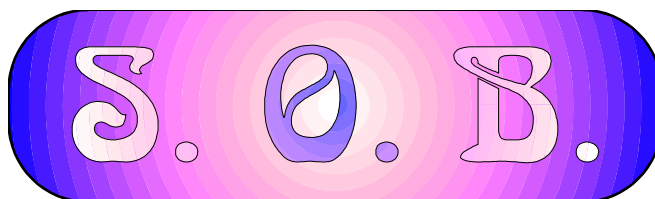


Number 165

October, 2010



Notes from Hades

Shortly after the last issue came out, I left for Geneva for two weeks. I arrived early on a Sunday morning, and joined with a colleague to take a train trip to Vevey, which is about three quarters of the way to the other side of Lake Geneva. It is also the headquarters of Nestle. We had lunch there, walked around the town a bit, and took the funicular up to the top of the hill to the north of the town, giving us a nice view out over the lake. By the time we were coming back, jet lag was catching up with me, but the effort to stay awake that long did help get me acclimated pretty well.

The first week, our meetings took place at the headquarters of the International Air Transport Association (IATA), which is right at the airport in Geneva. In fact, our conference room looked out over the runway, which was quite interesting at times. There was even a time when a plane landed and was immediately ringed by fire trucks as all the passengers were offloaded. We never did find out why.

On the Saturday between the meetings, I and a couple of other colleagues took a boat trip to Yvoire, which is a small medieval town on the French side of the lake. It was a very pleasant trip. We had lunch there, and then walked through the town, which didn't take long at all. The town is very small.

The second week was jam-packed with meetings, so I didn't get to do much else in the way of sightseeing.

The next deadline is **Tuesday, November 2 at 5:00 p.m. Pacific Time. Please do not call or fax orders after 10:00 p.m. Pacific time.** My wife and I tend to retire early. Also, if you want to fax in orders, call first. We hang up on unannounced faxes.

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Game Openings

Purebred. Machiavelli. Have Ward Narhi, Bob Robles, Pasquale Giovine, Dave Partridge, and Walt O'Hara, Mike Scott, Kevin Wilson, Jerry Roalstad,. This game is full.

Golden Retriever. Seafarers of Catan. Have Chris Geggus, Dave Partridge, Dave Hooton, Mike Scott. Will take up to 2 more.

Rottweiler. Industrial Waste. Have Andy York, Dave Partridge, Eric Brosius, Richard Weiss. This game is full.

Pick of the Litter. Silverton. Will start after Hunter ends. Have Dave Partridge, and Dave Hooton, Paul Bolduc, will take up to 3 more.

Wish List

Kremlin. Will start after Pateel ends. Have Walt O'Hara, Mike Scott, Bob Robles. Will take up to 3 more.

Outpost. Will start after Basset ends. Have Eric Brosius, Andy York, Andy Lewis, Dave Hooton, Dave Partridge, will take up to 5 more.

Goa. Have Brad Martin, Dave Partridge, will take up to 2 more.

Power Grid. Players will have the choice of 10 maps and several deck options. Have Dave Hooton, Dave Partridge, will take up to 3 more.

Phoenicia. A game similar to Outpost set in ancient times. Have Cary Nichols, Andy York, Dave Partridge, will take up to 7 more.

Age of Renaissance. This will use the EuroGames rules. Have Paul Bolduc, Chris Geggus, Bob Robles, will take up to 3 more.

Puerto Rico. Will start after Plantation Dog ends. Have Dave Partridge, will take up to 4 more.

Machiavelli. This game will start after the next Machiavelli game finishes. Have Bob Robles, will take up to y more.

Gunboat Machiavelli. This game will start after the second Machiavelli game finishes. Will take up to 8.

In general, game ownership is recommended, but not required.

Note that a subscription to S.O.B. is not required to play in a game run by flier, but that a game fee will be charged to non-subbers.

S.O.B. is a zine of unusual postal games, and anything else I feel like including. Your publisher is:

Chris Hassler a.k.a. Cerberus

2000 S. Armour Court

La Habra, CA 90631

Phone: (562) 690-7827, Fax: (562) 690-7827

chassler@roadrunner.com

On the Web at: <http://www.sob-zine.org>

Subscriptions cost \$2.50 per issue (\$3.75 overseas).

Barking Up the Wrong Tree

Spring 1257

Miller Number 2007Bpw10

Advanced Rules, Natural Disasters, Special Military Units, Conquest, Gray Press, Ultimate Victory

Deadline Summer 1257 11/2, Tuesday

Aragon and the Pope settle their differences and advance northward to counter the Milanese tide. Venice and Florence also try to counter, but plague takes the biggest toll.

Expenditures

Florence spends 12 ducats to disband Milan A Lucca

Orders

ARAGON (Scharf): F CORSICA supports F Tyrrhenian Sea, F Sardinia to GULF OF LIONS, F TYRRHENIAN SEA transports Papal A Salerno to Pisa (imp.), F Ionian Sea to CENTRAL MEDITERRANEAN, F Lower

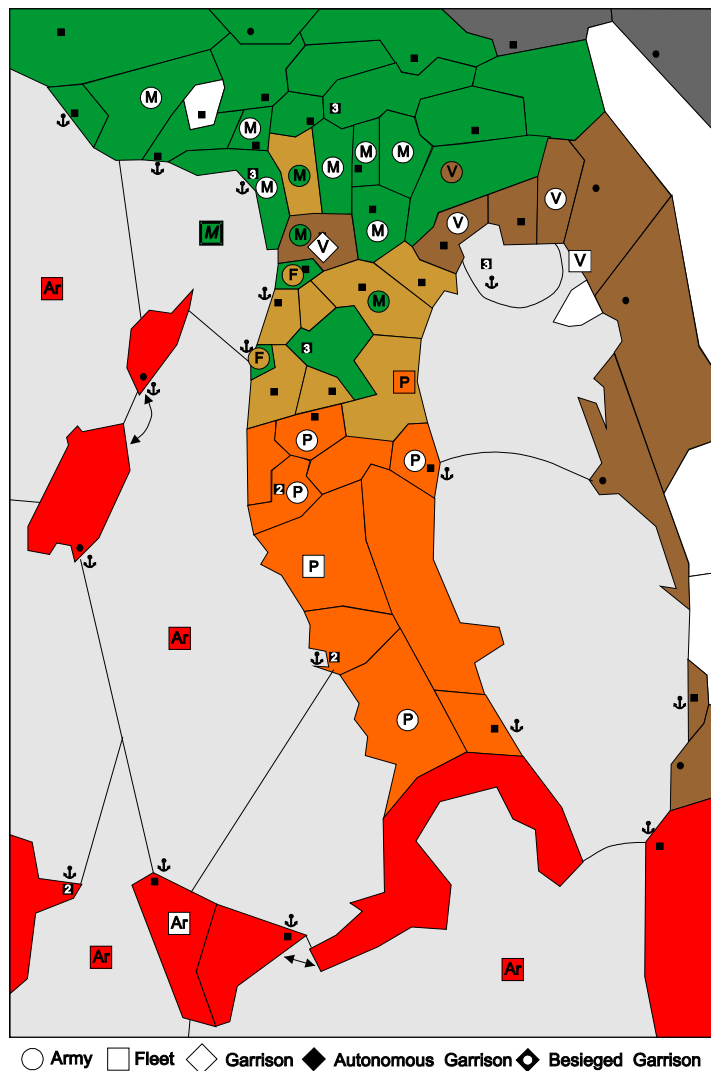
Adriatic to IONIAN SEA

FLORENCE (Whyte): A Bologna to LUCCA, A Pisa to PIOMBINO, A FERRARA to Mantua, A Fornova to Parma (DESTROYED)

MILAN (Renken): A MARSEILLES holds, A PROVENCE holds, A GENOA to MODENA, A PARMA supports A Pavia to FORNOVA, A Mantua to BOLOGNA, A Bergamo to MANTUA, A Verona to Ferrara (Dislodged, retreat Trent, Treviso, BERGAMO, OTB), A Carinthia to SLAVONIA, A Lucca supports A Mantua to Bologna (nsu), A FLORENCE supports A Mantua to Bologna, A SAVOY to MONTFERRAT, A Pavia to FORNOVA, A Milan to CARINTHIA, A CREMONA supports A Bergamo to Mantua, *F (EM) LIGURIAN SEA supports A Genoa to Modena*, G GENOA convert to A

PAPACY (Robles): A Rome to PERUGIA, A Capua to ROME, A Aquila to ANCONA, A SALERNO to Pisa, F Ancona to URBINO, F Naples to CAPUA, F BARI holds (u)

Barking Up the Wrong Tree



VENICE (Partridge): A Padua to VERONA, A FRIULI supports A Padua to Verona, F CARNIOLA supports A Friuli, G MODENA holds converts to A, G PADUA converts to A

Press

Florence: Damn, the inevitability of demise in a central position...

Pope – All: That green monster is pretty scary!

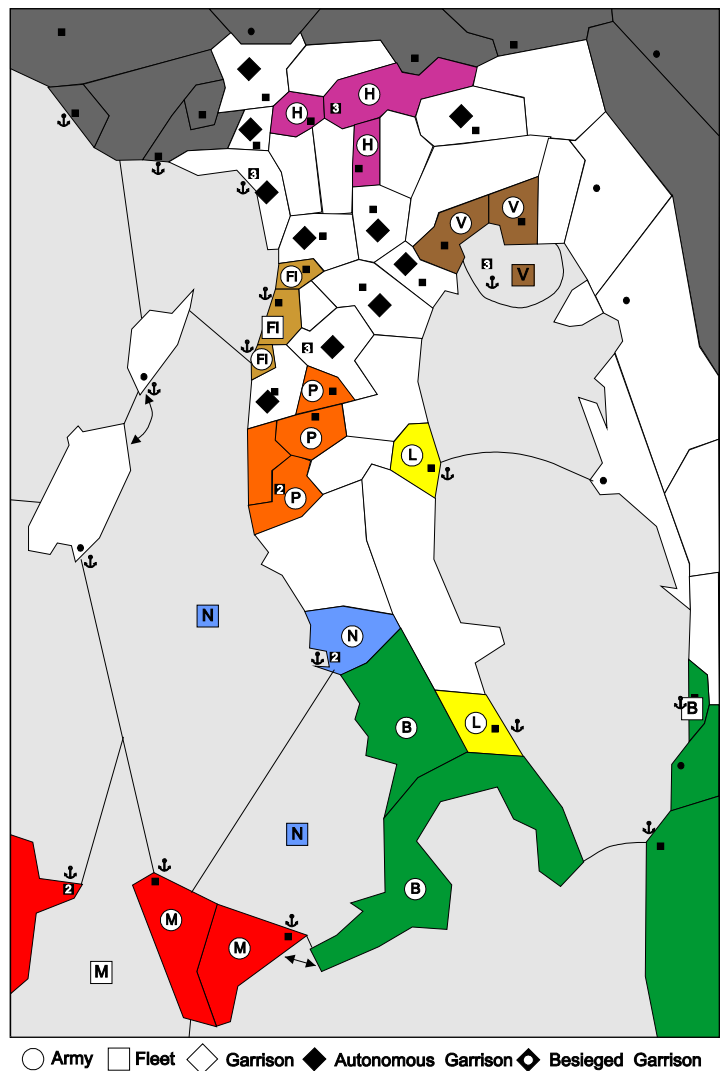
Notes

Since the only place that the Milan army in Verona can retreat to where it will not be destroyed by famine is Bergamo, I will assume the retreat will be to there.

Summer 1257 Plague

Bad Year – Row and Column: Ragusa, Bosnia, Slavonia (Milan army eliminated), Croatia, Bari (Papal fleet eliminated), Tyrolea, Marseilles (Milan army eliminated), Carinthia (Milan army eliminated), Ferrara (Florence army eliminated), Milan, Florence (Milan army eliminated), Otranto, Corsica (Aragon fleet eliminated)

Bolognese



Bolognese**Gamestart****Miller Number 2010?????****Advanced Rules, Special Military Units, Conquest, Gunboat, Gray Press, Ultimate Victory****Deadline for Spring 1051 11/2, Tuesday****The Positions**

Byzantines ☐:	A Salerno, A Otranto, F Ragusa, 6 ducats
Holy Roman Empire ☐:	A Milan, A Pavia, A Cremona, 5 ducats
Normans ☐:	A Naples, F Tyrrhenian Sea, F Gulf of Naples, 4 ducats
Papacy ☐:	A Rome, A Perugia, A Arezzo, 3 ducats
Pisa ☐:	A Lucca, A Piombino, F Pisa, 4 ducats
Venice ☐:	A Padua, A Treviso, F Venice, 6 ducats
Muslims:	A Palermo, A Messina, F Central Mediterranean
Lombards:	A Ancona, A Bari
Autonomous Garrisons:	Turin, Montferrat, Genoa, Trent, Mantua, Modena, Ferrara, Bologna, Florence, and Sienna

The box will be checked for the country you are playing.

Notes

This scenario received the most first place votes (3). As for the optional rules, Natural Disasters and Moneylenders deadlocked with 3 for and 3 against, so neither one will be used. Special Military Units had 5 votes in favor and Conquest had 6, so both will be used. Gray press was the consensus, with 3 first place votes. Finally, Ultimate Victory conditions was unanimously selected, so we are playing to 18 cities. Remember, that the Lombards and the Muslims are considered inactive. If their units are displaced, they will retreat off the board. The house rules are available on the website. If you have any other questions, feel free to ask. And so, without further ado, I'll let you get on with your dagger work.

Robover**Turn 16****Turn 17, 11/2 Tuesday****Program Robots**

Robot	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
DizzyBot	Rotate Right (320)	Rotate Right (100)	Rotate Right (300)	Move 2 (750)	U-Turn (10)
Slambot 9000	Shut down				
Jeeves	Move 1 (640)	Rotate Right (420)	Move 2 (780)	Move 1 (600)	Rotate Left (350)
THX 1139	Shut down				
Dalekbot	Rotate Left (250)	<i>Move 3 (840)</i>	<i>Move 2 (760)</i>	<i>Move 1 (560)</i>	<i>Move 1 (540)</i>
Narbot	Rotate Left (210)	Move 2 (690)	Move 1 (590)	Rotate Left (230)	<i>Rotate Left (170)</i>
100% Robotomy	Shut down				
Protomax	Rotate Left (410)	Rotate Left (70)	U-Turn (30)	<i>Move 3 (830)</i>	<i>Move 2 (710)</i>

Locked registers are in italics.

Phase 1

Jeeves moves ahead 1 to C5, Protomax rotates left to face north, Dizzybot rotates right to face east, Dalekbot rotates left to face north, and Narbot rotates left to face west. Jeeves shoots THX 1139, and Protomax shoots THX 1139 with the Pressor Beam, moving it to D4.

Phase 2

Dalekbot dashes ahead 3 to I4, Narbot moves ahead 2 to I8, hitting the wall, Jeeves rotates right to face south, DizzyBot rotates right to face south, and Protomax rotates left to face west.

Phase 3

Jeeves moves ahead 2 to C7, Dalekbot moves ahead 2 to I2, Narbot moves ahead 1, hitting the wall, DizzyBot rotates right to face west, and Protomax makes a U-turn to face east. The conveyor belt moves Dalekbot to H2. DizzyBot fires at Protomax (register 5 locked), Protomax fires the Pressor Beam at DizzyBot, moving it back to G6 (archive relocated), and the on board laser fires at Dalekbot, locking register 1.

Phase 4

Protomax dashes ahead 3 to G6 (archive relocated), moving DizzyBot to H6, DizzyBot moves ahead 2 to F6 (archive relocated), pushing Protomax to E6, Jeeves moves ahead 1 to C8, Dalekbot moves ahead 1 to H1, and Narbot rotates left to face south. DizzyBot fires at Protomax (register 4 locked), Protomax fires the Pressor Beam at DizzyBot, pushing it back to G6 (archive relocated), and the on board laser fires at Dalekbot, destroying it.

Phase 5

Protomax moves ahead 2 to G6 (archive relocated), pushing DizzyBot to H6, Jeeves rotates left to face east, Narbot rotates left to face east, and DizzyBot makes a U-turn to face east. Protomax fires the Pressor Beam at DizzyBot, moving it to I6.

Cleanup

Protomax is repaired one point (register 4 unlocked) and has Fire Control installed. Dalekbot reappears in I7 in any desired facing.

Players

#	Player Name	Robot Name	Color	Options	Position	Flags	Lives	Damage
1	Dave Partridge	DizzyBot	Blue	Crab Legs, Conditional Program	I6>E	1	2	4
2	Bill Scharf	Slambot 9000	Pink		F2>E	1	1	0
3	Chris Geggus	Jeeves	Yellow		C8>E	1, 2	3	2
4	Dave Hooton	THX 1139	White	Double-Barreled Laser, Radio Control, High-Power Laser	D4>E	1	2	1

5	Andy York	Dalekbot	Silver		I7>?	1	1	2
6	Ward Narhi	Narbot	Red	Fourth Gear	I8>E		3	5
7	Michael Longdin	100% Robotomy	Dark Green	Scrambler	D3>E	1, 2	1	0
8	Cary Nichols	Protomax	Green	Pressor Beam, Fire Control	G6>E		2	5

Your Program Cards:

Husky

Turn 7, Phase 2

Turn 7, Phases 3 through 5, 11/2 Tuesday

Players

Order	Player Name	Company Name	Color	Power Plant 1	Power Plant 2	Power Plant 3	Cities	Money
5	Michael Longdin	100% Power Mad	Green	04 Coal 2→1 (2)	24 Trash 2→4	30 Trash 3→6	7	90
4	Dave Hooton	Volkisch Tzapverein (VoIT)	Orange	25 Coal 2→5 (2)	22 Eco X→2	32 Oil 3→6 (3)	7	103
3	Dave Partridge	Spewing Massive Olid Gasses (SMOG)	Red	15 Coal 2→3	27 Eco X→3	33 Eco X→4	8	80
1	Andy York	Deutsches Elektrisch Arbeit Direktor (DEAD)	Yellow	21 Hybrid 2→4	11 Nuclear 1→2	29 Hybrid 1→4	9	99
2	Brad Martin	Renewable Energy Matters (REM)	Blue	10 Coal 2→2	28 Nuclear 1→4 (1)	16 Oil 2→3	9	75

Phase 2, Power Plant Bidding

DEAD passes

plant 14 drawn.

REM bids 16 for power plant 16 and gets it. Power plant 18 drawn.

VoIT passes

SMOG bids 15 for power plant 15 and gets it, discarding power plant 13. Power **100% Power Mad** passes

Power Plant Market

Current Market

12 Hybrid 2→2

14 Trash 2→2

17 Nuclear 1→2

18 Eco X→2

Future Market

23 Nuclear 1→3

31 Coal 3→6

34 Nuclear 1→5

35 Oil 1→5

Fuel

Price	1	2	3	4	5	6	7	8	10	12	14	16
Uranium						1	1	1	1	1	1	1
Trash			1	3	3	3	3	3				
Oil	1	3	3	3	3	3	3	3				
Coal		3	3	3	3	3	3	3				

Pateel

Turn 5 Funeral Commission through Parade

Turn 6 Cure through Health, 11/2 Tuesday

Funeral Commission

Niewitko nominates Goferbok as the new Party Chief. Niewitko, Goferbok, and Wasolin vote yes, Zenjarplan and Nikotin vote no, and Schukrutoff abstains.

Goferbok is confirmed.

Replacement Phase

Schukrutoff advances to KGB Head by age, and Zenjarplan advances to Defense Minister by age. J becomes Industry Minister by age and T becomes Economy Minister by age. O, P, and U become Candidates by age.

Politburo

Office	Policitian	Condition	Influence
Party Chief	Alexej Goferbok (C)	81, ++	1 (PaH), 9 (KMFC)
KGB Head	Lech Schukrutoff (B)	75, +	
Foreign	Petr Niewitko (D)	74, +, weak	1 (PaH)
Defense	Tigran Zenjarplan (Q)	70	3 (BBC), 8 (Fin), 8 (TCC)
Ideology	Victor Wasolin (Z)	53	5 (KMFC)
Industry	Antonj Talksallott (J)	67	
Economy	Mikail Strychnin (T)	67	
Sport	Turi Nikotin (R)	61, weak	7 (TCC), 7 (Fin), 2 (ZF)

Rehabilitation Phase

None Shootemdedsky, Zenjarplan, Schukrutoff, and Nikotin abstain. Palavarian is acquitted. Goferbok closes the investigation on Wasolin and ages to 79

Parade Phase

Goferbok attempts to wave (dr = 15) and succeeds. Ages to 81.

Candidates:

M, N, O, P, U

People:

V, W, Y

Siberia:

L (68), F, X (61, ++), I

Kremlin Wall:

A, E, S, K, H, G

Players

Player

Bob Robles

Ward Narhi

Pasquale Giovine

Mike Scott

Bill Scharf

Brad Martin

Faction Name

Karl Marx Fan Club

Finlandia

Bolshevics Born in Calabria

The California Connection

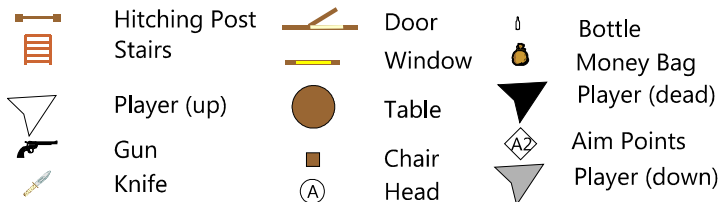
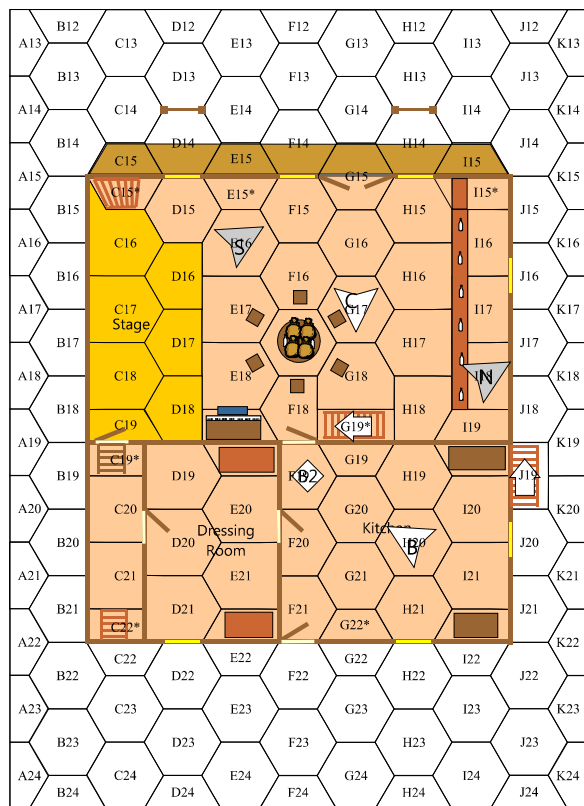
People are Heroes

Zapadniye Front

Intrigue CardsUndeclared Influence**Frontier Dog**

Turn 11

Turn 12, 11/2 Tuesday

Frontier DogSegment 1

Old Man: Card (5) – Get Up (climb ladder), turn 1 of 3
Shaggy: Card 1 – Advance (straight ahead to G16), turn 1 of 2
Banker: Delay
Smith: Delay
NCO: Delay

Segment 2

Old Man: Card (5) – Get Up (climb ladder), turn 2 of 3
Shaggy: Card 1 – Advance (straight ahead to G16), turn 2 of 2
Banker: Card 1 – Advance (straight ahead to H20), turn 1 of 2
Smith: Delay
NCO: Delay

Segment 3

Old Man: Card (5) – Get Up (climb ladder), turn 3 of 3

Shaggy: Card 2 – Run (straight ahead to G17), turn 1 of 1, gains 2 delay points.

Banker: Card 1 – Advance (straight ahead to H20), turn 2 of 2

Smith: Card 9 – Draw and Cock (C45c to Gun Hand), turn 1 of 3

NCO: Card (3) – Turn (ahead left to face J18) turn 1 of 1

Segment 4

Old Man: Card (3) – Turn (straight ahead) turn 1 of 1

Shaggy: Delay

Banker: Card 5 – Cock/Aim/Shoot (aim at G19), turn 1 of 2

Smith: Card 9 – Draw and Cock (C45c to Gun Hand), turn 2 of 3

NCO: Card 1 – Advance (ahead left to I18), turn 1 of 2

Segment 5

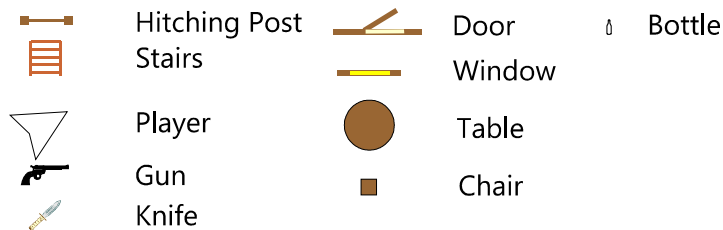
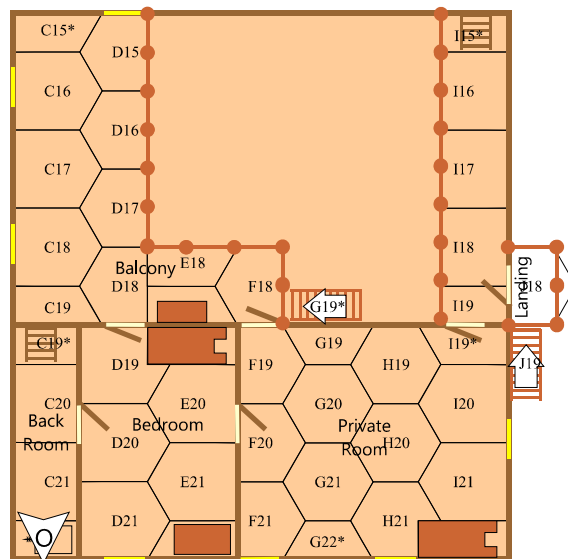
Old Man: Pass

Shaggy: Delay

Banker: Card 5 – Cock/Aim/Shoot (aim at G19), turn 2 of 2

Smith: Card 9 – Draw and Cock (C45c to Gun Hand), turn 3 of 3

NCO: Card 1 – Advance (ahead left to I18), turn 2 of 2, gains 2 delay points

**Frontier Dog
Second Story**

Shaggy loses 1 delay point. At the start of Turn 4, Smith draws cards 13, 75, and 39, for the SERIOUS 3, resulting in 3 delay points.

End of Turn

Smith loses 1 delay point, NCO loses 2 delay points, Banker loses 1 delay point,

Westerners

Side	Player	Character	Location	Bonus Cards	Skills	Delay	Endurance	Comments
A	Paul Bolduc	Old Man (O)	UC22*>UC22	5, 7, 8	BR +1		25	
B	Andy Lewis	Shaggy (C)	G17>G18			1	20	
C	James Pratt	Banker (B)	H20>G20				20	2 AIM at F19
D	Mike Scott	Smith (S)	E16>F15	8	BR +2	4	4	SERIOUS 3, DOWN
E	Chris Geggus	NCO (N)	I18>J17	9	BR +1	2	16	DOWN

Weapons

Character	Holstered	Gun Hand	Other Hand	Both Hands	Ammo
Old Man	Knife	Empty	Empty	C36c, cocked	C36c: △△△△⊗⊗
Shaggy	Knife	C45, cocked	Empty	Empty	C45: OO⊗⊗⊗⊗
Banker	None	SW45, cocked	Empty	Empty	SW45: OOOOOO
Smith	Knife	C45c, cocked	Empty	Empty	C45c: △△△△△△
NCO	SBR	C41, uncocked	Empty	Empty	C41: OOO⊗⊗⊗

Procyon

Turns 13.5 through 15.5

Turns 15.6 through 17.6, 11/2 Tuesday

Turn 13

5th: Chris Geggus (Niks/Ganymede Enterprises Going South) Rolls Used: 1 6

Open Port – Whale Port(o) – A – NC1 – TeleGate 2 – TeleGate 1 – Y – ?
(it's a B20 penalty marker).

6th: Dave Partridge (Whynoms/Venus-Orion Oligarch Merchantile) Rolls

Used: 4 5

Airhome – A – (R10) – A – A – TeleGate 1 – TeleGate 5 – Space Station.

Sells Immortal Grease for \$100 (from the cup: Demand for Grease at 7b).

Buys Designer Genes for \$60.

Turn 14

1st: Andy Lewis (Humans/Mystery Machine 5) Rolls Used: 1 1 5

Cobble Port(s) – Cobble Port(p).

Buys Factory for \$100 and Pedigree Bolts for \$100. Gains \$20 in port commissions and \$50 in factory commissions.

2nd: Paul Bolduc (Dell/Not for Hire) Rerolls the 2, becomes a 5. Rolls Used: 5 * 3

R – B – Y – B – R – B – Y – NC5 – B30 – Comfort Station(o) – B – R – B – R – Cobble Port(p).

Sells Visible Holes for \$170 (from the cup: Melf Pelts at 5). Mystery Machine 5 receives \$17 in port commissions.

3rd: Bob Robles (Eepeeep/Bender's Freedom Brigade) Rolls Used: 3 5 6

Jellybeast Landing(s) – Jellybeast Landing(o) – A – TeleGate 3 – TeleGate 5 – Space Station Planet.

4th: Andy York (Qossuth/Qossuth Entrepreneur Division) Rolls Used: 5 * 3

Cobble Port(s) – Cobble Port(p) – R – B – R – B – Y – B – R – Galactic Base.

Delivers Fare for \$110 (from the cup: Finest Dust at 4a). Trades in Needle for Scow plus \$220. Picks up Fare

5th: Chris Geggus (Niks/Ganymede Enterprises Going South) Rolls Used: 5 6

B20 – (R30) – ? (it's a B30 penalty marker) – (R) – Airhome – Y – B – (R) – Y20 – Y10 – (R) – A – Open Port.

Sells Mulch Wine for \$60 plus \$80 demand (from the cup: Voll Silk at 1b and Immortal Grease at 6). Sells Mulch Wine for \$60 plus \$40 demand (from the cup: Designer Genes at 9a and Space Spice at 2). Buys 2 Melf Pelts for \$100.

6th: Dave Partridge (Whynoms/Venus-Orion Oligarch Merchantile) Rolls

Used: 1 2

Space Station.

Sells Immortal Grease for \$100 (from the cup: Servo-mechanism at 7b). Sells

Immortal Grease for \$100 (from the cup: Designer Genes at 9a). Buys 2

Designer Genes for \$120.

Turn 15

1st: Andy Lewis (Humans/Mystery Machine 5) Rolls Used: 6 6 6

Cobble Port (p) – R – B – R – B – Y – B – R – Galactic Base.

Drops off Fare for \$180 (from the cup: Immortal Grease at 6). Trades in Scout for Transport plus \$210.

2nd: Paul Bolduc (Dell/Not for Hire) Uses Mulligan Gear: 2 becomes 1, Rolls Used: 2 * 3

Cobble Port(p) – NC2 – Y – B – R – Jewel Port(o) – B.

3rd: Bob Robles (Eepeeep/Bender's Freedom Brigade) Rolls Used: 2 3 3

Space Station – TeleGate 5 – TeleGate 2 – NC3 – A – Wet Landing(o) – Wet Landing(s).

Sells Bionic Perfume for \$140 plus \$60 demand (from the cup: Demand for Grease at 9a and Demand for Liquor at 9a).

4th: Andy York (Qossuth/Qossuth Entrepreneur Division) Rolls Used: 3 5

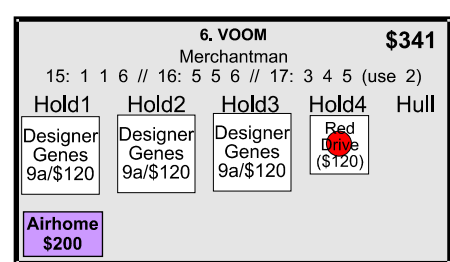
Galactic Base – NC5 – TeleGate 6 – TeleGate 5 – Space Station.

Delivers Fare for \$110 (from the cup: Mulch Wine at 3). Sells Servo-mechanism for \$300 (from the cup: Megalith Paperweight at 9b). Buys Designer Genes for \$60.

5th: Chris Geggus (Niks/Ganymede Enterprises Going South) Rolls Used: 5 5

Open Port – A – (R) – Y10 – Y20 – (R) – B – Y – Airhome.

Sells Melf Pelts for \$110 plus \$50 demand (from the cup: Immortal Grease at 6 and Designer Genes at 9a). Sells Melf Pelts for \$110 (from the cup: Impossible Furniture at 8). Trades in the IOU plus \$100 to buy the Factory. Buys Shining Slime for \$100 and 2 Immortal Grease for \$100. Fare jettisoned (from the cup: Rock Videos at 4b). Recieves \$50 in factory commission. VOOM receives \$67 in port commissions.



4a (Dell): Demand for Mulch Wine (+\$60), 4 Finest Dust

4b (Humans): 3 Demand for Space Spice (+\$40), 3 Rock Videos, Demand for Bionic Perfume (+\$60), Gate Lock Relic

4c (Wraiths): Demand for Bionic Perfume (+\$60), Demand for Voll Silk (+\$60), 3 Visible Holes

5 (Shenna): Nothing

6 (Yxklyx): Fare to 4b (\$120), Demand for Visible Holes (+\$70)

7a (Zum): 5 Chicle Liquor, 3 Demand for Finest Dust (+\$50)

7b (Eeepeeep): 2 Demand for Immortal Grease (+\$50), 2 Demand for Finest Dust

(+\$50), 1 Servo-mechanism

8 (Whynoms): 4 Impossible Furniture, Demand for Chicle Liquor (+\$60)

9a (Chola): 2 Demand for Chicle Liquor (+\$60), 1 Demand for Immortal Grease (+\$50), 1 Designer Genes

9b (Wollow): 4 Megalith Paperweight, Demand for Impossible Furniture (+\$70), Fare to 5 (\$110)

10 (Qossuth): Demand for Designer Genes (+\$60), 4 Psychotic Sculpture

Base: None

Basset

Turn 9

Turn 10, 11/2 Tuesday

Commander Actions

Little Green Men opens the bidding on an Orbital Lab at 50 and MMC gets it for 64 (Wa6, Wa10, Ti9, Ti13, Mi16) Opens the bidding on a Warehouse at 25 and gets it for 30 (MWa).

MMC passes.

Lowreyville buys a titanium factory (MWa) and a population factor (Or1, Ti9).

Cosmic Nomads buys a water factory (Or5, Wa7, Wa8) and moves a population factor from an ore factory to man it.

HOB0 buys a water factory (Or2, Or4, Or4, Or5, Wa5) and moves a population

factor from an ore factory to man it.

ShaggyMobile opens the bidding on an Outpost at 100 and gets it (Or2, Or4, Or4, MWa, MWa, HE discounts). Moves a population factor from an ore factory to man the titanium factory.

BarterTown opens the bidding on Robots at 50 and gets it (Wa6, Wa7, Wa8, Ti8, Ti10, Ti11)

HBDC passes

The Players

	Outpost Name	Commander	Factories	Upgrades	VP
1	MMC	Eric Brosius	OrF, OrF, WaF, WaF, WaF, TiF, TiF	HE, No, 2OL	16
2	Lowreyville	Michael Lowrey	OrF, OrF, WaF, WaF, WaF, WaF, TiF, TiF	No, HE, Sc	15
3	Little Green Men	Dave Partridge	OrF, OrF, WaF, WaF, WaF, WaF, WaF	No, Ec, Wa	15
4	ShaggyMobile	Andy Lewis	OrF, OrF, WaF, WaF, WaF, WaF, TiF	2HE, Wa, Ou	14
5	BarterTown	Andy York	OrF, OrF, WaF, WaF, WaF, WaF, TiF, TiF	HE, Ro	11
6	Cosmic Nomads	Cary Nichols	OrF, OrF, WaF, WaF, WaF, WaF, WaF	2DL, No, Wa	10
7	HOB0	Dave Hooton	OrF, OrF, WaF, WaF, WaF, WaF	No, DL, Wa	9
8	HBDC	Kevin Wilson	OrF, OrF, WaF, WaF, WaF, WaF, WaF	2DL, Wa	8

HBDC is Heavenly Bodies Development Corporation. MMC is Mud Mining Corporation. HOB0 is High Orbit Biological

Available Upgrades

Production Cards

New Arrivals: Outpost, Outpost, Orbital Lab, Ecoplants

Upgrade	Minimum Bid	Available	Not Yet Delivered
Scientists (Sc)	40	0	4
Orbital Lab (OL)	50	1	2
Robots (Ro)	50	0	4
Laboratory (La)	80	3	2
Ecoplants (Ec)	30	1	3
Outpost (Ou)	100	3	1

Lowreyville, LGM, ShaggyMobile, and HBDC took MegaWater cards.

Hunter

Turn 6, Phases IV – VI, Turn 7, Phases I - III

Turn 7, Phases IV – VI, Turn 8, Phases I - III, 11/2 Tuesday

Turn 6

Errata

I mistakenly allowed Brown to prospect passenger line 11 last turn, despite the fact that he does not have a complete line to Grand Junction. I have reversed that this turn.

Operations

Red (Nichols) gains \$130 in passenger revenue.

Orange (Hooton) gains \$140 in passenger revenue.

Green (Longdin) operates #108 (\$40, 1 copper), #107 (\$50, 1 copper), #116 (\$30, 1 lumber), and #102 (\$40, 1 silver). Receives \$60 in passenger revenue.

Brown (Partridge) operates #25 (\$60, 1 gold) and #68 (\$20, 3 coal). Delivers 1

coal to Salt Lake City for \$60. Receives \$20 in passenger revenue.

Blue (Scharf) operates #92 (\$40, 3 coal) and #49 (\$40, 3 silver). Delivers 4 coal to Pueblo for \$240. Buys a 24 train for \$200.

Aqua (Narhi) NMR! Gains \$90 in passenger revenue.

Determine Price Changes

Gold: Remains at \$250

Copper: Remains at \$140

Silver: Remains at \$200

	Denver	Salt Lake City	Pueblo	Santa Fe	El Paso
Lumber:	+3 to \$200	+1 to \$300	-1 to \$40	Remains at \$30	Remains at \$200
Coal:	+2 to \$140	-1 to \$60	Remains at \$60	Remains at \$120	Remains at \$100

Turn 7Move Prospectors and Surveyors**Red** (Nichols) surveys Canon City to Cripple Creek and Alamosa to Antonito, no prospecting**Orange** (Hooton) surveys Colorado Springs to Pueblo, prospects #57**Green** (Longdin) surveys Carrizozo to Torrance and Santa Rita to Pinos Altos, prospects #109**Brown** (Partridge) surveys Mack to Grand Junction and Thistle to Salina, prospects #26.**Blue** (Scharf) surveys Manitou Junction to Denver, no prospecting**Aqua** (Narhi) NMR! No prospecting or surveyingDispute Resolution

No disputes. Red spends \$220, Orange spends \$140, Green spends \$380, Brown spends \$340, Blue spends \$120, and Aqua spends \$0.

Notes**Will Eric Brosius please submit standby orders for Aqua!**The Players

Player	Color	Starting Location	Money	Trains	Snowplows	Personnel
Cary Nichols	Red	Denver	\$410	9, 15		S, S, P
Dave Hooton	Orange	Denver	\$380	9		S, S, P
Michael Longdin	Green	El Paso	\$550	9, 15		S, S, P
Dave Partridge	Brown	Salt Lake City	\$1,315	9		S, S, P
Bill Scharf	Blue	Pueblo	\$240	9, 15, 24		S+1, S, P
Ward Narhi?	Aqua	Santa Fe	\$110	9		S, S, P

Purchased Claims

#	City	Owner	Type	Goods	Operation
47	Ouray	Orange	Silver	N	\$40
57	Boulder	Orange	Lumber	N	\$20
108	Lordsburg	Green	Copper	8	\$40
99	White Oaks	Green	Gold	6	Depleted
107	Santa Rita	Green	Copper	6	\$50
116	Pinos Altos	Green	Lumber	2	\$30
102	Hillsboro	Green	Silver	1	\$40
109	Pinos Altos	Green	Copper	N	\$20
35	Heber City	Brown	Silver	3	Depleted
25	Bingham	Brown	Gold	1	\$60
68	Scofield	Brown	Coal	7	\$20
26	Marysvale	Brown	Gold	N	\$40
92	Raton	Blue	Coal	11	\$40
49	Silverton	Blue	Silver	3	\$40
120	Cuba	Aqua	Coal	4	Depleted
106	Cuba	Aqua	Copper	2	\$30

Purchased Passenger Lines

#	Type	Route	Payoff	Owner	Notes
3	A	Denver – Colorado Springs	\$50	Red	
5	A	Denver – Pueblo	\$80	Red	
1	A	Denver – Boulder	\$20	Orange	
9	B	Denver – Leadville	\$120	Orange	
4	A	El Paso – Deming	\$60	Green	
2	A	Salt Lake City – Provo	\$20	Brown	
6	A	Santa Fe – Albuquerque	\$90	Aqua	

Available Claims

#	City	Type	Claim	Operation
113	Porter	Lumber	\$60	\$30

#	City	Type	Claim	Operation
119	Farmington	Coal	\$80	\$40
115	Paxton Springs	Lumber	\$100	\$40
63	Lumberton	Lumber	\$160	\$50
60	Pagosa Springs	Lumber	\$40	\$20
58	Dolores	Lumber	\$140	\$40
31	Cripple Creek	Gold	\$320	\$80
76	Craig	Coal	\$80	\$20

Claims in italics are under first right of refusal.

Available Passenger Lines

#	Type	Route	Payoff	Cost	Notes
8	A	Denver – Leadville	\$260	\$500	Discard after 4 Leadville depletions
21	C	Salt Lake City – Colorado Springs	\$600	\$930	
13	B	El Paso – Santa Fe	\$140	\$320	
10	B	Denver – Aspen	\$130	\$250	
12	B	Pueblo – Grand Jct.	\$150	\$310	Discard when 20 is taken. Good for \$150 toward card 20 or 21
11	B	Salt Lake City – Grand Jct.	\$140	\$310	Discard when 20 is taken. Good for \$140 toward card 20 or 21
16	B	Salt Lake City – Grand Jct.	\$250	\$465	Discard when 22 is

#	Type	Route	Payoff	Cost	Notes
					taken. Good for \$250 toward card

Available Trains

Type	# Available	Cost
9	0	\$80
15	3	\$120
24	7	\$200.00

#	Type	Route	Payoff	Cost	Notes
7	A	Pueblo – Santa Fe	\$120	\$280	22

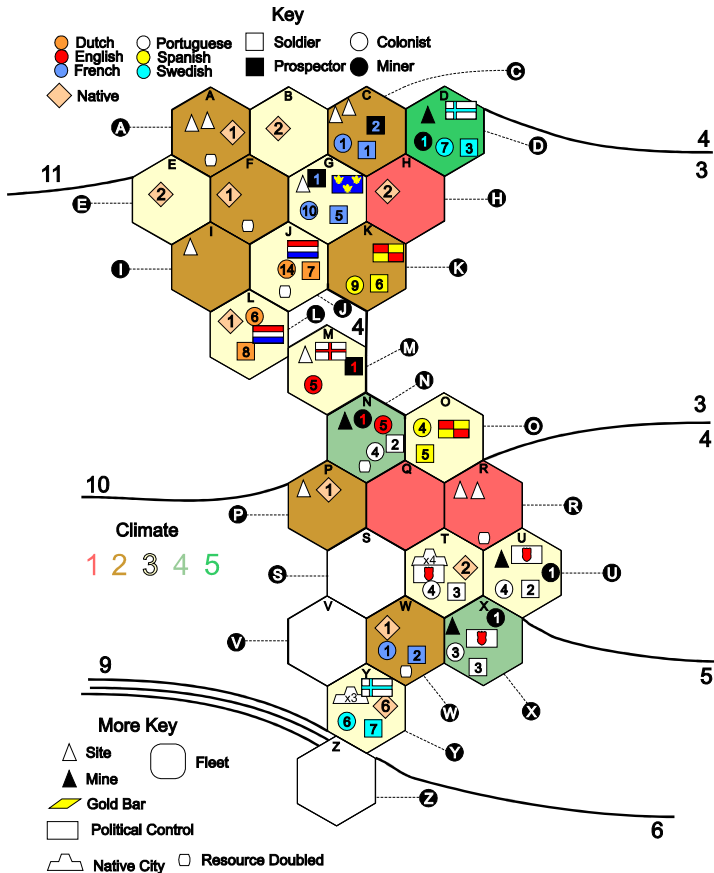
Available Snowplows

Type	# Available	Cost
Die +2	3	\$40
Die +3	4	\$80.00

Boston Terrier

Turn 7

Turn 8, 11/2 Tuesday

Planning

Spanish maintain 6 ships (\$24) and buy 6 soldiers (\$60) for \$84.
Swedes maintain 4 ships (\$16), buys 2 ships (\$24) and 8 soldiers (\$80) for \$120.
Portuguese maintain 4 ships (\$16) for \$16.
English maintain 4 ships (\$16), buy 1 ship (\$12), and 5 soldiers (\$60) for \$88.
Dutch maintain 4 ships (\$16) and buy 2 soldiers (\$20) for \$36.
French maintain 4 ships (\$16) and buy 4 soldiers (\$40) for \$56.

Outbound Naval Movement

Spanish Move to): 1, 4, 4. Loses 1 soldier.
Swedes Move to Y: 1, 1, 1, 2, 6. Loses 2 soldiers.
Portuguese Move to U: 3, 3, 4, 6. No losses.
English Move to N: 4, 4, 4, 5. No losses.
Dutch Move to J: 4, 4, 5, 6. No losses
French Move to W: 1, 1, 3, 3, 5. Loses 2 colonists and 2 soldiers.

Mining

Swedes mine 1 gold in D. English mine 1 gold in N. Portuguese mine 1 gold each in U and X.

Discovery

No new discoveries.

Land Movement

Spanish move 4 colonists and 5 soldiers from fleet to O.
Swedes move 1 gold bar from D to anchorage dot and 4 colonists and 6 soldiers from fleet to Y.
Portuguese move 1 gold bar from U to anchorage point, 1 gold bar from X to anchorage point, 4 colonists and 3 soldiers from U to T, 1 colonist and 3 soldiers from X to T, 4 colonists from fleet to U.
English move 1 gold bar from N to fleet, 4 colonists and 6 soldiers from fleet to N.
Dutch move 1 colonist from J to L, 1 soldier from L to I, 1 soldier from J to I, and 4 colonists and 2 soldiers from fleet to J.
French move 2 colonists and 2 soldiers from fleet to W (it's a resource rich climate 2 area with 1 native). 1 soldier in G and 2 soldiers in C prospect.

Combat

Portuguese attack English in N: Portuguese lose 2 soldiers and English lose 4 soldiers. **English** attack Portuguese in N. Each lose 1 soldier.

Native Combat

Dutch: 1 soldier and 1 native killed in L, 2 natives killed in I. **Portuguese:** 3 soldiers and 3 natives killed in T.

Native Uprisings

Climate is a 5. No uprisings

Survival

Climate is a 3.

French loses 1 colonist each in C and W. **Swedes** lose 1 soldier in Y. **Dutch** lose 2 soldiers in I. **Spanish** lose 1 colonist each in K and O and 1 soldier in R. **English** lose 1 soldier each in N and M. **Portuguese** lose 1 colonist in T and 1 soldier in U.

Political Control

Portuguese gain political control over T and lose political control over N. Swedes gain political control over Y. Spanish gain political control over O.

Homebound Naval Movement

Spanish: Dice: 1, 1, 6. No losses.
Swedes: Move to D: 2, 2, 5. No losses, picks up gold. Dice: 3, 6, 6. No losses.
Portuguese: Move to X: 2, 5. No losses, picks up gold. Dice: 1, 2, 3, 6, 6. Loses 2 ships with 2 gold.
English: Dice: 1, 2, 6, 6. No losses.
Dutch: Dice: 2, 3, 4, 5. No losses.
French: Dice: 2, 3, 4, 5, 6. No losses.

Income

Spanish: Political Control: \$90, resources: \$26.
Swedes: Political Control: \$90, Gold: \$40, resources: \$26.
Portuguese: Political Control: \$120, resources: \$38.

English: Political Control: \$60, Gold: \$40, resources: \$30.

Dutch: Political Control: \$90, resources: \$68.

French: Political Control: \$60, resources: \$26.

Turn 8 Initiative

Spanish, Dutch, Portuguese, English, French, Swedes

Portuguese attitude is (dr = 7 + 1) Exploration.

Players

Country	Player	Money	Available Soldiers	Ships	Colonists
English	Andy York	\$389	9	5	3
French	Andy Lewis	\$183	7	4	4
Swedes	Dave Partridge	\$211	8	6	4
Spanish	Bob Robles	\$426	2	6	4
Dutch	Dave Hood	\$396	2	4	4
Portuguese	Non-Player	\$543	5	2	4

Dogbreath

Epoch II Assyrians, Chou Dynasty, Vedic City States, and Greek City States

Epoch II, Scythians, Carthaginia, Persia, 11/2 Tuesday

Marching Through the Ages (Lewis) plays Disaster (Tidal Wave) in Eastern Anatolia (Monument and city destroyed). Plays North American Migrants in West Indies and Great Plains. ASSYRIA: Army and Capital Upper Tigris, army Eastern Anatolia (vs. Babylonians; A: 6, 5; B: 6, 1; A: 5, 2; B: 2, 1; wins), Western Anatolia (vs. Minoans; A: 5, 4; M: 4; wins), Balkans, Levant (vs. Babylonians; A: 5, 4; B: 5; A: 6, 1; B: 6; A: 6, 6; B: 4; wins), Palestine, Nile Delta (vs. Egypt; A: 4, 4; E: 5; loses), Nile Delta (vs. Egypt; A: 4, 1; E: 4; A: 5, 2; E: 6; loses). Points: Dominance in Middle East (6), Presence in India (2), Southern Europe (2), 2 Capitals (4) for 14 points.

Time Traveler (Anderson) CHOU DYNASTY: Plays Population Explosion. Army and Capital Wei River, army Szechuan, Irrawaddy, Ganges Delta, Yangtze Kian, Yellow River (vs. Shang Dynasty; C: 5, 1; S: 4; wins, Capital reduced to city), fort Irrawaddy, Yellow River. Points: Dominance in China (4), Presence in

India (2), Southern Europe (2), 2 Capitals (4), 1 Sea (1), 1 city (1) for 14 points.

VEDIC CITY STATES are absent.

Great Explorers Grabbing Samples (Geggus) plays Phoenicia. Army and Capital Levant (Assyrian army retreats to Upper Tigris), fleet Eastern Mediterranean (vs. Time Traveler; GEGS: 6, 4; TT: 3; wins), army Crete (vs. Minoans; P: 3, 1; M: 6+1, 5+1, loses). GREEK CITY STATES: Army and Capital Morea, army Pindus, A Balkans (vs. Assyria; G: 5, 1; A: 4, 2; wins), fleet Black Sea, army Nile Delta (vs. Egypt; G: 5, 2; E: 4, 3; wins, Capital reduced to city), Danubia, Central Europe, fleet Western Mediterranean, army Southern Iberia, Baltic Seaboard.

Builds Monument Morea. Points: Dominance in India (4), Southern Europe (4), Presence in North Africa (2), Middle East (3), China (2), 2 Capitals (4), 1 city (1), 3 Seas (3), and 2 Monuments (2) for 25 points.

Players

Player Name	Player Faction Name/Color	Empire Strength Points	Victory Points
Kevin Wilson	Royal Manticoran Historical Society (purple)	4	9
Dave Partridge	The Questioner (green)	4	4
Paul Bolduc	Arachnids (blue)	5	13
Dave Anderson	Time Traveler (orange)	10	19
Andy Lewis	Marching Through the Ages (red)	12	20
Chris Geggus	Great Explorers Grabbing Samples (yellow)	14	31

Positions

SUMERIANS: Capital and three armies Lower Tigris.

Arachnids: EGYPT: Armies Nubia, Libya.

Time Traeler: MINOANS: Army, Capital, and fort Crete. CHOU DYNASTY: Army and Capital Wei River, army, city, and Fort Yellow River, army and Fort Irrawaddy, armies Yangste Kian, Szechuan, Ganges Delta.

Marching Through the Ages: INDUS VALLEY: Army and Capital Lower Indus, army Persian Salt Desert, Western Deccan, Western Ghats. ASSYRIA: Two armies and Capital Upper Tigris, armies Eastern Anatolia, Western Anatolia, Palestine.

Royal Manticoran Historical Society: BABYLONIANS: Army, Capital, and Monument Middle Tigris, army Zagros.

The Questioner: SHANG DYNASTY: Armies Great Plain of China, Chekiang, Si-Kyang.

Great Explorers Grabbing Samples: Fleets Western Mediterranean, Eastern Mediterranean, Black Sea. ARYANS: Army and Monument Tarim Basin, armies Turanian Plain, Persian Plateau, Hindu Kush, Upper Indus, Ganges Plain, Eastern Deccan. PHOENICIA: Army and Capital Levant. GREEK CITY STATES: Army, Capital, and Monument Morea, army, city, and Monument Nile Delta, armies Pindus, Balkans, Danubia, Central Europe, Baltic Seaboard, Southern Iberia.

Epoch II Empire

Event Cards

Plantation Dog

Turn 3

Turn 4, 11/2 Tuesday

Turn 3

Richard selects the Captain, gains 2 doubloons, and has nothing to ship, Andy Y. ships 2 sugar on Ship 3 for 2 VP, Andy L. ships 1 corn on ship 2 for 1 VP, Paul passes, Chris ships 1 indigo on Ship 1 for 1 VP, and Andy Y. ships 2 corn on ship 2 for 2 VP.

Andy Y. selects the Trader and gains 2 doubloons. No trading possible.

Andy L. selects the Settler and selects a Quarry, drawing a Corn plantation via the Hacienda, Paul takes a Quarry, Chris takes a Corn plantation, Richard takes a Corn plantation, and Andy Y. takes a Tobacco plantation.

Paul selects the Mayor, populating a Quarry and the Indigo Plant, Chris populates the Aqueduct, Richard populates the Quarry, Andy Y. populates Corn plantation, and Andy L. populates the Quarry

Chris selects the Builder, and builds the Black Market (2 doubloons minus Builder bonus minus Quarry) for 0 doubloons, Richard builds a Coffee Roaster (6 doubloons minus Quarry) for 5 doubloons, Andy Y. builds a Small Sugar Mill for 2 doubloons, Andy L. passes, and Paul builds a Small Sugar Mill (2 doubloons minus Quarry) for 1 doubloon.

The Players

Player Name	Role	Plantations	Buildings	San Juan	Doubloons	Stored Production	VP
Paul Bolduc	Mayor	Indigo , Indigo, Quarry , Quarry	Connection Hut , Indigo Plant (1) , Small Sugar Mill		0		
Chris Geggus	Builder	Indigo , Quarry , Tobacco, Corn	Indigo Plant (1) , Aqueduct , Black Market		1		1
Richard Weiss	Captain	Indigo, Coffee , Quarry , Corn	Small Market , Coffee Roaster		0		
Andy York	Trader	Corn , Sugar , Sugar, Tobacco	Sugar Mill (1) , Small Sugar Mill		0		4
Andy Lewis	Settler	Corn , Coffee, Coffee, Indigo, Corn, Quarry	Hacienda , Storehouse		2		1

Player in bold is the Governor for next turn. Plantations and buildings in bold are manned. Buildings that can be manned by more than one colonist will have the number manning them in parentheses after the building name.

Available Items

Colonists: Supply: 70 Colonist Ship: 7 **Trading House:** Empty **Victory Points:** 116
Cargo Ships: Ship 1 (capacity 6): 1 Indigo Ship 2 (capacity 7): 3 Corn Ship 3 (capacity 8): 2 Sugar

Commodities

Corn: 8 **Indigo:** 10 **Sugar:** 9 **Tobacco:** 9 **Coffee:** 9

Buildings

Column 1	Column 2	Column 3	Column 4
Small Indigo Plant (1d, 1VP) (x4)	Indigo Plant (3d, 2VP)	Tobacco Storage (5d, 3VP) (x3)	Guild Hall (10d, 4VP)
Small Sugar Mill (2d, 1VP) (x2)	Sugar Mill (4d, 2VP) (x2)	Coffee Roaster (6d, 3VP) (x2)	Residence (10d, 4VP)
	Hospice (4d, 2VP)	Factory (7d, 3VP)	Fortress (10d, 4VP)
	Guesthouse (4d, 2VP)	Lighthouse (7d, 3VP)	Customs House (10d, 4VP)
	Office (5d, 2VP)	University (8d, 3VP)	City Hall (10d, 4VP)
	Large Market (5d, 2VP)	Harbour (8d, 3VP)	Cloister (10d, 4VP)
	Church (5d, 2VP)	Library (8d, 3VP)	Statue (10d, 8VP)
Forest House (2d, 1VP)	Trading Post (5d, 2VP)	Specialty Factory (8d, 3VP)	
	Small Wharf (6d, 2VP)	Union Hall (9d, 3VP)	
Small Warehouse (3d, 1VP)	Large Warehouse (6d, 2VP)	Wharf (9d, 3VP)	

Roles

Builder, Captain (2d), Craftsman, Mayor, Prospector (1d), Prospector, Settler, Trader (2d)

Plantations

Quarry (x5), Forest (x12), Sugar, Coffee, Corn, Sugar, Indigo, Coffee

Discard Pile: Tobacco, Tobacco, Indigo, Indigo, Indigo, Indigo, Tobacco, Tobacco

Pedagoguery

One of the puzzling aspects of our universe is how carefully tuned it appears to support life. Many physical constants seem finely tuned. For example, if gravity were significantly stronger, the universe would have collapsed in upon itself long before now. If it were significantly weaker, stars would not have been able to form and the universe would consist of a thin gas of hydrogen. Often times, this fine tuning was “explained” via the anthropic principle: if the universe were not turned to support life, we would not be here to comment on that fact. However, modern speculation on the possibility of a multiverse has led to conjectures on different sets of physical laws that would support life. The key is to potentially

manipulate more than one physical parameter at a time. Below I present a couple of possibilities that have been developed, and how those universes would look.

In our universe, there are four fundamental forces: gravity, electromagnetism, and the strong and weak nuclear forces. You are both no doubt familiar with gravity and electromagnetism. The strong nuclear force is what holds quarks together to form baryons, and baryons together to form atomic nuclei. The weak nuclear force is more subtle. It moderates the transformation of neutrons into protons and vice versa. It is key in the processes of nuclear fusion in stars. The first step is generally when two protons collide, and the weak nuclear

force operates to transform one of them into a neutron. It would appear that all four forces are necessary for life to exist, for without the process of nuclear fusion in stars, heavier elements like carbon, on which life depends, would not be possible. However, it is possible to describe a universe lacking the weak nuclear force where life is possible.

In such a “weakless” universe, you would have to tweak the initial matter/antimatter abundance in such a way that neutrons are more abundant at the start. Since neutrons could not decay into protons, as they do in our universe, that initial abundance of neutrons would remain. As such, a much greater abundance of deuterium (a hydrogen nucleus containing one proton and one neutron) would be formed in the initial nucleosynthesis. Stars would generate energy by the fusion of hydrogen and deuterium, which produces less energy than the fusion of hydrogen alone. As a result, stars would be smaller and dimmer. Carbon could still be formed, by a couple of different mechanisms. First of all, hydrogen and deuterium would form helium-3, and two helium-3 would produce helium-4 plus two protons. A second mechanism would be the direct fusion of two deuterium nuclei into helium-4. Once helium-4 is produced, the same mechanism that exists in our universe, the triple-alpha reaction, could form carbon-12. However, due to the lack of a way to produce free neutrons, elements heavier than iron would be virtually absent. There might be minute traces of elements up to strontium, but nothing heavier.

In our universe, there are two types of supernovae, essential for spreading the products of stellar fusion out into the universe. They are core-collapse and runaway fusion supernovae. A core collapse supernova would not be possible in a weakless universe, since in our universe, it depends on the massive production of neutrinos to stall the infalling matter and push it outward. Neutrinos are a product of the weak nuclear force. Instead, only runaway fusion supernova would be possible. This is the type that is produced when a white dwarf accretes enough matter to push it over the Chandrasekhar limit, generating a runaway fusion reaction in the star that blows it apart.

So, a weakless universe would conceivably support life. How about another scenario? A different group of scientists has examined the relationship between the masses of different quarks. In our universe, there are only two types of quarks with relatively small mass: the up and down quark. The up quark has a charge of $+2/3$ while the down quark is about twice the mass of the up quark and has a mass of $-1/3$. A proton is made up of two ups and one down, while a neutron is made up

of two downs and one up. Computing the mass of the resulting baryon is not trivial, since the bulk of the mass is made up of the mass energy of the gluon cloud that surrounds each quark, but the result is the fact that the neutron is about 0.1% heavier than the proton, meaning that protons are stable, but neutrons decay into protons. What if the relative masses were changed? There are a couple of different possibilities.

If the mass of the down quark is slightly lighter than that of the up quark, then a proton would be about 0.1% heavier than a neutron. Thus, the lightest form of hydrogen would be deuterium, since a bare proton would decay into a neutron. In such a universe, it would be possible to form carbon, oxygen, and other heavier elements, so life would be possible.

What if we add a third quark to the mix? The next lightest quark in our universe is the strange quark, which is much like a down quark. If the strange and up quarks have about the same mass and the down quark is much lighter, then instead of protons and neutrons being the fundamental baryons, it would be neutrons and something called a sigma, which is made up of two downs and a strange quark. It would have a charge of -1 , so in that universe, the equivalent of electrons would be positively charged. So, hydrogen in that universe would be a sigma particle with a positive electron. Heavier elements would be possible as well, allowing life to exist.

Other combinations of quarks do not work out so well. For example, if the up quark is the only light quark, then only one baryon is stable – the delta particle, made up of three up quarks and with a charge of 2. No heavier elements are possible. Likewise, if the up, down, and strange quarks all have relatively the same mass, then there are eight possible baryonic particles possible, but none of them can combine with each other to form heavier nuclei, so life is not possible in either of these scenarios.

There are other thought experiments out there, and this does not address all of the fine tuning in our universe. For example, none of them explain why the cosmological constant in our universe is so small. If it is too large and positive, the universe expands too fast for structures like stars to form, if it is too large and negative, the universe collapses in on itself in a tiny fraction of a second. Continued investigation into our physical laws may shed additional light on these mysteries.

Next time, some of the mysteries of star formation.



Addresses

Dave Anderson 20832 Tuck Rd., Site 32 Farmington Hills, MI 48336 (248) 473-7482 ravenclawnerdz@sbcglobal.net andersond4@michigan.gov	Dennis Cain "Red Dog" 1218 N. 3 rd St. Quincy, IL 62301-1727 (217) 223-2284 iamthedbear@sbcglobal.net	Dale Horsely dale.horsely@yahoo.com Tom Howell "Whippet" 365 Storm King Road Port Angeles, WA 98363 off-the-shelf@olympus.net (360) 928-9698 Robert Koehler rkoehler@triad.rr.com Andy Lewis "Marmaduke" 16 Gossling Dr. Lewes, DE 19958 Alewis161@hom.com (302) 644-1984 Michael Longdin michasel.longdin@virgin.net Michael Lowrey 6903 Kentucky Derby Drive Charlotte, NC 28215 Mlowrey@infionline.net (704) 569-4269 Brad Martin 180 Peninsula Road Maylands 6051 Western Australia Australia Westfront@hotmail.com Lynn Mercer hancockfc@yahoo.com	Ward Narhi 521 Moreley Akron, OH 44320 lurkertv@hotmail.com (330) 835-4013 Cary Nichols 756532-938 South FM1673 Snyder, TX 79549-8812 Walt O'Hara hussar@hotmail.com Dave Partridge 15 Woodland Drive Brookline NH, 03033 rebhuhn@rocketmail.com James Pratt prattjames1960@yahoo.com Berend Renken P.O. Box 249 Roy, WA 98580-0249 berend02@aol.com Paul Risner 10325 NW 63rd Dr. Parkland, FL 33076 goeben@aol.com Jerry Roalstad Gerald.roalstad@ang.af.mil Bob Robles "Howler" 67 Tara Rd. Orinda, CA 94563 Rlroble5@comcast.net (510) 254-6354	Bill Scharf "Doge" 4814 Walnut Grove Ave. Rosemead, CA 91770 (626) 286-4428 bear-hugs@sbcglobal.net Mike Scott 4040 E. Piedmont Dr. Space 61 Highland, CA 92346 mikesmag2@jsbcglobal.net (909) 864-4343 Gina Teh lone_hammy@yahoo.com.sg Richard Weiss Rcweiss@cox.net Brendan Whyte 448 Suriyat Road Ubon Ratchathani 34000 Thailand obiwonfive@hotmail.com Kevin Wilson 4758 Doncaster Ct. Long Grove, IL 60047 ckevinw@comcast.net Andrew York "Greyhound" P.O. Box 201117 Austin, TX 78720-1117 wandrew88@gmail.com
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Standbys

Anybody who gets onto my standby list automatically receives one free issue of *S.O.B.* In addition, if you actually submit standby orders, you get another free issue. So, let's get those people standing by. The current standby list is:

Machiavelli (gunboat and regular): Steve Koehler, Bill Scharf, Bob Robles, Mike Scott, Ward Narhi, Paul Bolduc, Pasquale Giovine, Andy York, Cary Nichols, Lee McConnell, Dave Partridge, Dale Horsely, Brad Martin **Dune:** Steve Koehler, Paul Bolduc, Kevin Wilson, Ward Narhi, Andy York, Cary Nichols, Bill Scharf, Dave Partridge, Brad Martin **New World:** Andy York, Bill Scharf, Cary Nichols, Dave Partridge, Brad Martin **Merchant of Venus:** Paul Bolduc, Carrie Lewis, Bob Robles, Andy York, Cary Nichols, Dave Partridge **Outpost:** Michael Lowrey, Kevin Wilson, Andy York, Cary Nichols, Bill Scharf, Dave Partridge, Brad Martin **History of the World:** Andy Lewis, Paul Bolduc, Kevin Wilson, Chris Geggus, Andy York, Cary Nichols, Dave Partridge, Brad Martin **Stellar Conquest:** Paul Bolduc, Kevin Wilson, Andy York, Cary Nichols, Dave Partridge, Brad Martin **Liftoff!:** Dennis Cain, Andy York, Cary Nichols, Bill Scharf, Dave Partridge, Brad Martin **Age of Renaissance:** Bob Robles, Michael Lowrey, Cary Nichols, Dave Partridge, Michael Longdin, Brad Martin **Kremlin:** Andy York, Andy Lewis, Pasquale Giovine, Cary Nichols, Bill Scharf, Dave Partridge, Michael Longdin, Brad Martin **Silverton:** Cary Nichols, Bill Scharf, Dave Partridge, Brad Martin, Andy York, Eric Brosius **Settlers of Catan:** Michael Lowrey, Chris Geggus, Cary Nichols, Dave Partridge, Brad Martin, Andy York **Gunslinger:** none **Industrial Waste:** Michael Longdin, Brad Martin **Puerto Rico:** Brad Martin, Andy York **Power Grid:** Brad Martin, Andy York **Robo Rally:** Andy York

Standby Calls

Will Eric Brosius please submit standby orders for Aqua in Hunter.