Number 149

S.O.B.

Notes from Hades

ell, this last month has seen me travel to what is arguably my most exotic destination: Senegal. The meeting took place at a resort south of Dakar near a town called Saly. The resort itself was very nice, and the food was quite good – mostly French inspired since Senegal was a former French colony. Since I was staying at the same resort at which the meetings were being held, there was very little reason for me to leave the resort, and in fact I didn't. However, on the Friday afternoon, and on the following Saturday, the organizers had arranged some side trips, which I did avail myself of. The Friday trip was to the Bandia Game Reserve, a small wild animal reserve near Saly. We went at dusk since most of the animals are most active at that time. The reserve included several animals that are not native to Senegal, but that are native to Africa in general, such as giraffe, rhinoceros, and impala. The park was also studded with baobob trees – something of a national symbol of Senegal. These are towering, twisted looking trees with large, hollow trunks that produce thigh-sized fruit. Overall, it was probably my favorite part of the trip.

The next day, we took a boat to Goree Island. This is an island off the coat of Dakar, which was a major center of the slave trade during the 16^{th} , 17^{th} , and 18^{th} centuries. It was also one of locations in which the movie *The Guns of Navarone* was filmed, a fact of which the locals seemed quite proud. We toured the island, including an old slave house (quite chilling, seeing the condition that the people were kept in), and the fortress at the top of the island.

We got back to Dakar at about 3:30 that afternoon. However, our flight was not leaving until 2:10 the next morning, so one of our colleagues who was staying an extra day offered to let us park our luggage at his hotel, and we walked around the city for a while. We saw the presidential palace, and a number of market places around the city. A local appointed himself our unofficial tour guide, and of course, eventually directed us to his shop. All through the afternoon, we were intermittently mobbed by street vendors. In fact, toward the end, one vendor was trying to sell us a guitar-like instrument. He followed us for about two miles, barganing himself down from 300,000 CFA (about \$600), to 10,000 CFA (about \$20) before one of our party who spoke French explained to him that we really didn't want to buy anything and that we weren't just barganing with him.

Overall, it was an interesting trip. It makes me glad that my job affords me the opportunity to travel to places like this, but it also makes me appreciate what I have here at home.

The next deadline is **Tuesday, January 13 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

Frontier Dog. Gunslinger .Scenario to be determined. Have Paul Bolduc, Chris Geggus, Mike Scott, and Andy Lewis, will take up to 3 more.

Pateel. Kremlin. Will start after Flea Collar ends. Have Ward Narhi, Mike Scott, Bill Scharf, Bob Robles, Pasquale Giovine, and Gina Teh. This game is full.

Hunter. Silverton. Will start after Terrier ends. Have Dave Partridge, Michael Longdin, Ward Narhi, Cary Nichols, Bill Scharf, and Dave Hooton. This game is full.

Procyon. Merchant of Venus. Have Dave Partridge, Bob Robles, Chris Geggus, Gina the, Dennis Cain, and Andy Lewis. This game is full.

Robover. Robo Rally. Have Dave Partridge, Bill Scharf, Chris Geggus, Dave Hooton, Gina Teh, Ward Narhi, Michael Longdin, and Chris Geggus. This game is full. **Starts this issue!**

Husky. Power Grid. Have Andy York, Michael Longdin, Dave Partridge, Dave Hooton, and Brad Martin, will take up to 1 more.

Dogbreath. History of the World. Have Chris Geggus, Dave Partridge, Gina Teh, and Andy Lewis, will take up to 3 more.

Basset. Outpost. Will start after Hound ends. Have Andy York, Cary Nichols, Dave Partridge, Dave Hooton, Eric Brosius, Andy Lewis, and Michael Lowrey, will take up to 3 more.

Bolognese. Machiavelli. Gunboat. This game will start after the next Machiavelli game ends. Have 5, will take up to 3 more. You are signed up: \Box .

Wish List

Industrial Waste. Have Andy York and Dave Partridge, will take up to 2 more. **Machiavelli.** This game will start after the second Machiavelli game ends. Have Ward Narhi, Bob Robles, Pasquale Giovine, and Dave Partridge, will take up to 4 more.

New World. This will use the exploration variant, plus the Non-Player Nations variant in the event I get less than 6 players. Have Andy York, Andy Lewis, and Dave Partridge, will take up to 3 more.

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.

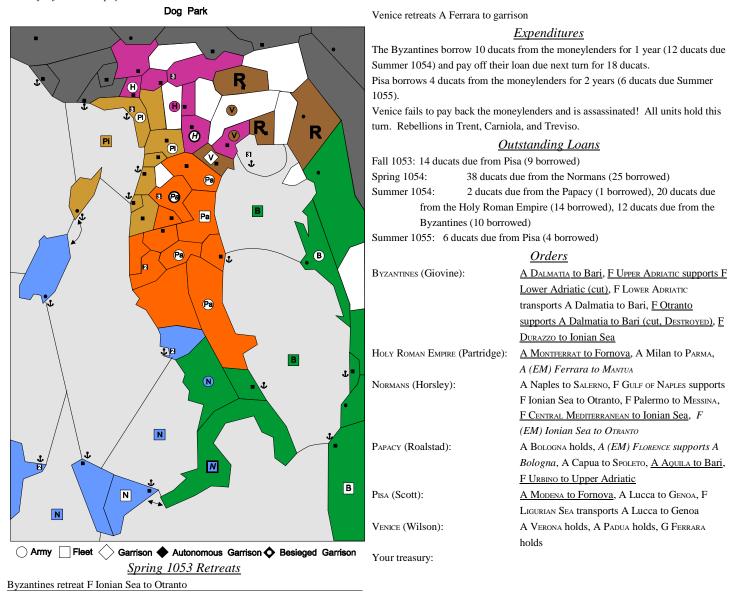
S.O.B. is a zine of unusual postal games, and anything else I feel like including. Your publisher is:

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://homepages.roadrunner.com/sobhome

Subscriptions cost \$2.00 per issue (\$3.00 overseas).

Dog Park Summer 1053 Miller Number 20077Apw10 Advanced Rules, Natural Disasters, Special Military Units, Moneylenders, Conquest, Gray Press, Ultimate Victory Deadline for Fall 1053 1/13, Tuesday

The Pope and the Normans team up to eliminate a Byzantine fleet while the Holy Roman Empire turns its sights on Pisa and the moneylenders exact their penalty on Venice for failure to repay.



Barking Up the Wrong Tree

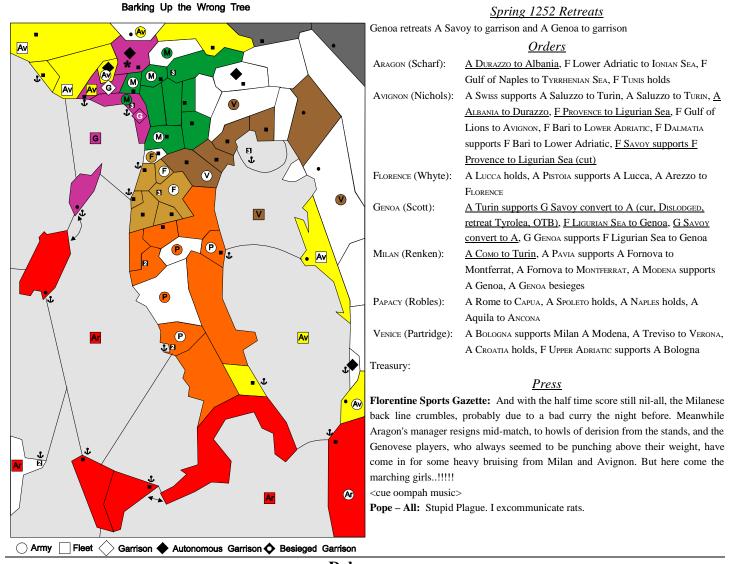
Spring 1252

Miller Number 2007Bpw10

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

Deadline for Summer 1252 11/25, Tuesday

Avignon and Milan continue to squeeze Genoa while Venice offers Milan some support. Aragon and Avignon tussle a bit in the south while Florence and the Pope rearrange troops to cover plague losses.



Doberman Turn 11a Turn 11b due 11/25, Tuesday

<u></u>	
L .A	ras

100%Trash	BIBCO	PIT	GOO				
Hiring/Firing	Bribery	Raw Materials	Advisor				
Order	Innovation	Order	Innovation				
Waste Removal	Raw Materials	Innovation	Growth				

GOO plays Growth, improving to 18

100% Trash plays Waste Removal, reducing his waste to 13, and increasing BIBCO's and GOO's waste to 7 and PIT's to 9.

BIBCO plays Innovation, paying \$5 to improve Rationalization to 4/3.

PIT plays Innovation, paying \$5 to improve Waste Reduction to 1/15.

GOO plays Innovation with an Advisor, paying \$10 and improving Raw Materials to 2/10.

100% Trash discards Hiring/Firing

BIBCO plays Hiring/Firing, reducing his co-workers to 4

PIT plays an Order, using 5 raw materials to produce \$19 and 1 waste.

GOO passes

100% Trash discards an Order

BIBCO plays Raw Materials, auctioning off 4 raw materials and PIT gets it for \$10

PIT passes

100% Trash pays \$5, BIBCO pays \$4, and PIT and GOO each pay \$3

<u>The Players</u>									
Player	Company Name	Play Order	Money	Loans	Raw Material Supply	Growth	Co-workers	Saved Card	
Michael Longdin	100% Trash	4	\$1	40	3	14	5	Order	
Dave Partridge	BIBCO	1	\$37	0	1	16	4		
Richard Weiss	PIT	2	\$10	10	7	18	3	Raw Materials	
Eric Brosius	GOO	3	\$3	0	1	18	3	Order	

 GOO stands for General Olfactory Organization.
 BIBCO stands for Big Industry Buying Congressmen Outright

 Player
 Rationalization
 Raw Materials
 Waste Reduction
 Waste Disposal
 Victory Points

Michael Longdin	5/1	1/15	5/1	13	-9
Dave Partridge	4/3	4/3	1/15	7	55
Richard Weiss	3/6	5/1	1/15	9	35
Eric Brosius	3/6	2/10	1/15	7	50

Available Cards

Set 1	Set 2	Set 3	Set 4	Set 5
Innovation	Growth	Growth	Waste Disposal	Hiring/Firing
Bribery	Innovation	Waste Disposal	Order	Waste Disposal
Advisor	Raw Materials	Innovation	Raw Materials	Growth

Accident card is drawn. 100% Trash pays \$10, Growth goes to 14; PIT pays \$5, Growth goes to 18. Deck will be reshuffled after turn 12 card draw.

<u>Discards</u>

Innovation

Waste Disposal

<u>Flea Collar</u> Kremlin Turn 7 Funeral Commission through Parade Turn 8 Cure though Health 1/13, Tuesday

None

Doberman waves.

Funeral Commission

HLM declares 8 IP on Patina.

<u>Replacement Phase</u> Doberman moves Krakemheds from KGB Head to Foreign Minister and promotes Eatstumuch to KGB Head. Doberman ages to 81. Boris Karrienko advances to

Ideology Minister by age. Wasolin promots U to candidate an ages to 71.

<u>Politburo</u>						
Office	Policitian	Condition	Influence			
Party Chief	Igor Doberman (L)	81	5 (KGB) , 4 (REDS), 3 (HLM), 1 (LWT)			
KGB Head	Sergei Eatstumuch (M)	64	1 (REDS) , 1 (LWT)			
Foreign	Karel Krakemheds (E)	76, ++, strong	6 (REDS), 1 (HLM), 7 (LWT)			
Defense	Petr Niewitko (D)	73	2 (REDS)			
Ideology	Boris Karrienko (N)	63, weak				
Industry	Ludmilla Patina (S)	69, +	1 (LWT), 8 (HLM)			
Economy	Victor Wasolin (Z)	71, weak	11+ (MLI)			
Sport	Antonj Talksalott (J)	67	1 (KGB), 7 (HLM)			

Politicians in bold are in the sanatorium.

 Candidates:
 P, U (60 ++, 2 (MLI)), X, W, Y (60, 11+ (HLM))

 People:
 B (83 +), D (76, + 2 (REDS)), K (68 +), R

 Siberia:
 C (81 +), T, Q (70, +)

 Kremlin Wall:
 A, G, F, V, I, O

Rehabilitation Phase

Parade Phase

Players

PlayerFaction NameBob RoblesHard Line MencheviksBrendan WhyteLeft-wing TrendiesPasquale GiovineMarxist-Leninist IntegralistsMike ScottThe California ConnectionChris GeggusKing's Gambit for Bishops (KGB)Cary NicholsRe-Education Deployment Society (REDS)TCC has one wave.KGB have two waves.

Intrigue Cards

Undeclared Influence

5

S.O.B.

<u>Terrier</u> Silverton Turn 16 Phases IV- VI and Turn 17, Phases I-III Turn 17, Phases IV- VI and Turn 18, Phases I-III, 9/2, Wednesday Turn 16

Operations

Brown (Partridge) operates #31 (\$80, depletes), #45 (\$30, 2 silver), #86 (\$20, 3 coal). Gains \$130 in passenger revenue. **Blue** (Bolduc) operates #88 (\$50, 3 coal), #80 (\$30, depletes), #56 (\$50, depletes). Delivers 6 coal from Walsenburg to Denver for \$600. Gains \$20 in passenger revenue.

Red (Scharf) operates #125 (\$20, 5 coal), #117 (\$50, depletes), #112 (\$20, depletes), #104 (\$50, 2 silver), #116 (\$30, 2 lumber). Gains \$60 in passenger revenue. Buys a 72 train for \$500.

Aqua (Lewis) operates #68 (\$20, 4 coal), #74 (\$20, 2 coal), and #70 (\$40, 2 coal). Delivers 10 coal from Coalville to Salt Lake City for \$1000. Gains \$410 in passenger revenue.

Green (Longdin) operates #85 (\$30, 3 coal). Operates snowplow on the Trinidad to Raton line (dr = 5 + 2, success). Buys 5 lumber from Orange at Cimarron for \$500 and delivers it to Denver for \$1000. Delivers 3 coal from Canon City to Denver for \$300. Gains \$380 in passenger revenue.

Orange (Hooton) buys #28 for \$240, operates #63 (\$50, 3 lumber), #33 (\$50, 4 gold), #123 (\$40, 5 coal), #58 (\$20, 1 lumber), #76 (\$20, 3 coal), #28 (\$60, 2 gold). Delivers 6 lumber from Dolores to El Paso for \$1200, 2 lumber from Lumberton to El Paso for \$400, 5 lumber from Lumberton to Santa Fe for \$800. Gains \$230 in passenger revenue. Trades in a 9 train for \$40 credit and buys a 24 train for \$160 net.

Determine Price Changes

Gold: +1 to \$250		Copper: Remains at	t \$400	Silver: +4 to \$200				
	Denver	Salt Lake City	Pueblo	Santa Fe	El Paso			
Lumber:	-1 to \$160	Remains at \$300	Remains at \$200	-1 to \$120	-2 to \$120			
Coal:	Remains at \$100	-2 to \$60	Remains at \$80	+1 to \$100	Remains at \$140			

Turn 17

Move Prospectors and Surveyors

Brown (Partridge) prospects #79, no surveying.

Blue (Bolduc) surveys Ouray, UT to Bridgeland and Moriarty to Albuquerque, prospects passenger line 7.

Red (Scharf) surveys Corizozo to Capitan and Whitewater to Tyrone, prospect passenger line 18.

Aqua (Lewis) surveys Steamboat Springs to Walden, and Dolores to Farmington, no prospecting.

Green (Longdin) survey Cheyenne to Laramie and Lake City to South Fork, no prospecting.

Orange (Hooton) surveys McGaffey to Paxton Springs and San Ysidro to Lee Ranch West, prospects #83 (+1) and #84

Dispute Resolution

No disputes. Brown spends \$80, Blue spends \$580, Red spends \$840, Aqua spends \$400, Green spends \$540, and Orange spends \$560

				<u>The Players</u>			
Player	Color	Starting Location	Money	Trains	Snowplows	Personnel	
Dave Partridge	Brown	Denver	\$3145	9, 15		S+2, S, P, P+2	
Paul Bolduc	Blue	Denver	\$950	9, 15, 72		S, S+1, P+2	
Bill Scharf	Red	El Paso	\$1725	9, 24, 72		S+1, S, P+1	
Andy Lewis	Aqua	Salt Lake City	\$6680	9, 15, 42, 72		S, S, P+2	
Michael Longdin	Green	Pueblo	\$5250	9, 15, 24, 42	+2, +5	S+2, S, P+1	
Dave Hooton	Orange	Santa Fe	\$8495	15, 24, 24, 42		S, S, P, P+1	

Personnel in **Bold** are in jail.

<u>Purchased Claims</u>								
#	City	Owner	Туре	Goods	Operation			
48	Ouray	Brown	Silver	2	Depleted			
45	Westcliffe	Brown	Silver	2	\$30			
86	Canon City	Brown	Coal	3	\$20			
79	Bowie	Brown	Coal	Ν	\$40			
88	Walsenburg	Blue	Coal	0	\$50			
80	Aspen	Blue	Coal	10	Depleted			
102	Hillsboro	Red	Silver	6	Depleted			
101	Lake Valley	Red	Silver	17	Depleted			
125	Capitan	Red	Coal	5	\$20			
117	Cloudcroft	Red	Lumber	8	Depleted			
112	Tyrone	Red	Copper	3	Depleted			
104	Mogollon	Red	Silver	6	\$50			

#	City	Owner	Туре	Goods	Operation
116	Pinos Altos	Red	Lumber	2	\$30
36	Eureka	Aqua	Silver	1	Depleted
67	Coalville	Aqua	Coal	8	Depleted
68	Scofield	Aqua	Coal	21	\$20
73	Hiawatha	Aqua	Coal	6	Depleted
74	Elk Springs	Aqua	Coal	8	\$20
25	Bingham	Aqua	Gold	4	Depleted
70	Price	Aqua	Coal	2	\$40
81	Crested Butte	Green	Coal	9	Depleted
85	Canon City	Green	Coal	0	\$30
128	South Fork	Orange	Silver	1	Depleted
63	Lumberton	Orange	Lumber	7	\$50
51	Silverton	Orange	Silver	8	Depleted

#	City	Owner	Туре	Goods	Operation
122	Lee Ranch West	Orange	Coal	4	Depleted
33	Silverton	Orange	Gold	4	\$50
114	McGaffey	Orange	Lumber	1	Depleted
123	Gallup	Orange	Coal	11	\$40
58	Dolores	Orange	Lumber	1	\$40
76	Craig	Orange	Coal	6	\$20
82	Crested Butte	Orange	Coal	0	\$20
28	Leadville	Orange	Gold	2	\$60
84	Durango	Orange	Coal	Ν	\$20
83	Durango	Orange	Coal	Ν	\$20

_		Purchased Pa	issenger	<u>Lines</u>	
#	Туре	Route	Payoff	Owner	Notes
3	А	Denver – Colorado Springs	\$50	Brown	
5	А	Denver – Pueblo	\$80	Brown	
15	В	Denver – Grand Jct.	\$270	Brown	Discard when 22 is taken. Good for \$270 toward card 22
12	В	Pueblo – Grand Jct.	\$150	Brown	Discard when 20 is taken. Good for \$150 toward card 20 or 21
1	А	Denver – Boulder	\$20	Blue	
10	В	Denver – Aspen	\$130	Blue	
17	С	Denver – Santa Fe	\$420	Blue	
7	А	Pueblo – Santa Fe	\$120	Blue	
4	А	El Paso – Deming	\$60	Red	
18	С	Gallup – Santa Rosa	\$500	Red	
2	А	Salt Lake City – Provo	\$20	Aqua	
11	В	Salt Lake City –	\$140	Aqua	Discard when 20 is

#	Туре	Route	Payoff	Owner	Notes
		Grand Jct.			taken. Good for \$140
					toward card 20 or 21
16	В	Salt Lake City –	\$250	Aqua	Discard when 22 is
		Grand Jct.			taken. Good for \$250
					toward card 22
9	В	Denver – Leadville	\$120	Green	
8	А	Denver – Leadville	\$260	Green	Discard after 1 more
					Leadville depletion
6	А	Santa Fe –	\$90	Orange	
		Albuquerque			
13	В	El Paso – Santa Fe	\$140	Orange	

	<u>Available Claims</u>					
#	City	Туре	Claim	Operation		
109	Pinos Altos	Copper	\$80	\$20		
57	Boulder	Lumber	\$40	\$20		
61	South Fork	Lumber	\$40	\$20		
52	Lake City	Silver	\$100	\$40		
42	Leadville	Silver	\$100	\$40		
71	Sunnyside	Coal	\$100	\$20		
91	Trinidad	Coal	\$60	\$30		
72	Emery	Coal	\$60	\$30		

Available	Passenge	er Lines

#	Туре	Route	Payoff	Cost	Notes
20	С	Salt Lake City – Pueblo	\$600	\$930	
22	С	Denver – Salt Lake City	\$800	\$1100	
24	С	Denver – El Paso	\$1000	\$1380	
19	С	Salt Lake City – Albuquerque	\$600	\$975	
23	С	Salt Lake City – Santa Fe	\$900	\$1340	
14	В	El Paso – Albuquerque	\$220	\$405	

Available Trains

Туре	# Available	Cost
9	1	\$80
15	1	\$120
24	4	\$200
42	6	\$320
72	5	\$500

Available Snowplows

Туре	# Available	Cost
Die +2	2	\$40
Die +3	4	\$80
Die +4	5	\$140
Die +5	5	\$200

<u>Hound</u> Turn 15 Deadline Turn 16, 1/13, Tuesday

S.O.B.

Commander Actions

Brosiarium opens up the bidding on the Planetary Cruiser at 160 and gets it (MWa, Ti8, Re9, Re11, Re11, Re12, Re12, Re13, Re15, Re17, NC22). Buys a population factor to man it (Wa7).

Little Green Men opens the bidding on a Space Station at 120 and FEARLESS gets it for 124 (Or1, Wa8, MWa, Ti8, Ti12, Mi17, Mi18, RO30). Opens the bidding on the second Space Station at 120 and Roobie-Roo gets it for 123 (Or4, Or5, Or5, MWa, MTi, Mi17, Mi18). Opens the bidding on the third Space Station at 120 and BORG gets it for 121 (Or1, Or2, Wa5, Wa7, MTi, Re10, Re13, Mi19, OM20). Opens the bidding on the last Space Station at 120 and HBDC gets it for 133 (Wa6, Wa7, Ti8, Ti11, Ti13, MTi, MTi). Opens the bidding on Robots at 50 and Miles from Nowhere gets it for 53 (Or1, Or3, Or3, Wa4, Wa6, Ti7, Ti7, Ti8, Ti9, Ti10). Opens the bidding on Robots at 50 and BarterTown X gets it for 52 (Or3, Wa8, Wa9, Wa9, Re13). Opens the bidding on the last Robots at 50 and gets it (Or1, Wa6, Ti13, MWa). Buys 2 research factories (Or2, Re13, Re14, Mi15, Mi16), 2 population factors (Ti11) and 1 robot (Wa5, Wa7).

FEARLESS moves a population factor from an ore factory to man the Space Station.

Roobie-Roo moves a population factor from an ore factory to man the Space Station.

BORG moves a population factor from an ore factory to man the Space Station.

Miles from Nowhere buys a titanium factory (Ti11, Ti11, Re10) and moves a population factor from an ore factory to man it.

Bartertown X buys a research factory (Wa7, Re11, Re14) and a robot (Wa10)

Scharfpost buys a new chemicals factory (Or4, Or4, Re12, Re12, Re12, Re12, Re16) and a population factor (Re10).

HBDC buys a population factor (Ti11) and mans the Space Station.

6

None

S.O.B.

Golden Orb buys a titanium factory (Or4, Wa4, Wa7, Wa8, Ti7) and moves a population factor from an ore factory to man it.

	<u>The Players</u>							
	Outpost Name	Commander	Factories	Upgrades	VP			
1	Brosiarium	Eric Brosius	OrF, OrF, WaF, WaF, WaF, WaF, WaF, WaF, WaF, TiF, ReF, ReF,	No, 3Sc, La, Ou, 2Ec,	63			
			ReF, ReF, NCF	PC				
2	Little Green Men	Dave Partridge	OrF, OrF, WaF, WaF, WaF, WaF, WaF, WaF, TiF, ReF, ReF, ReF,	No, 2OL, La, Ou, 3Ec,	56			
			ReF, ReF	Ro				
3	Roobie-Roo	Andy Lewis	OrF, OrF, WaF, WaF, WaF, WaF, TiF, TiF, TiF, TiF	HE, No, Wa, 2Ec, 2Ou,	50			
				OL, SS				
4	FEARLESS	Michael Lowrey	OrF, OrF, WaF, WaF, WaF, WaF, WaF, TiF, TiF	No, HE, Wa, 3OL, Ro,	50			
				PC, SS				
5	BORG	Dave Hooton	OrF, OrF, WaF, WaF, TiF, TiF, TiF, TiF, ReF, ReF	HE, No, Wa, Ro, OL,	49			
				La, SS, SS				
6	Miles from Nowhere	Michael Longdin	OrF, OrF, WaF, WaF, TiF, TiF, TiF, TiF, TiF, TiF, TiF, Ti	HE, No, 2Ou, La, Ro	44			
7	HBDC	Kevin Wilson	OrF, OrF, WaF, WaF, WaF, TiF, TiF, TiF, TiF, TiF, TiF, TiF, Ti	HE, Wa, Ou, SS	35			
8	Bartertown X	Andy York	OrF, OrF, WaF, WaF, WaF, WaF, WaF, ReF, ReF, ReF	2DL, HE, 2Ro, Sc, 2La	33			
9	Scharfpost	Bill Scharf	OrF, OrF, WaF, ReF, ReF, ReF, NCF	3DL, Wa, 3Sc, Ro, La	30			
10	Golden Orb	Cary Nichols	OrF, OrF, WaF, WaF, WaF, WaF, TiF, TiF, TiF, TiF	2DL, HE, Wa, No	18			

BORG is Basic Orbital Research Group. HBDC is Heavenly Bodies Development Corporation. FEARLESS is Forward Extraction and Resource Location Exoterrestrial Space Services

Available Upgrades

New Arrivals: Space Station, Moon Base, Moon Base, Planetary Cruiser, Space

Station, Planetary Cruiser,	Planetary Cruise	r. Planetary Cruiser	

Upgrade	Minimum Bid	Available	Not Yet Delivered
Warehouse (Wa)	25	1	0
Space Station (SS)	120	2	0
Planetary Cruiser (PC)	160	4	1
Moon Base (MB)	200	3	4

<u>Income</u>

Brosarium, Little Green Men, Roobie-Roo, and FEARLESS all take Mega Water cards. Roobie-Roo and BORG take a Mega Titanium card. HBDC takes 2 Mega Titanium cards.

<u>Bulldog</u> Turns 11.4 to 12.4

Deadline Turn 12.5 to 13.5, 1/13 Tuesday

<u>Turn 11</u>

Andy rolls an 8. Mike gains 2 brick, Dave P. gains 2 ore, and Michael and Dave H. each gain 1 brick. Andy builds a ship from H6 to H7, discovering ocean. During the special build turn, Dave H. buys a development card ().
Dave H. rolls a 7. Moves the Robber to the Field 5 space at B16-C16 and steals an ore from Chris. Trades 1 brick to Dave P. for 1 grain. Moves the ship at H16-

H17 to H16-H15 (discovers Hills 4). Trades 3 brick for 1 lumber at the ? port and builds a settlement at E15.

Chris rolls a 7. Moves the Robber to the Field 10 space at D14-E14 and steals a grain from Mike. Passes.

Turn 12

Mike rolls an 8. Mike gains 2 brick, Dave P. gains 2 ore, Michael gains 1 brick, Dave H. gains 1 brick and 1 ore, and Chris gains 2 ore. Plays Monopoly on wool. Trades 3 brick for 1 grain at the ? port, builds ships at G1-H10 (discovers ocean) and H10-H11 (discovers Forest 10), buys a development card (). **Dave P.** rolls a 10. Andy and Chris each gain 2 ore. Trades 4 ore for 1 lumber.

Michael rolls a 5. Dave P. gains 2 grain, Andy gains 3 wool, and Chris gains 4 grain. Passes. During the special build turn, Chris upgrades his settlement at B15 to a city.

Andy rolls a 3. Mike and Dave P. each gain 2 grain. Andy moves the ship at H6-H7 to H6-H5.

Chris

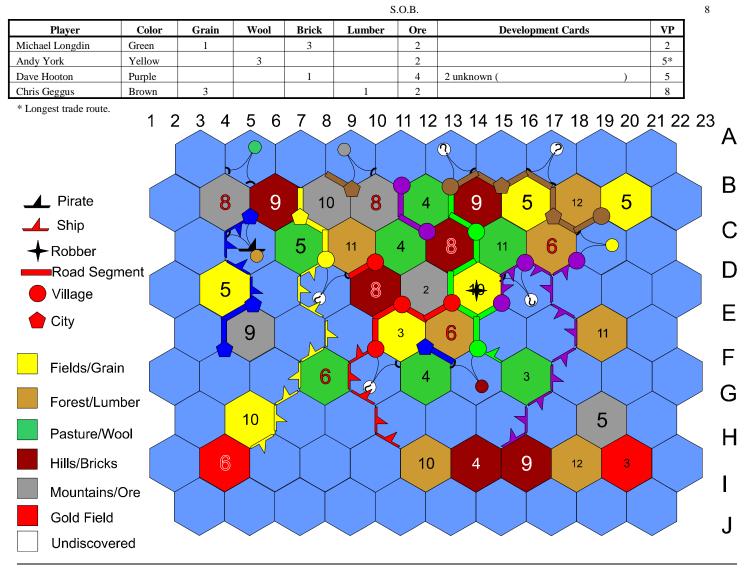
6

Dave H. 6

Open Trades

Turn 12 Rolls

					<u>Turn 13 Re</u>	olls		
Mike 12	Dave P. 2	2	Mich	ael 7	And	dy 6	Dave H. 6	
					<u>The Playe</u>	ers		
Player	Color	Grain	Wool	Brick	Lumber	Ore	Development Cards	VP
Mike Scott	Red	2	4	2	1		Knight, unknown ()	4
Dave Partridge	Blue	4		1	1			8



Malamute End of Game Statements

Andy York (Dutch) Wow, I didn't think I would be first across the finish line. The other Andy certainly gave me a run for my money. Thanks for the fine Gming job Chris!

Andy Lewis (Swedes) Congrats to Andy Y. Looks like the police force just had too much to do to make it to the top.

Dave Partridge (English) Congrats to Andy. I had a reasonable run going, but just couldn't seem to quite keep up with the Andys so figured I'd better make a play for the 5 PC win. It wasn't a bad try, just needed the dice to break my way and they didn't. A lot of fun as always, sign me up for the next one!

Chis Hassler (GM) There were a couple of new twists in this game. The first was the use of the non-player rule. I thought it worked reasonably well, although I think the rule is slanted toward aggression, so it can leave the position somewhat vulnerable to attack, as was witnessed in the game. I tried to play the Portuguese rationally based on the limitations, and I thought they did reasonably well. The objective of those rules is not for the non-player country to win, just to have an effect on the game. The other twist was the use of Dennis' suggested variants. I thought they worked well, and they seemed fairly balanced, although the Spanish player never availed himself of his advantage. All in all, I think both are keepers.

Cats and Dogs

Epoch IV Goths, Huns, and Byzantines

Deadline Epoch IV T'ang Dynasty, Arabs, and Khmers, 1/13 Tuesday

<u>Epoch IV</u>

Arachnids (Bolduc) GOTHS: Army Danubia (Roman army retreats to Dalmatia), Balkans (vs. Minoans, plays Surprise Attack; G: 5, 3; M: 6; loses), Dniepr, Central Europe (vs. Celts; G: 4, 4; C: 1; wins), Caucuses (vs. Scytheans; G: 5, 2; S: 6; loses), Caucuses (vs. Scytheans; G: 6, 2; S: 3; wins), Eastern Anatolia (vs. Schytheans; G: 5, 2; S: 5, 3; G: 2, 2; S: 2, 1; G: 6, 4; S: 5, 2; wins), Zagros (vs. Guptas; Go: 6, 4; Gu: 2; wins, city eliminated), Persian Plateau (vs. Civil War; G: 5, 5; C: 3; wins), Hindu Kush (vs. Sassanids; G: 6, 5; S: 2; wins). Points: Presence in Middle East (3), India (3), Northern Europe (2), and Southeast Asia (2), and 3 Monuments (3) for 13 points.

Marching Through the Ages (Lewis) plays Weaponry. Army Western Steppe, Turanian Plain (vs. Aryans; H: 6+1, 3+1; A: 2; wins), Hindu Kush (vs. Goths; H: 6+1, 1+1; G: 2, 2; wins), Upper Indus (vs. Sassanids; H: 5+1, 2+1; S: 6; H: 6+1, 3+1; S: 1; wins), Ganges Valley (vs. Romans; H: 6+1, 3+1; R: 3; wins), Ganges Delta (vs. Romans; H: 6+1, 3+1; R: 1; wins), Malayan Peninsula (vs. Mauryans; H: 6+1, 5+1; M: 2, 2; wins), Persian Plateau (vs. Goths; H: 5+1, 2+1; G: 2; wins), Zagros (vs. Goths; H: 4+1, 4+1; G: 5; H: 5+1, 4+1; G: 3; wins), Upper Tigris (vs. Sassanids; H: 4+1, 1+1; S: 6; loses), Upper Tigris (vs. Sassanids; H: 3+1, 3+1; S: 1; wins), Dniepr

(vs. Goths; H: 3+1, 1+1; G: 4; H: 3+1, 3+1; G: 3; wins), Central Europe (vs. Goths; H: 4+1, 1+1; G: 3; wins), Lower Rhein. Builds Monument Malayan Peninsula. Points: Dominance in Middle East (6) and India (6), Presence in China (3), Southern Europe (3), Northern Europe (2), and Southeast Asia (2), 1 city (1), and 8 Monuments (8) for 31 points.

Royal Manticoran Historical Society (Wilson) BYZANTINES. Plays Naval Supremacy and Weaponry. Army and Capital Balkans (Minoan army retreats to Western Anatolia), fleet Black Sea, fleet Eastern Mediterranean (vs. The Questioner; RMHS: 3+2, 3+2, 1+2; Q: 1; wins), army Dalmatia (vs. Romans; B: 5+1, 3+1; R: 6; B: 3+1, 2+1; R: 5; loses), Dalmatia (vs. Romans; B: 5+1, 3+1; R: 2; B: 5+1, 3+1; R: 6; B: 6+1, 3+1; R: 2; wins), Northern Appenines (vs. Romans; B: 4+1, 2+1; R: 6; loses), Northern Appenines (vs. Romans; B: 5+1, 3+1; R: 4; wins), Western Anatolia (vs. Minoans; B: 6+1, 5+1; M: 4+1; B: 4+1, 1+1; M: 6+1; loses), Western Anatolia (vs. Minoans; B: 6+1, 4+1; M: 3+1; wins), Eastern Anatolia (vs. Goths; B: 5+1, 5+1; G: 4, 1; wins), Central Europe (vs. Huns; B: 5+1, 3+1; H: 5, 2; wins). Points: Dominance in Middle East (6) and Southern Europe (6), Presence in Northern Europe (2), 1 Capital (2), 1 city (1), 2 Seas (2), and 3 Monuments (3) for 26 points.

Press

Arachnids - All: What's with giving the Guptas to the Romans when someone had to have the Khmer to give them?

Players

Player Name	Player Faction Name/Color	Empire Strength Points	Victory Points
Michael Longdin	100% Pussycats (green)	19	36
Dennis Cain	Systematic Chaos (black)	25	46
Dave Anderson	The Time Traveler (orange)	27	53
Paul Bolduc	Arachnids (blue)	31	51
Kevin Wilson	Royal Manticoran Historical Society (purple)	33	82
Andy Lewis	Marching through the Ages (red)	40	79
Dave Partridge	The Questioner (yellow)	44	93

<u>Positions</u>

Systematic Chaos: Fleet South China Sea. GREEK CITY STATES: Army and city Crete. HAN DYNASTY: Army and city Yellow River, armies Tarim Basin, Yangtse Kian, East Indies.

100% Pussycats: VEDIC CITY STATES: Two armies Eastern Ghats. CIVIL WAR: Two armies and city Morea. CELTS: Armies Northern Gaul, Albion, Central Massif, Pyrenees.

Marching Through the Ages: MAYANS: Army and Capital Central America, army Guiana Highlands. HSUING-NU: Army, city, and Monument Great Plain of China, army Mongolia. HUNS: Army and Monument Upper Tigris, Zagros, Persian Plateau, Upper Indus, Ganges Delta, Malayan Peninsula, armies Dniepr, Western Steppe, Turanian Plain, Hindu Kush, Ganges Valley.

The Time Traveler: INDUS VALLEY: Three armies Western Ghats. CARTHAGINIA: Three armies, Capital, and Fort Shatts Plateau, armies Libya, Arabian Peninsula, Western Gaul. MACEDONIA: Army and city Pindus, Army and Monument Nile Delta, two armies Nubia, army Palestine.

Royal Manticoran Historical Society: Fleets Black Sea and Eastern Mediterranean. SUB-SAHARAN MIGRANTS: Armies East Africa and Madagascar. CIVIL WAR: Army, city, and Monument Southern Apennines, army and Monument Levant. SASSANIDS: Army and Monument Lower Tigris. BYZANTINES: Army and Capital Balkans, army and Monument Central Europe, armies Northern Appenines, Dalmatia, Western Anatola, Eastern Anatola.

The Questioner: Fleet Western Mediterranean. SHANG DYNASTY: Army Si-Kyang. SCYTHEANS: Army Middle Tigris. REBELLION: Army Chekiang. ROMANS: Army and Monument Southern Iberia, Wei River, armies Western Iberia, Irrawaddy, Szechuan. UPPER NILE KINGDOM: Army, city, and fort Upper Nile. GUPTAS: Army and Capital Eastern Deccan, armies Western Deccan, Lower Indus, Persian Salt Desert.

Arachnids: NORTH AMERICAN MIGRANTS: Armies Great Lakes, Great Plains. GOTHS: Armies Danubia, Caucuses.

Event Cards

Еросі	h I	VI	Emp	vire

<u>Greyhound</u> Turn 3, Phases 3 through 6 Deadline Turn 3, Phase 7 and Turn 4, Phases 1 through 3, 1/13 Tuesday

Turn 3, Phase 4 – Purchases

<u>1 um 5, 1 huse</u>	
Paris buys Patronage (E, \$30, Misery increases to 50) and Galley 4 (\$10).	Barcelona buys Galley 6 (\$10), Overland East (R, \$30 credit from Walter the
London buys Patronage (E, \$10 discount for St. Benedict, \$20, Misery increases	Penniless, \$10), Urban Ascendancy (V, \$20), Patronage (E, \$30, Misery increases
to 60) and Written Record (N, \$10 discount for St. Benedict, \$20), Galley 6 (\$10),	to 50), and stabilization for \$6.
and stabilization (\$6).	Venice buys Galley 4 (\$10), The Heavens (A, \$30), and stabilization for \$6.
Hamburg buys stabilization for \$10.	Genoa buys Galley 4 (\$10) and stabilization for \$6.
<u>Phase 5 –</u>	<i>Expansion</i>
Paris expands to Lisbon (3), Seville (3), Leon (1), and buys a card ().	Barcelona expands to Erzerum (3), Treibizond (4), Poti (2), Tana (2), Varna (2),
London expands to Alexandria (5), Aleppo (4), Cyprus (3), Constantinople (4),	Salonika (2), Suez (3), Cairo (4), Angora (2), Crete (3).
Levant (1), Gallipoli (1).	Venice expands to Rome (8, vs. Genoa, dr = 4, 1, 4; loses), Naples (11, vs. Genoa,
Hamburg expands to Novogorod (2), Danzig (2), Stettin (1), Mitau (1),	dr = 2, 6, 4; wins), Bari (2, vs. Genoa, dr = 3, 4, 4; loses), Durazzo (1), Salonika
Nuremberg (6, vs. Genoa, $dr = 4, 1, 4$; wins), Prague (6, vs. Venice, $dr = 1, 3, 1$;	(6, vs. Barcelona, dr = 5, 1, 5; loses), Gallipoli (2, vs. London, dr = 2, 1, 1; loses).
wins).	Genoa expands to Sicily (2), Tunis (4), Lyons (8, vs. Paris, dr = 3, 3, 5; loses),

Barcelona gains \$135.

Lyons (8, vs. Paris, dr = 6, 4, 6; loses), Lyons (8, vs. Paris, dr = 6, 3, 5; loses).

<u>Phase 6 – Collect Income</u>

Hamburg gains \$69.

Paris gains \$75.London gains \$87.

Surplus of Wine (Paris pays \$3) and Surplus of Grain (Paris pays \$2).

Turn 4, Phase 1 – Draw Cards

Your card:

Phase 2 – Buy Cards

London buys:

<u>The Players</u>									
Player	Country	Misery	Tokens	Money	Order	Dominance	Ships	Cards	Advances
Michael Longdin	Venice	40		\$79		7	4	4	A, N
Dave Partridge	Hamburg	50		\$112		9	4	5	
Bob Robles	Paris	50		\$84		10	4	2	A, E, N
Dave Hood	London	60		\$79		12	6	5	A, E, N, V
Steve Koehler	Barcelona	50		\$152		20	6	5	A, E, R, V
Robert Koehler	Genoa	60		\$62		6	4	4	Ι

Players are listed in reverse tie breaking order.

Commodity Log

Commodity	Michael	Dave P.	Bob	Dave H.	Steve	Robert
Stone (2)	2	1	2		1	2
Wool (3)				3	5	
Timber (4)	1	2	1	1	1	
Grain (5)	1	1	2	1		1
Cloth (6)	3	1	1			2
Wine (7)			3	1	2	
Metal (8)		2	1	2	1	
Fur (9)		1			2	1
Silk (10)				1	3	
Spice (11)				2	1	
Gold (12)		1			1	
Ivory (12)				1	3	

Shortage, Surplus

<u>Sand Flea</u> Turn 2 Bidding and Movement Turn 2 Combat, 1/13 Tuesday

Players

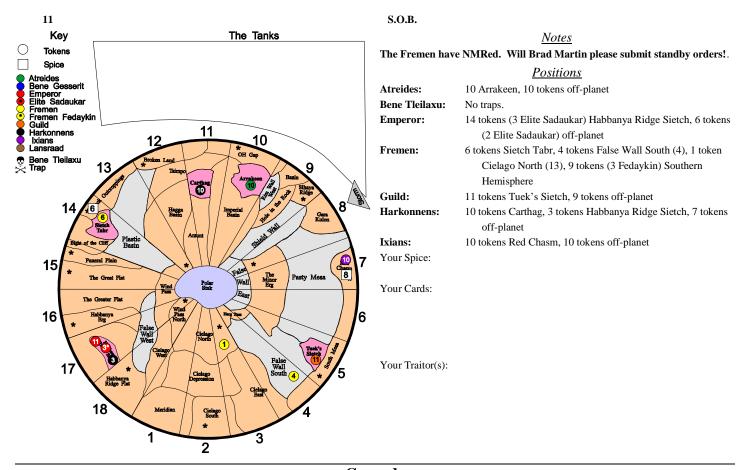
ATREIDES:	Jerry Roalstad	Bene Tleilaxu	Bob Robles
Emperor	Michael Longdin	Fremen	Gina Teh?
Guild	Kevin Wilson	HARKONNENS	Paul Bolduc
IXIANS	Ward Narhi	GAME MASTER	Chris Hassler
	<u>Errata</u>		<u>Shipping</u>
Note that during the la	st Spice Collection round, the Ixians should have received	Ixians ship 10 tokens to Tuek's S	Sietch (10 spice to the Guild)
10 spice. The totals h	ave been updated to reflect this.	Atreides ship 8 tokens Habbany	a Ridge Sietch (4 spiced loaned by the Guild and
	Bidding	paid back to the Guild)	
CARD 1 () goes to the Atreides for 3 spice.	Emperor ship 14 tokens (3 elite	Sadaukar) to Habbanya Ridge Sietch (14 spice to
CARD 2 () goes to the Guild for 3 spice	the Guild)	
CARD 3 () goes to Harkonnens for 2 spice (extra card:)	Guild ship 6 tokens to Tuek's Si	etch (3 spice to the bank)
CARD 4 () goes to the Ixians for 1 spice	Note that since only two powers	can occupy a stronghold at once, the larger
CARD 5 () goes to the Guild for 3 spice	shipment (the Emperor's) takes p	precedence.
CARD 6 () goes to the Ixians for 1 spice		Movement
	<u>Revival and Movement</u>	Ixians move 10 tokens Tuek's S	ietch – South Mesa – Red Chasm
The Guild chooses to	go last		<u>Combat</u>
	Revival	Harkonnens vs. Emperor in Hab	banya Ridge Sietch. Harkonnens are the
Fremen revive 3 toke	ns	aggressors. Eligible leaders: Al	1.

Fremen revive 3 tokens **Harkonnens** revive 2 tokens. <u>Cards</u>

Venice gains \$57

10

Genoa gains \$51



<u>Gaspode</u> Turn 6 Turn 7, 1/13 Tuesday

<u>Turn 6</u>

Andy Y. chooses the Mayor and places colonists on the Sugar Mill, Indigo plantation, and Indigo Plant. Dave places his colonists on Indigo Plant and Small Indigo Plant, and moves a colonist from Corn to Indigo, Andy L. places his colonists on a Corn plantation and Tobacco plantation, Chris places his colonists on Coffee plantation and Corn plantation, and Tom places his colonist on a Corn plantation.

Dave chooses the Builder, gaining 1 doubloon, and buying an Office (Builder bonus, Quarry, 3 doubloons). Andy L. buys a Small Sugar Mill (Quarry, 1 doubloon). Chris builds a Coffee Roaster (Quarry, 5 doubloons). Tom builds a Small Indigo Plant (Quarry). Andy Y. passes.

Andy L. chooses the Captain, gaining 2 doubloons and shipping the Indigo on Ship 1 for 3 VP. Chris ships 4 Tobacco on Ship 2 for 4 VP. Tom ships 2 Corn on Ship 3 for 2 VP. Andy ships 2 Indigo on Ship 1 for 2 VP. Dave ships 3 Indigo on Ship 1 for 3 VP. Ship 1 sails. Andy L. ships 3 Corn on Ship 3 for 4 VP. Tom ships Tobacco on Ship 2 for 1 VP. Dave ships the Corn on Ship 3 for 1 VP. Ship 3 sails.

Chris chooses the Prospector, gaining 2 doubloons.

Tom chooses the Settler, selecting an Indigo plantation. Andy Y. chooses a Coffee plantation. Dave chooses a Sugar plantation, and uses the Hacienda to gain a Coffee plantation. Andy L. selects a Coffee plantation, and declines the use of the Hacienda. Chris selects a Corn plantation.

Player Name	Role	Plantations	Buildings	San Juan	Doubloons	Stored Production	VP
Andy York	Mayor	Indigo, Indigo, Indigo, Sugar, Tobacco, Corn, Coffee	Indigo Plant (x3), Small Sugar Mill, Tobacco Storage (x1)		3	Tobacco	2
Dave Partridge	Builder	Indigo, Quarry, Corn, Indigo, Indigo, Indigo, Coffee, Tobacco, Sugar, Coffee	Small Indigo Plant, Hacienda, Indigo Plant (x3), Office		0		4
Andy Lewis	Captain	Indigo, Corn, Quarry, Sugar, Quarry, Coffee, Quarry, Corn, Corn, Tobacco, Coffee	Hacienda, Construction Hut, Small Indigo Plant, Small Sugar Mill		3		7
Chris Geggus	Prospector	Corn, Tobacco, Tobacco, Quarry, Sugar, Coffee , Corn	Small Market, Tobacco Storage (x2), Coffee Roaster		3		4

he Players

				S.O.B.					12	
Player Name	Role	Plantatio	ons	Buildings		San Juan	Doubloons	Stored Production	n VP	
Tom Howell	Settler	Corn, Tobacco,	Quarry,	Construction Hut, Small Ma	arket,		0		4	
		Quarry, Quarry,	, Corn ,	Tobacco Storage (x2), Sma	.11					
		Indigo		Indigo Plant						
Player in bold is	the Governo	r. Plantations and bu	ildings in bol	d are manned. Buildings that	can be mann	ed by more	than one color	nist will have the nur	nber man	
them in parenthe	eses after the	building name.								
				Available Items						
Colonists: Supp	ply: 40	Colonist Ship: 5			House: Co	rn, Indigo,	Tobacco			
Cargo Ships: S	Ship 1 (capaci	ty 6):	Ship 2 (c	capacity 7): 5 Tobacco	-	(capacity 8				
Victory Points:		-		·	1					
				Commodities						
Corn:	9	Indigo:	9	Sugar: 11	Tol	acco:	2	Coffee:	9	
		0		Buildings						
	Co	lumn 1		Column 2		Colun	ın 3	Column 4		
Small Indigo Pla				Indigo Plant				Guild I		
Small Sugar Mill (x2)		Sugar Mill (x3)		Coffee Roa	ster (x2)	Residence				
Shini Sugar Alli (12)		Hospice (x2)		Factory (x2)		Fortress				
			Office		University (x2)		Customs			
				Large Market (x2)		Harbou		City Hall		
Small Warehous	e (x2)			Large Warehouse (x2)		Wharf				
				Roles				•		
Builder Captain	Craftsman ((1d) Mayor Prospect	or Prospecto	r (1d), Settler, Trader (1d)						
Dunder, Captain	, crartoniali ((14), Mayor, 1105peer	, 1103peeto	Plantations						
Indigo, Corn, Su	ugar Indiac "	Tobacco Com		<u>r taittatiolis</u>						
0	0 0		Sugar Tobac	co, Indigo, Tobacco, Sugar, Ir	digo Sugar	Sugar Ind	igo			
Distard The. Co		Jugar, Correc, Sugar,	Sugar, 100ac	Robover	iaigo, sugai	Sugar, mu	150			
				Gamestart						
				Turn 1, 1/13 Tues	dav					
				<u>Players</u>						
# Plaver	r Name	Robot Name	Color	Options	Positio	n Fla	gs Lives	Damage		
1 Dave Partri		Robot Mante		Mechanical Arm	F27>F2		3	0		
2 Bill Scharf				Tractor Beam	G27>G2		3	0		
3 Chris Gegg				Flywheel	D27>D2		3	0		
4 Dave Hoot				Recompile	I27>I26		3	0		
5 Gine Teh				Circuit Breaker	B27>B2		3	0		
			I − − I	Circuit Dicakoi		<u> </u>				

<u>Notes</u>

K27>K26

A27>A26

L27>L26

The version of the game that I have is the Avalon Hill version, so those are the rules we are using. We are also starting with one Option card each. There is a player's aid page on the website that describes all of the Option cards. Due next time are your robot name, color, and your program for the first turn.

Gyroscopic Stabilizer

Ramming Gear

Abort Switch

Your Program Cards:

Ward Narhi

Cary Nichols

Michael Longdin

6

7

8

Pedagoguery

The universe has gone through many stages in its existence, but few are more mysterious than the dark age. Unlike when we are talking about human history, the dark age of the universe is meant quite literally. Very little light was around during that time. It all starts with the recombination.

Before the recombination, matter was a plasma – that is it consisted of free electrons, photons, protons, and a few other things like helium nuclei and exotic particles. Through a process called Thompson scattering, the photons interacted with the electrons and protons, keeping everything in equilibrium, meaning that the radiation temperature was the same as the kinetic temperature of the matter. However, due to the expansion of the universe, both temperatures were dropping,

and when the universe was about 400,000 years old, a major transition occurred. The temperature dropped below 3000 Kelvins, which meant that the photons were no longer energetic enough to prevent the electrons and protons from combining into neutral hydrogen. Once that occurred, Thompson scattering was no longer effective, and the radiation and matter "decoupled". The radiation became what we see now as the microwave background radiation, while the matter became the galaxies we see all around us.

3

3

3

0

0

0

You would expect that as the universe continued to expand, the neutral hydrogen gas would simply get colder and would stay neutral. But that is not the case. Most of the free hydrogen we observe is ionized – stripped of its electrons.

12

Now, in the grand scheme of things, it does not take much energy to ionize hydrogen. To ionize a kilogram of hydrogen, it takes only one millionth of the energy released when a kilogram of hydrogen undergoes nuclear fusion, and only one ten millionth the energy released when one kilogram of hydrogen falls into a black hole. We do know that by the time the universe was one billion years old, the gas had been completely re-ionized. The question is what happened to it in the meantime.

During the dark ages, there were three distinct reservoirs of energy. You had the energy of the background radiation, the kinetic energy of the gas, and a third source that is unavailable in a plasma. All particles have a quantum property called spin. In the case of protons and electrons, the spins actually act like tiny magnets. In a hydrogen atom, the spins of the proton and the electron can either be aligned to point in the same direction, or in opposite directions, which is termed "antialigned". The antialigned configuration has the lower energy, and if an atom flips from aligned to antialigned, it emits a photon with a wavelength of 21 centimeters. Thus, this third reservoir is termed spin energy. All three reservoirs have distinct temperature, and the relationships between them underwent a complicated dance during the dark ages. Early on, all three were in synch with each other. This is due to the fact that there were still a few free electrons around. These acted as mediators between the background radiation and the kinetic energy reservoirs. Collisions between atoms served to transfer energy between the kinetic and spin reservoirs. And finally, absorption and emission of 21-cm photons served to link the background radiation and spin reservoirs. However, by 10 million

years after the big bang, the background radiation had become too dilute to effectively interact with the residual free electrons.

During this next stage, the kinetic and spin temperatures dropped well below the background radiation temperature, while keeping in synch with each other. The gas was a net absorber of 21-cm radiation, but not enough to keep it up with the background radiation. By 100 million years after the big bang, expansion had diluted the gas density to the point where collisions were no longer common enough to equalize the kinetic and spin temperatures, so the kinetic temperature started to fall below the other two. Without the drag of the kinetic reservoir, the spin energy started absorbing energy from the background radiation, and eventually achieved equilibrium, becoming neither a net absorber nor a net emitter of radiation.

The final transition occurred as the first stars and black holes lit up, reionizing the gas. During this time, the kinetic and spin temperatures started to climb, and energy was pumped into them by the high energy radiation put out by the stars and black holes. Eventually, they reached equilibrium with each other, at a level far above the background radiation.

Given these scenarios, and the fact that the 21-cm line is red shifted more the farther back you go, astronomers can use this to probe the condition of the universe at various stages of the early universe, and potentially determine whether stars or black holes were the dominant factor in re-ionizing the universe.

Next time, the creation of the elements.



Addresses

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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 Silverton: Cary Nichols, Bill Scharf, Dave Partridge, Martin, Andy York Settlers of Catan: Michael Lowrey, Chris Geggus, Cary Nichols, Dave Partridge, Brad Martin Gunslinger: none Industrial Waste: Michael Longdin, Brad Martin Puerto Rico: Brad Martin Power Grid: Brad Martin

Standby Calls

Brad Martin for the Fremen in Sand Flea.

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