ⁴	6	—	1000	Teeth (1, 2, 0, 1), Tail (1, 2, 2, 1)
Ruumet Breehr	1D×2	2×3	L20	20	1	5 tons	Crush (1, 1, 3, 5)
Eegaar	1D×10	1×1	L60 ⁵	2	-1	200	Horns (1, 2, 2, 1)

1: The steppe tiger will only maintain this pace for two actions, after which he will become cautious, and either retreat or circle for a better chance at an attack. He will always attempt to attack from less than 50 yards so as to immediately close the distance to his prey. 2: The cissawaan will only move half as fast on land. 3: Subtract 1 from the skrill's speed for every 10 pounds of weight carried. 4: Subtract 1 from the gashant's speed for every 20 pounds of weight carried. 5: The eegaar will tire after one complete game turn of running and will slow to half its normal speed.

STANDARD ANIMAL CHART NOTES

Number Appearing: A fixed number or a multiple. A general suggestion, not a hard-and-fast rule.

Size: The number of two-yard grid squares the animal occupies in combat (the area that is effectively blocked by its presence). Given in squares wide×squares long.

Move: The number of yards the animal moves in one action at top speed. Unless fleeing or charging, the animal will usually move half this speed or less. Land (L), water (W), or flight (F) movement is indicated.

Wounds: The number of wounds it takes to kill the animal.

Save: This is the animal's save number against melee attacks, and it is added to (or subtracted from) the save number of any missile weapon which hits it.

Weight: The weight of an average full-grown example of the animal (in pounds). Ten percent is edible meat if the animal is killed for food.

Weapons: Weapons with which the animal may attack and their combat values. These combat values are, in order: number of hit dice rolled, required hit number, reach, and wound value of the weapon.

MARTIAN WEATHER EFFECTS TABLE

Die	Weather	Visibility	Land Travel	Storm
—	Clear	Unlimited	No Effect	None
1-4	Clouds	1 mile	No Effect	Mild
—	Drizzle*	400 yards	No Effect	Mild
5-6	Windstorm	50 yards	Prohibited	Severe

*Effect of clouds in mountainous terrain.

MARTIAN WEATHER

WHEN A 6 is rolled for the daily encounter, the weather on Mars changes from clear and dry. Roll a die, and consult the Martian Weather Effects Table. The effect of clouds is that of a mild storm for aerial travel. On the ground the effects are purely visual, except in the mountains or on the polar icecap. In the mountains the result is drizzle, while on the icecap it is snow. A windstorm is a severe storm for aerial travel. No land travel is possible in a windstorm. Clouds will generally disappear after a day; windstorms will generally abate in 2D6 hours. For purposes of air travel, prevailing winds blow from west to east on most parts of Mars.

All weather conditions affect visibility and land travel, and have a storm rating. Visibility indicates the maximum visibility possible. Land travel indicates the weather's effect on land travel speed. Storm effects will either be mild storm or severe storm.

Storms and Air Travel: Liftwood flyers seldom venture out in a storm, as the turbulence tips the craft, causing it to lose trim. To fly and retain trim in a mild storm, roll the trimman's Trimman dice for a Moderate task—Formidable in a severe storm. Failure means the craft has lost trim and plummeted to the ground. The trimman rolls to recover trim at one difficulty level higher. If he fails, the craft crash-lands, damaged beyond repair. If he succeeds, it lands safely, but he decides the storm is too difficult to continue in, and he will wait it out (or not make another attempt that day).

Zeppelins are vulnerable to storms. A Zeppelin cannot easily land and wait out the storm, since it is nearly as vulnerable on the ground. To escape damage while flying, roll the pilot's Zeppelin Piloting dice for a Moderate task in a mild storm—Difficult in a severe storm. If the Zeppelin is secured at a normal landing site, no damage will take place. If it is landed in the open, make the skill roll but reduce the difficulty of the task by one. If the task roll is failed, the Zeppelin crash-lands, damaged beyond repair.

Gliders and aeroplanes avoid damage by rolling the pilot's Aerial Flyer Piloting skill dice for an Easy task in a mild storm—Moderate in a severe storm. If the pilot fails the roll, the craft crash-lands, damaged beyond repair. Gliders and aeroplanes on the ground are not damaged by storms to any extent.

WILDERNESS AND WATER ENCOUNTERS

Lost European: Haggard and worn, this European has barely survived since his expedition became lost weeks ago. He will be grateful for help and may reward those taking him to a civilized outpost. Alternatively, his outpost could have just been overrun by hostile Lizard-men, and it may be imperative that he reach a telegraph or main outpost quickly to warn the military and other Europeans nearby. He could also be a survivor of a Zeppelin ether flyer crash or a shipwrecked trader.

Native Fishing Boats: These boats are two to 12 (roll 2D) small fishing boats, each with two or three Lizard-men fishing from them. The Lizard-men will not attack, and will scatter and flee in the face of hostile action. They will be reluctant to help characters in distress but will react with friendship to offers of gifts.

Native Hunting Party: A dozen Lizard-men are out hunting for small game to feed their village. They will react with suspicion but will not attack unless they are provoked or clearly have the upper hand. If approached with gifts, they may provide information in return.

Native Pirate Canoes: One to six (roll 1D) pirate canoes approach, each containing four Lizard-men. They will immediately attack, and attempt to kill or capture the characters.

Native Raiding Party: Twenty armed Lizard-man warriors are intent upon raiding a human settlement. They will immediately attack the characters, and attempt to kill or capture them.

Native Trading Barge: This barge is a large (by Venusian standards) merchant barge with 12 crewmembers, a merchant, and six guards. They will react with caution but are willing to listen to any reasonable proposition.

Native Trading Party: One or two village headmen, 20 porters, and 12 guards comprise this party of Lizard-men. They are bound for the human enclaves to barter rare plants for trade goods. They will not attack, and offer to take the party to the enclave in return for an introduction and a recommendation.

WILDERNESS ENCOUNTERS		WILDERNESS ENCOUNTERS	
<i>Terrain</i>	Marsh	Bog	Highlands
<i>Encounter #</i>	1	3	2
<i>Die Roll</i>	<i>Encounter Type</i>		
1	Native Fishing Boats	(Roll 2D.)	Native Hunting Party
2	Native Trading Barge	Giant Carnivorous Plant	Native Raiding Party
3	Native Pirate Canoes	Brontosaurus	Native Trading Party
4	Brontosaurus	Carnosaurus	Native Trading Party
5	Tyrannosaurus	Stegosaurus	Pacyosaurus
6	Pterodactyl	Ceratopsian	Pterodactyl
7		Hadrosaurus	
8		Pterodactyl	
9		Native Hunting Party	
10		Native Trading Party	
11		Native Raiding Party	
12		Tyrannosaurus	

WILDERNESS ENCOUNTERS		WATER ENCOUNTERS	
<i>Terrain</i>	Mountain	Ocean	Shallow Sea
<i>Encounter #</i>	1	1	2
<i>Die Roll</i>	<i>Encounter Type</i>		
1	Lost European	Plesiosaurus	Plesiosaurus
2	Native Trading Party	Ichthyosaurus	Ichthyosaurus
3	Native Trading Party	Giant Turtle	Native Fishing Boats
4	Native Raiding Party	Giant Octopus	Native Fishing Boats
5	Native Raiding Party	Giant Crocodile	Native Trading Barge
6	Pterodactyl	"Sea Serpent"	Native Pirate Canoes

VENUSIAN WEATHER EFFECTS TABLE

<i>Die Roll</i>	<i>Weather</i>	<i>Visibility</i>	<i>Land</i>	
			<i>Travel</i>	<i>Storm</i>
1	Clear	Unlimited	No Effect	None
2	Overcast	1 mile	No Effect	None
3	Mist	800 yards	No Effect	None
4	Drizzle	400 yards	No Effect	Mild
5	Rain	200 yards	Halved	Mild
6	Torrent	50 yards	Prohibited	Severe

VENUSIAN WEATHER

TO OBTAIN the initial weather condition for an adventure, if it is not given in the scenario, roll a die and consult the Venusian Weather Effects Table. Then, when a 6 is rolled for the daily encounter, a change of weather is indicated. Roll a die. On a roll of 1-3, the current weather level goes down one level; on a 4-6, it goes up one level. If it is already at the top or bottom of the scale, then any weather change result automatically moves it one level in the opposite direction. The six weather levels on Venus are clear, overcast, mist, drizzle, rain, and torrential rain (torrent).

Weather Effects: All weather conditions affect visibility and land travel, and have a storm rating, as shown on the Venusian Weather Effects Table. Visibility will indicate the maximum visibility possible in the condition. Land travel either will not be affected, its speed will be halved, or land travel will not be allowed. Storm effects will either be mild storm or severe storm. Storms are almost continuous on Venus.

STORMS AT SEA

STORMS ARE an inconvenience for oceangoing ships but can be disastrous for man-powered ships. On Venus all torrential rain counts as a severe storm, while all rain and drizzle count as a mild storm.

Oceangoing ships are unaffected by mild storms. An oceangoing steamships' speed is reduced by 100 miles per day in a severe storm. Sailing ships are blown one hex in a random direction (roll a die) by a severe storm. If this puts them in a land hex, the captain rolls Sailing Vessel Piloting skill dice for a Difficult task to avoid grounding. If the ship grounds in a severe storm, it is sunk, and the passengers and crew are shipwrecked.

Man-powered vessels may be sunk by a storm. Roll the captain's Sailing Vessel Piloting skill dice for a Moderate task to avoid sinking in a mild storm and for a Formidable task to avoid sinking in a severe storm.

If the players' ship sinks, they will lose all belongings that were onboard, but will cling to wreckage and avoid drowning. They will be washed ashore somewhere at the referee's discretion and be in considerable difficulty.

STORMS AND AIR TRAVEL

ZEPPELINS ARE also vulnerable to storms. A Zeppelin cannot easily land and wait out the storm, since it is nearly as vulnerable on the ground as in the air. To escape damage while flying, roll the pilot's Zeppelin Piloting dice for a Moderate task in a mild storm—Difficult in a severe storm. If the Zeppelin is secured at a normal landing site, no damage will be taken. If the Zeppelin is landed in the open, make the skill roll but reduce the difficulty by one. If the roll fails, the Zeppelin crash-lands, damaged beyond repair.

Pilots of gliders and aeroplanes avoid damage to their aircraft by rolling Aerial Flyer Piloting dice for an Easy task in a mild storm—Moderate in a severe storm. If the task roll is failed, the craft crash-lands, damaged beyond repair. Gliders and aeroplanes on the ground are not damaged by storms to any extent.

ANIMAL CHART: Venus

Type	#App	Size	Move	Wnds	Save	Wt (lbs)	Weapons
Marine Life							
Plesiosaurus	1D×1	2×6	W20	30	1	20 tons	Teeth (1, 2, 1, 3), Tail (1, 1, 3, 3)
Ichthyosaurus	1	1×6	W30	25	—	10 tons	Teeth (2, 2, 0, 3)
Giant Turtle	1	3×6	W10	30	2	40 tons	Teeth (1, 2, 1, 6)
Sea Serpent	1	1×10	W20	25	1	20 tons	Teeth (1, 2, 1, 4)
Giant Octopus	1	3×3	W10	15	—	5 tons	Tentacles (8, 2, 3, 6), Stinger (1, 2, 0, 1)
Giant Crocodile	1	2×6	W10	25	1	10 tons	Teeth (1, 2, 1, 3), Tail (1, 1, 3, 2)
Predators							
Pterodactyl	1D×1	2×2	F30	1	—	35	Talons (2, 3, 1, 1)
Tyrannosaurus	1	2×4	L16	40	1	40 tons	Teeth (2, 2, 2, 6), Tail (1, 2, 3, 3), Crush (1, 1, 3, 6)
Carnosaurus	1D×1	1×3	L24	20	—	5 tons	Teeth (3, 2, 0, 3), Tail (1, 2, 3, 1), Crush (1, 1, 1, 4)
Plant Eaters							
Brontosaurus	1D×1	2×6	L10	40	1	40 tons	Teeth (1, 2, 2, 3), Tail (1, 2, 3, 3), Crush (1, 1, 1, 6)
Ceratopsian	1D×3	2×4	L10	30	2	20 tons	Horns (1, 2, 3, 3), Crush (1, 1, 1, 6)
Stegosaurus	1	2×3	L10	25	1	10 tons	Tail (2, 2, 3, 3), Crush (1, 1, 1, 6)
Hadrosaurus	1D×2	1×3	L16	15	—	8 tons	Horns (1, 2, 2, 2)
Pacyosaurus	1D×1	1×2	L30	10	—	1500	Horns (1, 2, 2, 1)
Carnivorous Plants							
Giant Carnivore	1	3×3	—	10	—	1000	Tentacles (10, 2, 3, 1), Stinger (1, 1, 0, 1)

STANDARD ANIMAL CHART NOTES

THESE NOTES apply to the Venus Animal Chart above.

Number Appearing: A fixed number or a multiple. A general suggestion, not a hard-and-fast rule.

Size: The number of two-yard grid squares the animal occupies in combat (the area that is effectively blocked by its presence). Given in squares wide×squares long.

Move: The number of yards the animal moves in one action at top speed. Unless fleeing or charging, the animal will usually move half this speed or less. Land (L), water (W), or flight (F) movement is indicated.

Wounds: The number of wounds it takes to kill the animal.

Save: This is the animal's save number against melee attacks, and it is added to (or subtracted from) the save number of any missile weapon which hits it.

Weight: The weight of an average full-grown example of the animal (in pounds). Ten percent is edible meat if the animal is killed for food.

Weapons: Weapons with which the animal may attack and their combat values. These combat values are, in order: number of hit dice rolled, required hit number, reach, and wound value of the weapon.

ANIMAL CHART: Luna

Type	#App	Size	Move	Wnd	Save	Wt (lbs)	Weapons
Lunar Rat	1D×1	Tiny	L10	1	—	2	Teeth (1, 1, 0, 1)
Lunar Bat	Swarms	1×1	F40	1	—	2	Swarm (8, 1, 0, 1)
Caterpillar	1	1×3	L10	10	1	1000	Fangs (2, 2, 0, 1), Coils (—, —, —, 4)

STANDARD ANIMAL CHART NOTES

Number Appearing: A fixed number or a multiple. A general suggestion, not a hard-and-fast rule.

Size: The number of two-yard grid squares (squares wide×squares long) the animal occupies in combat (the area that is effectively blocked by its presence).

Move: The number of yards the animal moves in one action at top speed. Unless fleeing or charging, the animal will usually move half this speed or less. Land (L), water (W), or flight (F) movement is indicated.

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Weight: The weight of an average full-grown example of the animal (in pounds). Ten percent is edible meat if the animal is killed for food.

Weapons: Weapons with which the animal may attack and their combat values. These combat values are, in order: number of hit dice rolled, required hit number, reach, and wound value of the weapon.

ANIMAL CHART: Earth

Type	Size	Move	Wnd	Save	Wt (lbs)	Weapons
Horse	1×2	L60	6	—	1000	Hooves* (2, 2, 1, 1)
Mule	1×2	L40	4	—	800	Hooves* (2, 2, 1, 1)
Camel	1×2	L40	5	—	1200	—
Ox	1×2	L20	8	—	1500	Horns (1, 2, 2, 1)
Elephant	2×3	L20	20	1	3 tons	Horns (1, 2, 2, 1), Crush (1, 1, 3, 5)

*Attack as a claw attack.

EARTH WEATHER EFFECTS TABLE

Die Roll	Weather	Visibility	Land Travel	Storm
2-4	Clear	Unlimited	No Effect	None
5-7	Overcast	1 mile	No Effect	None
8	Mist	800 yards	No Effect	None
9-10	Drizzle	400 yards	No Effect	Mild
11-12	Rain	200 yards	Halved	Mild
Special	Torrent	50 yards	Prohibited	Severe
Special	Windstorm	50 yards	Prohibited	Severe

EARTH WEATHER

TO OBTAIN a starting weather condition, roll 2D6 and consult the table above. When a 6 is rolled for the daily encounter, the weather changes. Roll a die. If a 1 is rolled, a storm has come up. Roll again to determine its severity. On a 1-4, it is a mild storm; on a 5-6, a severe storm. The referee may choose the appropriate type of mild or severe storm weather. If a 5-6 is rolled, roll again. If a 1-3 is rolled, shift the weather condition down one level in severity; if a 4-6 is rolled, shift the weather up one level, but never beyond rain. If the weather is already at the top (rain) or bottom (clear) of the scale, the weather automatically shifts in the opposite direction. Windstorm is a special type of severe storm which may be substituted for torrential rain as the referee sees fit. After a windstorm, the weather level automatically drops to overcast.

EARTH WEATHER EFFECTS

THE REFEREE should reasonably adjust weather effects for the locale and time of year on Earth. All weather conditions affect visibility and land travel, and have a storm rating. Visibility indicates the maximum visibility possible. Land travel either will not be affected, land speed will be halved, or land travel will not be allowed. Storm effects will be mild storm or severe storm.

Storms and Air Travel: Liftwood flyers seldom venture out in a storm, as the turbulence of the air tips the craft, causing it to lose trim. To fly and retain trim in a mild storm, roll the trimman's Trimman dice for a Moderate task—Formidable in a severe storm. Failure of the roll means the craft has lost trim and plummeted to the ground. The trimman rolls to recover trim at one difficulty level higher than before. If he fails, the craft crash-lands, damaged beyond repair. If he succeeds, it lands safely, but he decides the storm is too difficult to continue in, and he will wait out its passing (or not make another attempt that day).

Zeppelins are vulnerable to storms, and cannot easily land and wait out a storm, since they are nearly as vulnerable on the ground. To escape damage while flying, roll the pilot's Zeppelin Piloting dice for a Moderate task in a mild storm—Difficult in a severe storm. If the Zeppelin is secured at a normal landing site, no damage will take place. If it is landed in the open, make the skill roll but reduce the difficulty level by one. If the task is failed, the Zeppelin crash-lands, damaged beyond repair.

Pilots of gliders and aeroplanes avoid damage to their craft by rolling Aerial Flyer Piloting dice for an Easy task in mild storms—Moderate in severe storms. If the task fails, the craft crash-lands, damaged beyond repair. Gliders and aeroplanes on the ground are not often damaged by storms.

Storms at Sea: Mild storms do not affect oceangoing ships. An oceangoing steamship's speed is cut by 100 miles a day in severe storms. Sailing ships are blown one hex in a random direction (roll 1D). If this puts a ship on land, the captain rolls Sailing Vessel Piloting dice for a Difficult task to avoid grounding. If a ship grounds in a severe storm, it sinks. All aboard are shipwrecked.

Man-powered vessels may be sunk by a storm. Roll the captain's Sailing Vessel Piloting skill dice for a Moderate task to avoid sinking in a mild storm—Formidable in a severe storm.

If the players' ship sinks, they will lose all belongings onboard, but will cling to wreckage and avoid drowning. They will be washed ashore somewhere at the referee's discretion and will be in considerable difficulty.

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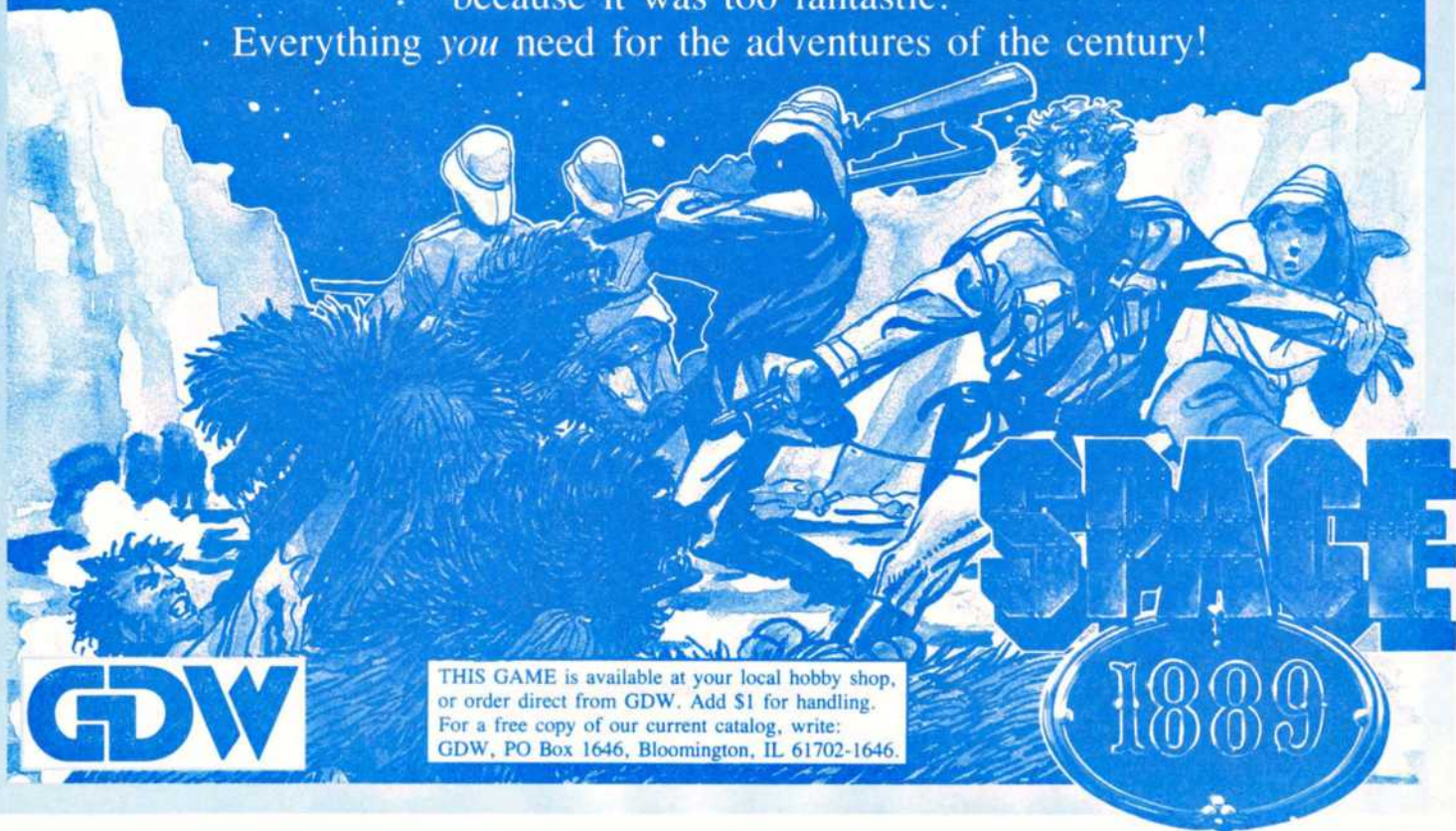
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