Virtual Worlds

Lessons from the Bleeding Edge of Multiplayer Gaming

Game Design

Greg Corson

Dave McCoy

Key Lesson

"If you wonder how he eats and breaths and other science facts, just say to yourself *it's just a game I should really just relax!"*

Fun is more important than realism!

"No matter how realistic your game is, if it isn't fun to play people won't be back!"

Fun vs Realism

- In the beginning, we tried to have things "make sense" physically and fit the game story concept exactly.
- Red Planet, had no weapons because it didn't seem logical for a "mining colony" to have them .
- Players *constantly* asked us to put in guns, but the game designers wouldn't allow it.
- Finally, the programmers added weapons as a secret project and when the designers saw how much fun they were it was grudgingly decided to allow them into the public game.
- Guess what? Game play went *way up*.

Fun is the most important thing!

- If your game isn't fun on a very basic level, only zealots of the genre will play it.
- In movies, cars explode and fly through the air, this isn't realistic but it is FUN. "Phantom Menace" pod racer scene and the car chases in "Ronin" are perfect examples.
- Being a slave to physics can make a game slower and less exciting. Red planet vehicles frequently flew above mach 1, the reason, it was more fun!
- Red Planet let players collide and live through G-forces that would have turned them into grease spots because bashing other vehicles around was more fun than blowing up on the first good hit.

Key Lesson

A well designed multiplayer game that provides a social environment for it's players is more addictive than crack cocaine.

What's A Social Environment?

- A place that brings together strangers with common interests and gets them talking.
- A shared experience that becomes the source of discussions and relationships.
- For example…
  - Bowling Alley
  - Sports Bar
  - Benihanna's Restaurant
  - Virtual World Entertainment
- "You can buy a six-pack cheap but the bars are still full", people like socializing.

Why?

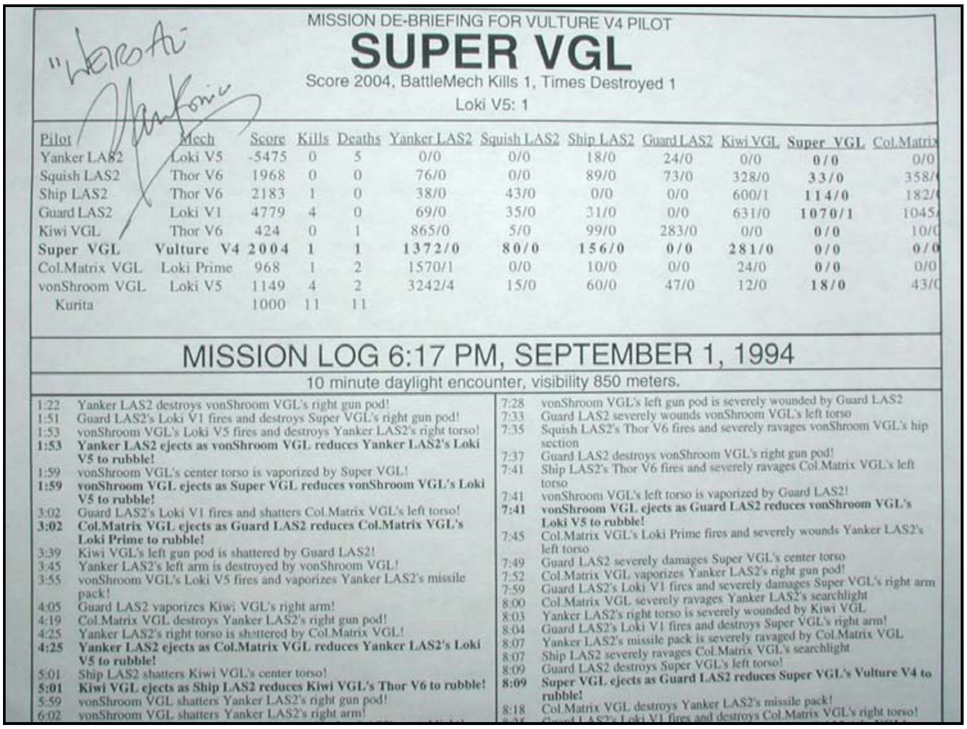
- It helps generate emotional attachment to the game.
- It encourages regular game attendance
- Emotional attachment to the game and other players helps stop undesirable behavior.
- Allows players to become a “hero” among their peers.
- Playing with and against other people is more fun than playing with “bots” and never gets stale.

You need to be able to talk!

- In a “neverending” game like Everquest or Ultima Online you need…
  - Safe areas, like taverns, where you can talk with little fear of attack.
  - Occasional slowdowns in the action.
- In episodic or simulation action games
  - Before action team briefing/planning areas
  - In game voice intercom
  - After action group review
  - Private bulletin boards and chat for every team.

And you need a reason to!

- Teams who strategize and communicate should have a noticeable advantage.
- Even an "ace" player should have a problem playing against a team of beginners.
- After-action review should let teams analyze and fix mistakes in their strategy
- General "lounge" areas where you can watch games in progress, chat or talk trash at your opponents.
- Take-away items, like score sheets, so the discussion can continue after the players leave.



MISSION DE-BRIEFING FOR VULTURE V4 PILOT

SUPER VGL

Score 2004, BattleMech Kills 1, Times Destroyed 1

Loki V5: 1

Pilot	Mech	Score	Kills	Deaths	Yanker LAS2	Squish LAS2	Ship LAS2	Guard LAS2	Kiwi VGL	Super VGL	Col.Matrix
Yanker LAS2	Loki V5	-5475	0	5	0/0	0/0	18/0	24/0	0/0	**0/0**	0/0
Squish LAS2	Thor V6	1968	0	0	76/0	0/0	89/0	73/0	328/0	**33/0**	358/(
Ship LAS2	Thor V6	2183	1	0	38/0	43/0	0/0	0/0	600/1	**114/0**	182/(
Guard LAS2	Loki V1	4779	4	0	69/0	35/0	31/0	0/0	631/0	**1070/1**	1045/
Kiwi VGL	Thor V6	424	0	1	865/0	5/0	99/0	283/0	0/0	**0/0**	10/(
Super VGL	**Vulture V4**	**2004**	**1**	**1**	**1372/0**	**80/0**	**156/0**	**0/0**	**281/0**	**0/0**	**0/(**
Col.Matrix VGL	Loki Prime	968	1	2	1570/1	0/0	10/0	0/0	24/0	**0/0**	0/0
vonShroom VGL	Loki V5	1149	4	2	3242/4	15/0	60/0	47/0	12/0	**18/0**	43/(
Kurita		1000	11	11							

MISSION LOG 6:17 PM, SEPTEMBER 1, 1994

10 minute daylight encounter, visibility 850 meters.

1:22 Yanker LAS2 destroys vonShroom VGL's right gun pod!

1:51 Guard LAS2's Loki V1 fires and destroys Super VGL's right gun pod!

1:53 vonShroom VGL's Loki V5 fires and destroys Yanker LAS2's right torso!

1:53 Yanker LAS2 ejects as vonShroom VGL reduces Yanker LAS2's Loki V5 to rubble!

1:59 vonShroom VGL's center torso is vaporized by Super VGL!

1:59 vonShroom VGL ejects as Super VGL reduces vonShroom VGL's Loki V5 to rubble!

3:02 Guard LAS2's Loki V1 fires and shatters Col.Matrix VGL's left torso!

3:02 Col.Matrix VGL ejects as Guard LAS2 reduces Col.Matrix VGL's Loki Prime to rubble!

3:39 Kiwi VGL's left gun pod is shattered by Guard LAS2!

3:45 Yanker LAS2's left arm is destroyed by vonShroom VGL!

3:55 vonShroom VGL's Loki V5 fires and vaporizes Yanker LAS2's missile pack!

4:05 Guard LAS2 vaporizes Kiwi VGL's right arm!

4:19 Col.Matrix VGL destroys Yanker LAS2's right gun pod!

4:25 Yanker LAS2's right torso is shattered by Col.Matrix VGL!

4:25 Yanker LAS2 ejects as Col.Matrix VGL reduces Yanker LAS2's Loki V5 to rubble!

5:01 Ship LAS2 shatters Kiwi VGL's center torso!

5:01 Kiwi VGL ejects as Ship LAS2 reduces Kiwi VGL's Thor V6 to rubble!

5:59 vonShroom VGL shatters Yanker LAS2's right gun pod!

6:02 vonShroom VGL shatters Yanker LAS2's right arm!

7:28 vonShroom VGL's left gun pod is severely wounded by Guard LAS2

7:33 Guard LAS2 severely wounds vonShroom VGL's left torso

7:35 Squish LAS2's Thor V6 fires and severely ravages vonShroom VGL's hip section

7:37 Guard LAS2 destroys vonShroom VGL's right gun pod!

7:41 Ship LAS2's Thor V6 fires and severely ravages Col.Matrix VGL's left torso

7:41 vonShroom VGL's left torso is vaporized by Guard LAS2!

7:41 vonShroom VGL ejects as Guard LAS2 reduces vonShroom VGL's Loki V5 to rubble!

7:45 Col.Matrix VGL's Loki Prime fires and severely wounds Yanker LAS2's left torso

7:49 Guard LAS2 severely damages Super VGL's center torso

7:52 Col.Matrix VGL vaporizes Yanker LAS2's right gun pod!

7:59 Guard LAS2's Loki V1 fires and severely damages Super VGL's right arm

8:00 Col.Matrix VGL severely ravages Yanker LAS2's searchlight

8:03 Yanker LAS2's right torso is severely wounded by Kiwi VGL

8:04 Guard LAS2's Loki V1 fires and destroys Super VGL's right arm!

8:07 Yanker LAS2's missile pack is severely ravaged by Col.Matrix VGL

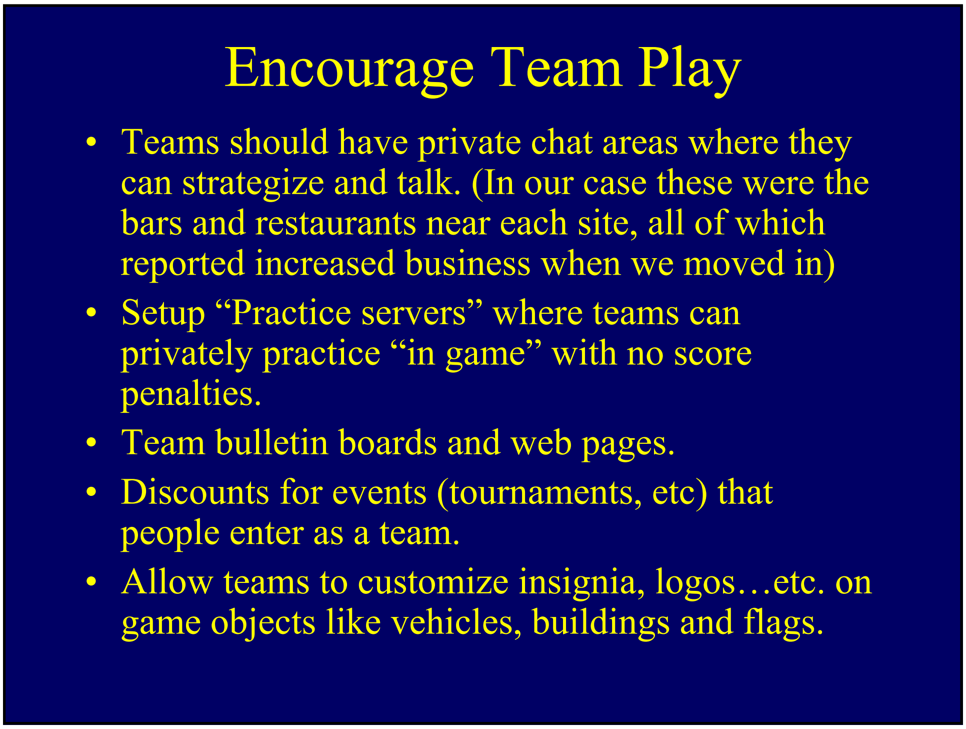
8:07 Ship LAS2 severely ravages Col.Matrix VGL's searchlight

8:09 Guard LAS2 destroys Super VGL's left torso!

8:09 Super VGL ejects as Guard LAS2 reduces Super VGL's Vulture V4 to rubble!

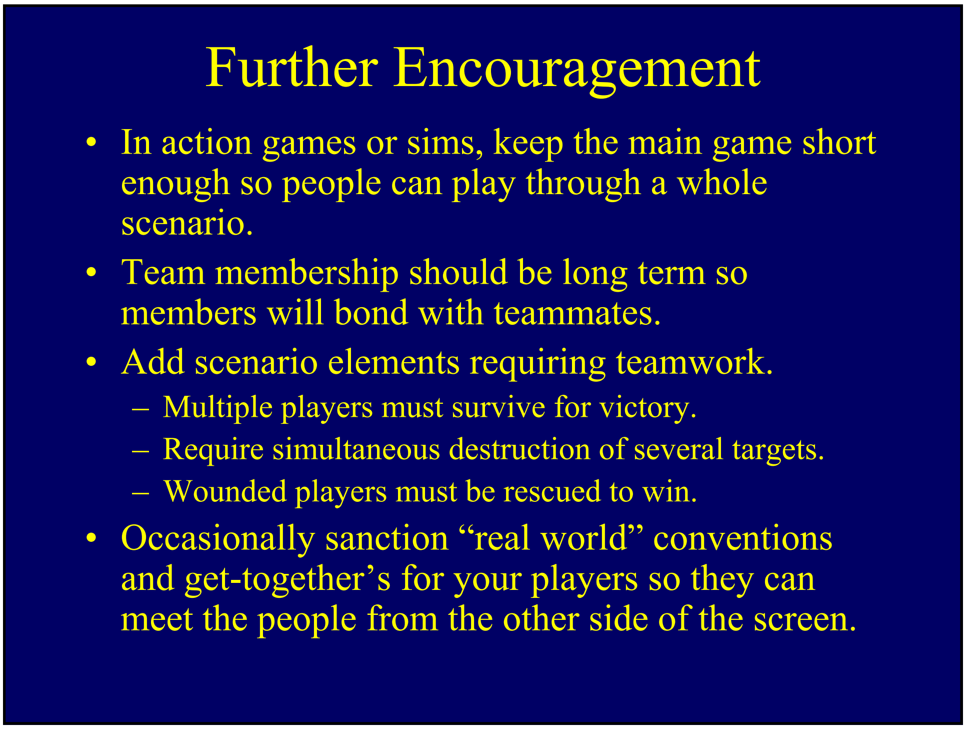
8:18 Col.Matrix VGL destroys Yanker LAS2's missile pack!

8:25 Guard LAS2's Loki V1 fires and destroys Col.Matrix VGL's right torso!



Encourage Team Play

- Teams should have private chat areas where they can strategize and talk. (In our case these were the bars and restaurants near each site, all of which reported increased business when we moved in)
- Setup “Practice servers” where teams can privately practice “in game” with no score penalties.
- Team bulletin boards and web pages.
- Discounts for events (tournaments, etc) that people enter as a team.
- Allow teams to customize insignia, logos…etc. on game objects like vehicles, buildings and flags.



Further Encouragement

- In action games or sims, keep the main game short enough so people can play through a whole scenario.
- Team membership should be long term so members will bond with teammates.
- Add scenario elements requiring teamwork.
  - Multiple players must survive for victory.
  - Require simultaneous destruction of several targets.
  - Wounded players must be rescued to win.
- Occasionally sanction “real world” conventions and get-together’s for your players so they can meet the people from the other side of the screen.

For Example…

1995 VIRTUAL WORLD CUP
AND VGL PILOT'S CONVENTION
LAS VEGAS JUNE 3rd & 4th
COMPETITIONS HAVE BEGUN. SIGN UP NOW!
BATTLETECH INDIVIDUAL FROM FEB. 13
BATTLETECH TEAM FROM MAR. 28
RED PLANET INDIVIDUAL FROM FEB. 15
RED PLANET TEAM (MFB) FROM MAR. 27
SEE STAFF FOR COMPLETE DETAILS OR SURF YOUR WAY OVER TO www.virtualworld.com

Key Lesson

You need to make sure new players have a good experience the first time they play.

"The descriptions of most people's first experiences playing Quake on line read like police reports from gang beatings."

Are new players welcome?

- If people have a bad experience the first time they play your game, *many will never come back!*
- Some learning time is expected, but few expect to be totally demoralized and beaten to a pulp.
- In many team games, teams resist inexperienced players "messing up" their strategy.
- New players lack skills and are treated as "easy points" to be picked off by experts.
- In complex games, new players sometimes can't keep up and get left behind.
- In some games, experts simply don't have time to help out new ones.

Making New Players Welcome

- Have "Boot camps" and training courses for learning the basics.
- Build "New Player Only" scenarios.
- Give teams a reason to adopt new players
  - Increased allocation of equipment/supplies
  - Credits for adding new teammates
  - Enforced minimum (and maximum) team sizes
  - "Promote" experts to higher positions, requiring addition of new people.
- Handicap experts in mixed games.
- Come up with a way for other players to "ride along" with the beginners and help out.

Scenarios for Mixed Skill Levels

- Scenarios can be made where novices will be good for more than just “cannon fodder”
- Novices can be valuable while they are learning.
  - Forward observers, guards and lookouts
  - Medics, repair techs and scavengers
  - Builders, combat engineers, craftsmen
- These roles must be designed so the player still learns skills useful in expert play.
- This will arise by itself in time, but will happen faster if the game encourages it.

Key Lesson

The players should feel like the heros of an action movie they create by playing.

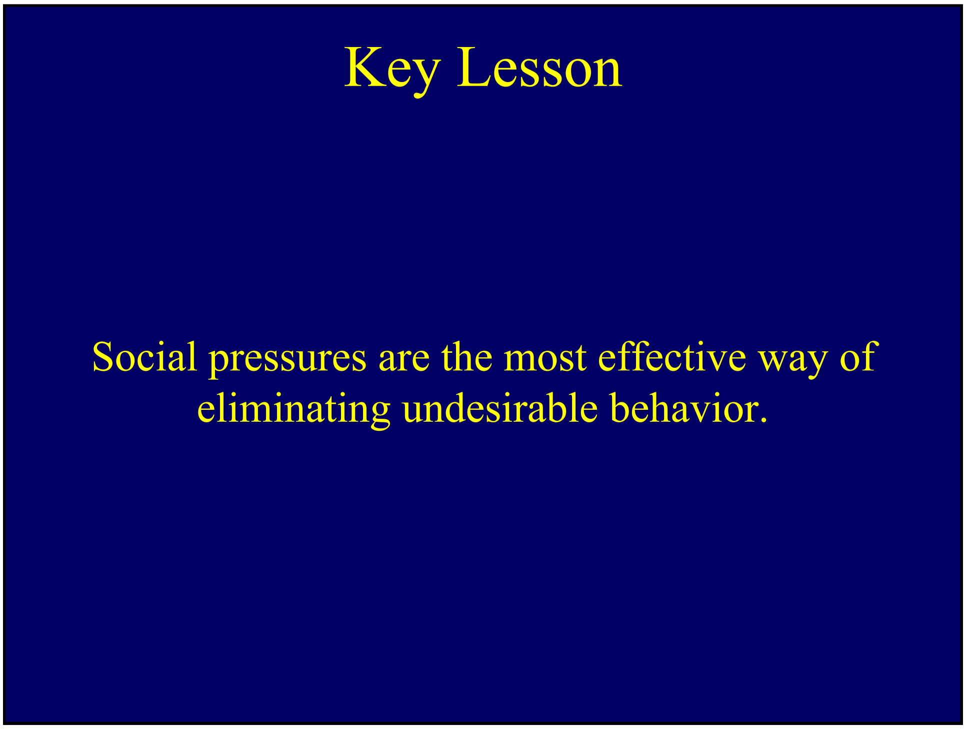
How and Why

- People like being the hero of course!
- Hold contests and tournaments frequently
- Have many levels of regional eliminations giving people the chance to be “local heros”
- Give players medals/pins for tournament wins or passing a “master trial” skill level test.
- Publicize contest results widely, giving players in-game and real world rewards.
- Red planet had “cartographer’s rallies” where the person with the best score on a new course got to name it.

Turning Players Into Teachers

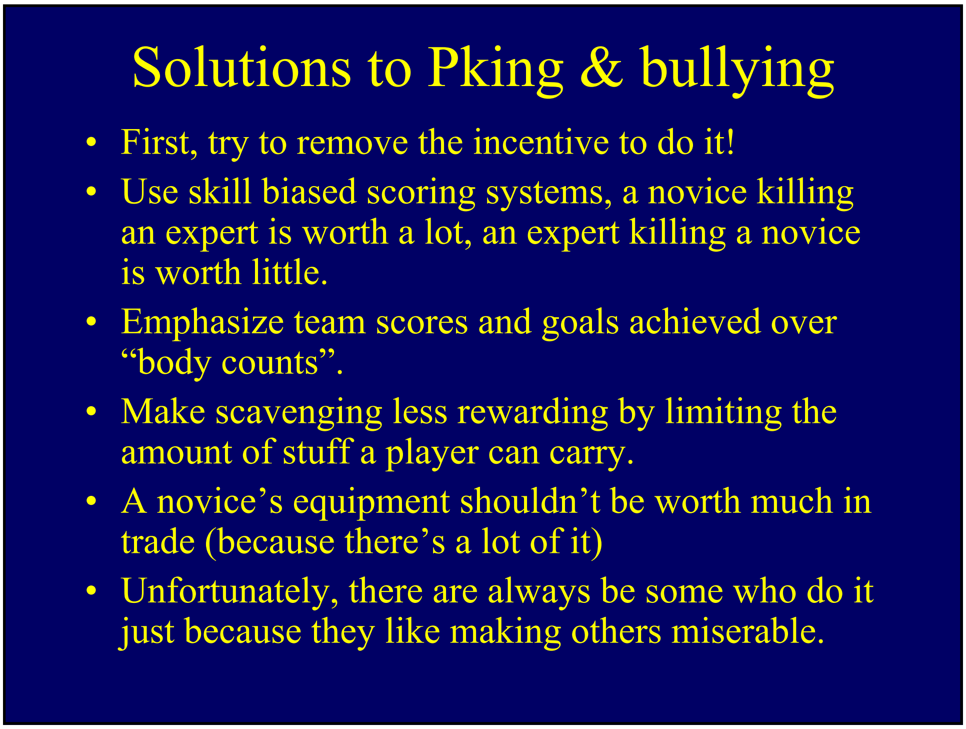
- Many experts relish the chance to teach new players, but few games give them a chance or try to encourage it.
- Scoring systems make it hard for experts to demonstrate tactics or be "practice targets" without losing points.
- Build "training areas" where a player's score and standing are not at risk.
- Create rewards for teachers like free games, special game items, even real money.
- Never underestimate how much work some people will do to gain a little status symbol in your game.

Award Pins



Key Lesson

Social pressures are the most effective way of eliminating undesirable behavior.



Solutions to Pking & bullying

- First, try to remove the incentive to do it!
- Use skill biased scoring systems, a novice killing an expert is worth a lot, an expert killing a novice is worth little.
- Emphasize team scores and goals achieved over “body counts”.
- Make scavenging less rewarding by limiting the amount of stuff a player can carry.
- A novice’s equipment shouldn’t be worth much in trade (because there’s a lot of it)
- Unfortunately, there are always be some who do it just because they like making others miserable.

More Active Solutions

- Increase “real world” investment in a character, so people won’t want to risk losing it.
- “Wrong thinking will be punished, right thinking will be as quickly rewarded”
- Widely publish undesirable behavior to warn new people and encourage players to take action.
- Show stats on what experience level of players a person has killed so PK’ers will stand out.
- The “Drygulch” solution, post bounties and send posies after disruptive characters.
- Unfortunately, it’s always hard to get the townspeople to stand up and fight the outlaws.

Key Lesson

“If it’s just a game, then why are your palms sweating?”

“Fear and terror, terror and fear, those are our watchwords…”

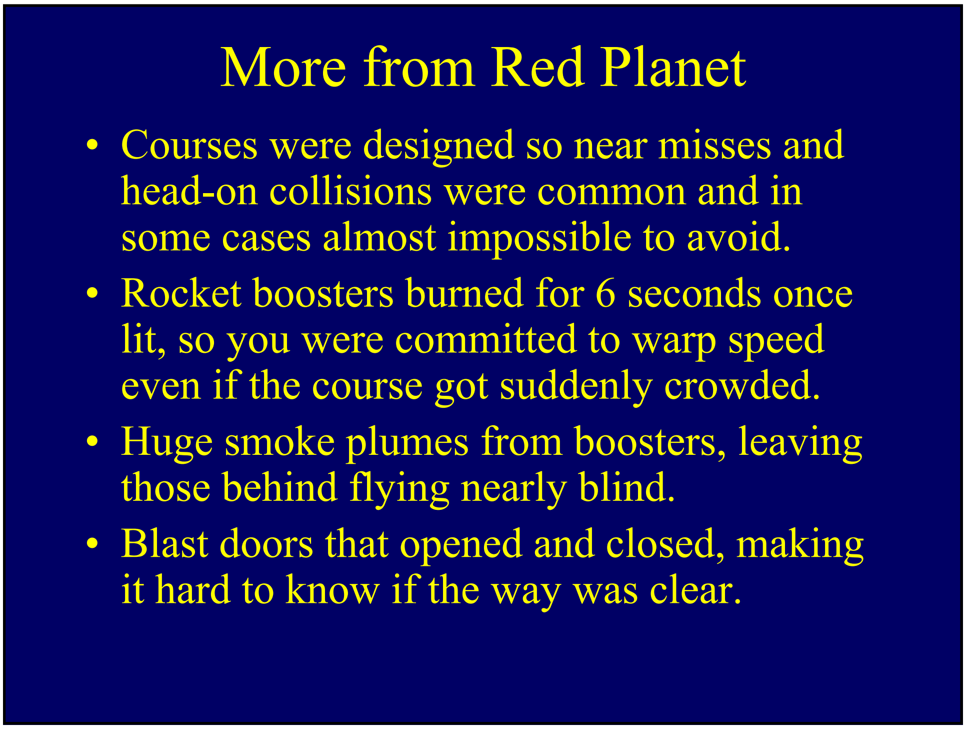
Ways to create an intense experience

Panic and Overloading

- Two things that really get the adrenalin pumping and make the game exciting.
- Constantly stressing the player also makes the game more exciting for them.
- Overloading, giving the player more things to do than they can possibly manage, is a good way to generate stress and panic.
- Get the players consent (by the scenario they pick) before you really stress them
- Don't be afraid to keep upping the ante, experts love near impossible challenges.

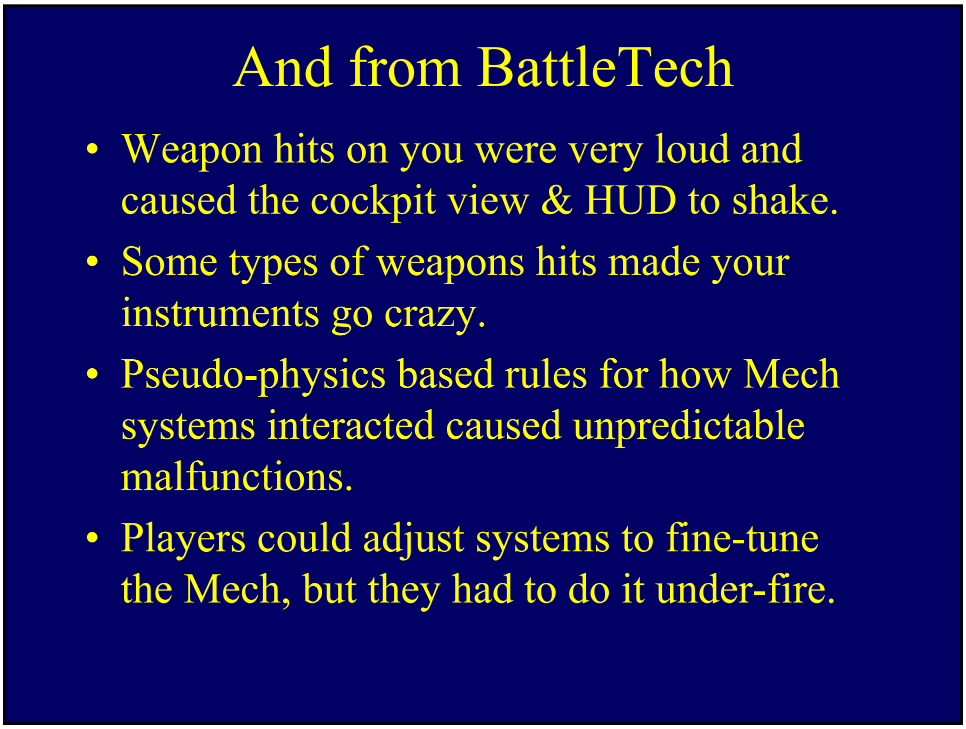
Examples from Red Planet

- Rearward firing weapons, inviting the player to overload himself by trying to fly at mach 1 while trying to shoot out the back window.
- "Proximity mines" designed to be very visible so people would see it coming, panic and do something crazy to avoid them.
- Mine explosions gave you a "push" so even if they don't kill, they might cause a crash.
- Vehicles that tumble out of control instead of just blowing up.
- Exaggerated weapon effects like smoke, sparks and sounds even when they do little damage.



More from Red Planet

- Courses were designed so near misses and head-on collisions were common and in some cases almost impossible to avoid.
- Rocket boosters burned for 6 seconds once lit, so you were committed to warp speed even if the course got suddenly crowded.
- Huge smoke plumes from boosters, leaving those behind flying nearly blind.
- Blast doors that opened and closed, making it hard to know if the way was clear.



And from BattleTech

- Weapon hits on you were very loud and caused the cockpit view & HUD to shake.
- Some types of weapons hits made your instruments go crazy.
- Pseudo-physics based rules for how Mech systems interacted caused unpredictable malfunctions.
- Players could adjust systems to fine-tune the Mech, but they had to do it under-fire.

Red Planet’s Martian Football

- Each team had a “runner” who scored by going fast and not getting killed.
- “Crushers” got points by killing the runner.
- “Blockers” got points by killing “Crushers”
- Blockers and crushers lost no points for dieing and had an unlimited booster supply.
- Every lap completed without being killed raised the runner’s score multiplier.
- Players constantly overloaded and near panic for the whole game.

Martian Football, A huge success

- The Adrenalin junkies loved this game.
- You never got a break, someone was always flying straight at you at extreme speed.
- People would sometimes exit the pod covered in sweat or visibly shaking.
- It was quite a spectacle for people watching.
- The noise (from screaming players and spectators) was unbelievable.
- It was what convinced many people to try the game

What doesn’t work

- Overloading players too much or too often (unless they ask for it) is frustrating.
- You need to tone down or eliminate the overload factor for new players to give them a chance to learn.
- Players need to feel that they *might* have been able to deal with the situation if they hadn’t panicked.
- Obvious “no win scenarios” are usually not well received, particularly in sims.

Key Lesson

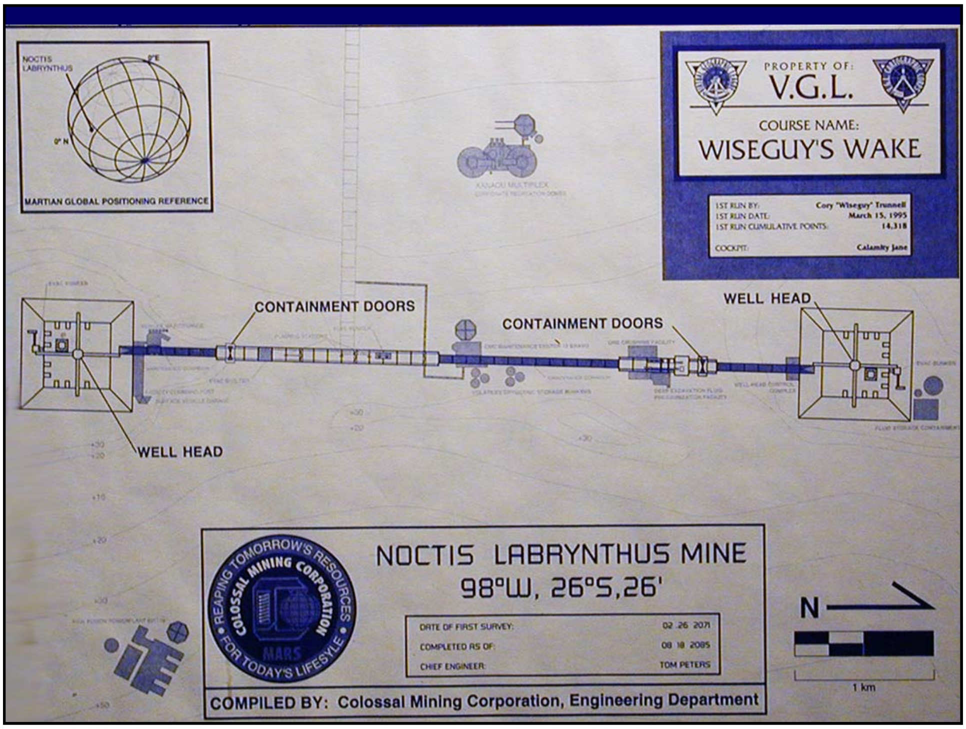
Scoring and play balancing multiplayer games is way different from single player games

Interaction

- Interaction of players is key to a fun multiplayer game, but it can be harder to achieve this than you might think
- In races, players quickly spread out and end up driving by themselves, not much fun.
- In combat, a fight can draw people away from the main conflict, leading to a long boring trip back to the action when the fight is finished.
- Showing scores in game can cause players with a clear lead to just “loaf along”.

Creating Interaction: Red Planet

- Only place was displayed in game, not score, this kept players with comfortable leads from loafing.
- Point to point courses, with turnarounds at the ends, kept players in each other’s faces flying back and forth over the same course.
- “Blast doors” that opened and shut at random acted to bunch up players.


NOCTIS LABRYNTHUS
0°E
0° N
MARTIAN GLOBAL POSITIONING REFERENCE
PROPERTY OF:
V.G.L.
COURSE NAME:
WISEGUY'S WAKE
1ST RUN BY: Cory "Wiseguy" Trunnell
1ST RUN DATE: March 15, 1995
1ST RUN CUMULATIVE POINTS: 14,318
COCKPIT: Calamity Jane
CONTAINMENT DOORS
CONTAINMENT DOORS
WELL HEAD
WELL HEAD
REAPING TOMORROW'S RESOURCES • FOR TODAY'S LIFESYLE •
COLOSSAL MINING CORPORATION
MARS
NOCTIS LABRYNTHUS MINE
98°W, 26°S,26'
DATE OF FIRST SURVEY: 02 26 2071
COMPLETED AS OF: 08 18 2085
CHIEF ENGINEER: TOM PETERS
COMPILED BY: Colossal Mining Corporation, Engineering Department
N
1 km

Creating Interaction: Battletech

- Many maps were constrained by geography, buildings or minefields to help keep people from spreading too far apart.
- Players were always reincarnated as close to the main action as possible.
- When reincarnated, a player’s radar would lock on to the person that killed them so they knew where to go for revenge.

Key Lesson

A good multiplayer simulation game has a nearly infinite learning curve that never plateaus. To keep players interested, they need to feel that they are getting a little better with every game but that they've never reached "perfection"

"Even pro bowlers rarely bowl a perfect 300"

Scoring

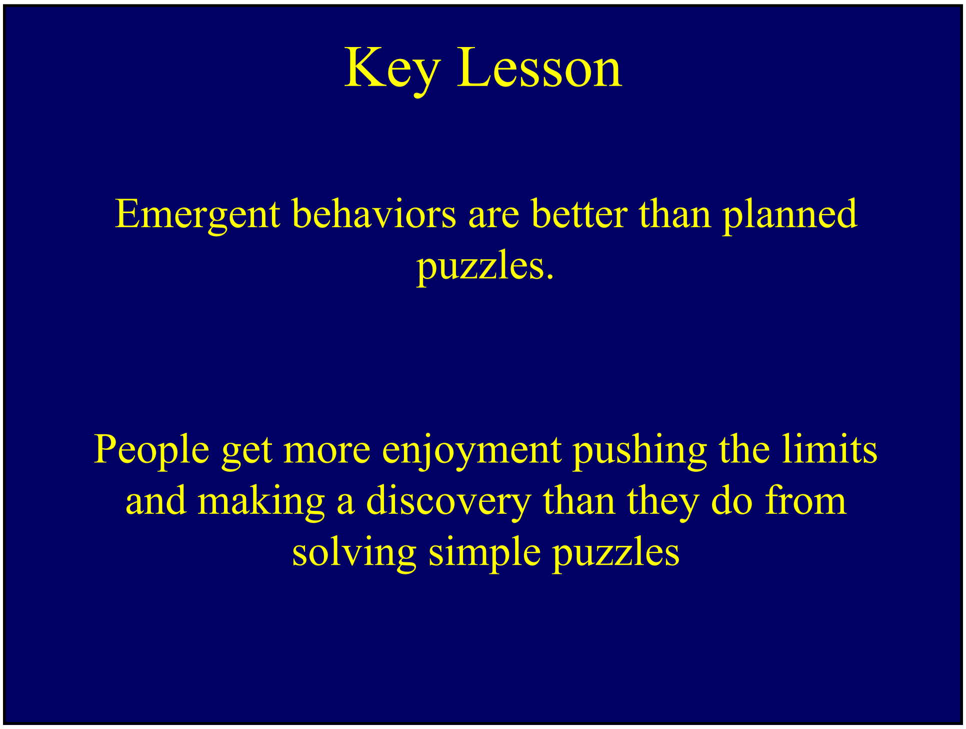
- As if I had to tell you, people really *hate* getting zero or negative scores.
- BattleTech tried many systems and eventually emphasized kills and points for damage done.
- Red Planet gave points for accidents caused, distance traveled and speed, subtracted them for damage taken. This could result in huge (100x) score swings and lots of aggressive driving.
- In Red Planet, a "score compression" system was developed for novice players to avoid the huge swings. Experts didn't use this system and lived with the possibility of getting a negative score

Balance

- The most critical balance factor was the site operators grouping together players with similar skill levels. Without this, we would have had PKing problems too.
- Battletech had additional difficulty settings that could be applied per-player as a handicap
- Vehicles were carefully balanced with weight, firepower and speed trade-offs. Some fitted specific playing styles better than others, but all were relatively equal in strength within the same "weight class".

More on Balance

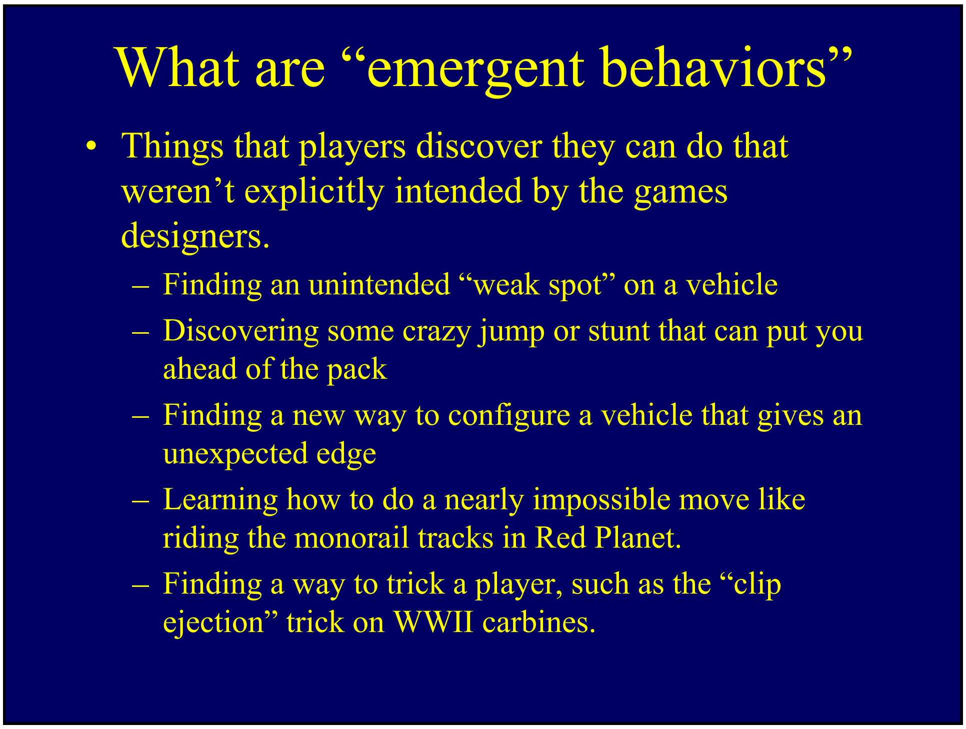
- Racing games will add performance to the trailing cars to keep the pack together. But this messes up long term scorekeeping and serious players hate it.
- It was hard to "dumb down" the Red Planet flight model without ruining the fun of the game, so a series of maps were developed from novice to expert, with varying degrees of challenges.
- Red Planet's "folded tracks" kept even slow players from feeling left behind.
- With score compression on, novices could play together with experts and not come out with a bad score.



Key Lesson

Emergent behaviors are better than planned puzzles.

People get more enjoyment pushing the limits and making a discovery than they do from solving simple puzzles

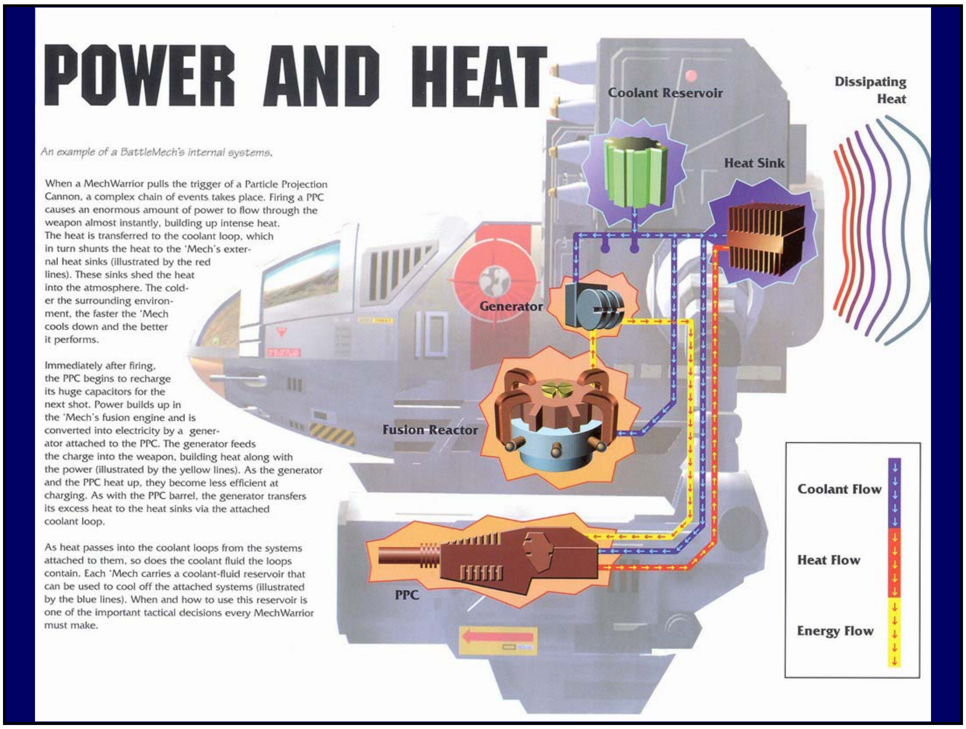


What are "emergent behaviors"

- Things that players discover they can do that weren't explicitly intended by the games designers.
  - Finding an unintended "weak spot" on a vehicle
  - Discovering some crazy jump or stunt that can put you ahead of the pack
  - Finding a new way to configure a vehicle that gives an unexpected edge
  - Learning how to do a nearly impossible move like riding the monorail tracks in Red Planet.
  - Finding a way to trick a player, such as the "clip ejection" trick on WWII carbines.

Design for Emergent Behaviors

- Don’t confuse this with “secrets” like you find in platform games, it’s different (but just as rewarding to the player that finds them).
- You can’t design-in emergent behaviors, but you can do things that let them arise
- Use physics or “pseudo-physics” to create systems that can do unexpected things.
- Avoid random hit location/effects, try to tie hit location to hit effect, like killing someone’s radio by shooting off the antenna.
- Damage to systems in a vehicle should combine in in different ways, giving hard to predict effects



POWER AND HEAT

An example of a BattleMech's internal systems.

When a MechWarrior pulls the trigger of a Particle Projection Cannon, a complex chain of events takes place. Firing a PPC causes an enormous amount of power to flow through the weapon almost instantly, building up intense heat. The heat is transferred to the coolant loop, which in turn shunts the heat to the 'Mech's external heat sinks (illustrated by the red lines). These sinks shed the heat into the atmosphere. The colder the surrounding environment, the faster the 'Mech cools down and the better it performs.

Immediately after firing, the PPC begins to recharge its huge capacitors for the next shot. Power builds up in the 'Mech's fusion engine and is converted into electricity by a generator attached to the PPC. The generator feeds the charge into the weapon, building heat along with the power (illustrated by the yellow lines). As the generator and the PPC heat up, they become less efficient at charging. As with the PPC barrel, the generator transfers its excess heat to the heat sinks via the attached coolant loop.

As heat passes into the coolant loops from the systems attached to them, so does the coolant fluid the loops contain. Each 'Mech carries a coolant-fluid reservoir that can be used to cool off the attached systems (illustrated by the blue lines). When and how to use this reservoir is one of the important tactical decisions every MechWarrior must make.

Battletech Examples

- Players had to discover the strong and weak points of each Mech, and how to exploit them.
- They learned to disorient enemy pilots by nudging them with low power weapons at just the right time to break a weapons lock and make them waste a shot.
- The physics of missiles gave them a specific “firing envelope” where they were more likely to hit. Players had to learn this for each missile type
- Multiple leg hits were crippling, reducing the mech to a slow limp. Leaving a mech in this state could keep them from reaching a target on time.

Red Planet Examples

- Many maps had very tight areas designed to slow players down. A player discovered how to “thread the needle” through these areas at top speed, earning him bragging rights for weeks.
- Mines dropped with gravity from below the vehicle, but by simultaneously pulling up, releasing a mine and slamming on the brakes you could “fling” a mine up and ahead of you.
- Because you got more lift at lower altitudes, grounding the vehicle and then slamming on full power let you “leap” quite high into the air.

Key Lesson

Communications latency is unavoidable, but the game design can hide it

"Remember, players can't see each other's screens. What's displayed on each one can be different so long as the outcome is the same!"

Lasers and missiles and shells (oh my!)

- A laser may seem to hit the target on your screen, but if you create it coming out of the gun at the same angle on a remote screen, latency may make it look like a clear miss.
- Hit locations on local and remote computers may not agree because of this.
- Minor errors like a laser passing through the corner of a building will be ignored. Major ones, like shooting the right arm and seeing damage on the left one, will not be.

Solutions

- A weapon’s user is most likely to notice problems, so base your system on them.
- The person shooting should determine the hit location on the target. The target determines the effect of the hit.
- Adjust the firing angle of a laser on remote systems so it will strike the same spot the shooter saw it hit.
- A missile’s course can also be adjusted in flight so everyone sees it hit the same place.

Key Lesson

Players really like game replay systems.

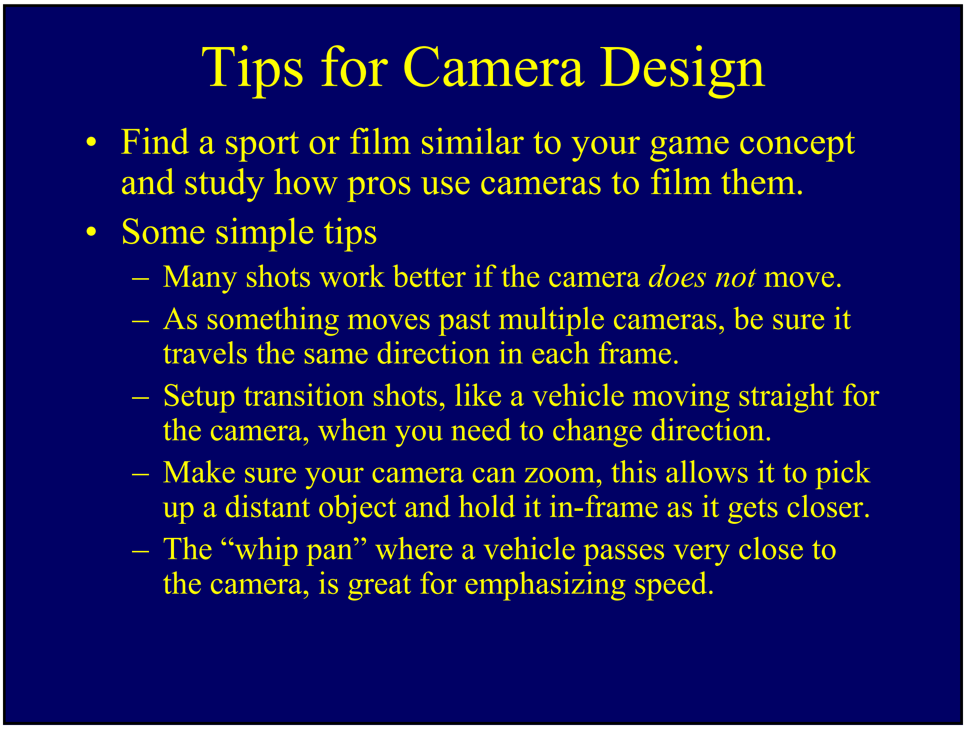
“I don’t think I ever saw anyone skip the mission review in our sites”

Why do they like it?

- It gives people a chance to see who was pounding on them during a game, so they could get revenge.
- It lets you see your mistakes and successes.
- If the replays are saved, you can make movies of them to send friends, put on team home pages…etc.
- It gives players the chance to exercise their bragging rights (did you SEE what I did there!)
- A real-time system also allows non-players to enjoy the game as spectators. (many people showed up at our sites just to watch others play)

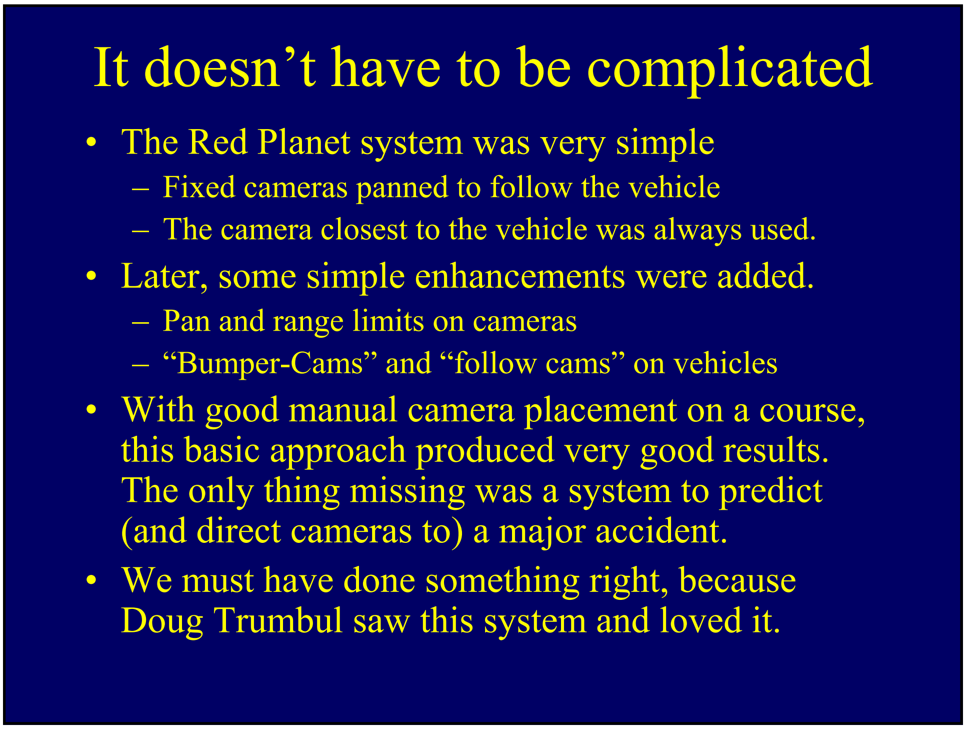
Camera Systems

- The most common error people make with cameras is not damping their motion. Cameras should move smoothly without shaking or suddenly changing direction and speed.
- The only time you want to shake a camera is when there is a major event (like an explosion) right near by, and sometimes not even then.
- When Tomb Raider style “flying cameras” fail in tight spots, try having a predefined camera location to cover that area, and smoothly transition the flying cam to and from that spot.
- Films commonly use “locked down” (non moving) cameras while games don’t, there’s a lesson here.



Tips for Camera Design

- Find a sport or film similar to your game concept and study how pros use cameras to film them.
- Some simple tips
  - Many shots work better if the camera *does not* move.
  - As something moves past multiple cameras, be sure it travels the same direction in each frame.
  - Setup transition shots, like a vehicle moving straight for the camera, when you need to change direction.
  - Make sure your camera can zoom, this allows it to pick up a distant object and hold it in-frame as it gets closer.
  - The “whip pan” where a vehicle passes very close to the camera, is great for emphasizing speed.



It doesn’t have to be complicated

- The Red Planet system was very simple
  - Fixed cameras panned to follow the vehicle
  - The camera closest to the vehicle was always used.
- Later, some simple enhancements were added.
  - Pan and range limits on cameras
  - “Bumper-Cams” and “follow cams” on vehicles
- With good manual camera placement on a course, this basic approach produced very good results. The only thing missing was a system to predict (and direct cameras to) a major accident.
- We must have done something right, because Doug Trumbul saw this system and loved it.

Key Lesson

Learn to work with what you have

A basic game design that can be added to is often better than a design of epic scope.

Design Scope

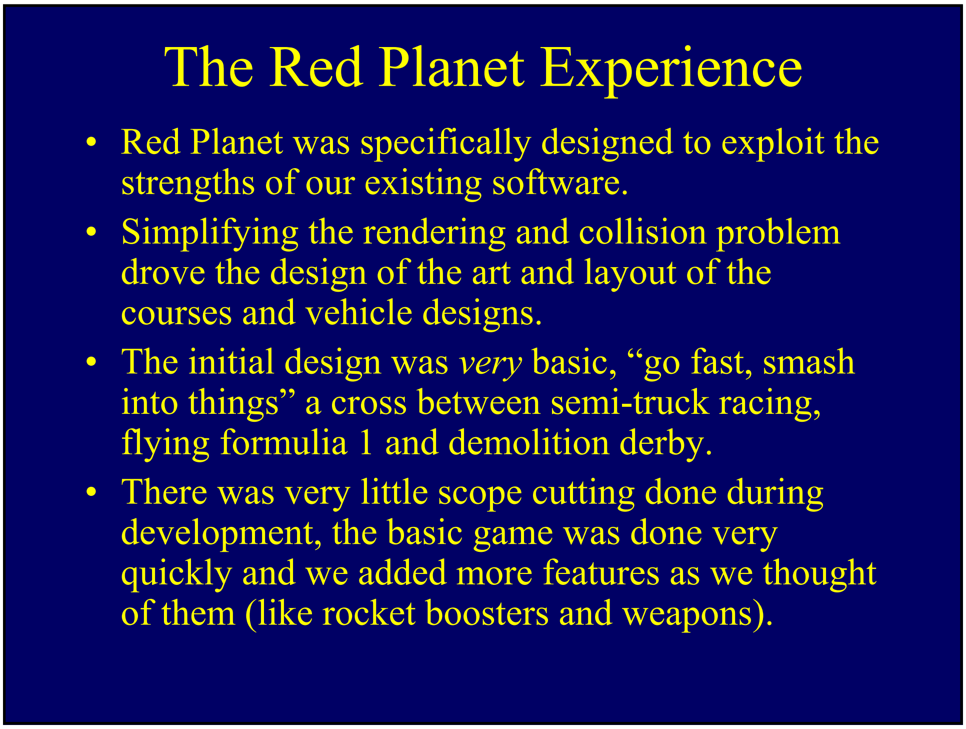
- One of the biggest reasons for long delays of some games is the “epic scope” of their design.
- Designs requiring a lot of technological leaps can take forever just to reach basic playtest stage.
- If your game design is dependant on solving a hard technical problem and you fail to do so, the entire design may have to be reworked.
- Epic designs often get split into multiple releases or mission packs, recognizing this initially will save wear and tear on the development team.
- In my opinion, “epic scope” is a more dangerous problem than “feature creap”

The Battletech Experience

- Battletech's design initially had a very "epic" scope, inherited from the board game and books, that we had to live up to.
- The development cycle was impossibly short.
- We constantly had to "cut scope" when a problem couldn't be solved in time to meet a milestone.
- This was bad for moral because no matter what feature was cut you could count on it being *someone's* favorite.
- Time was wasted on developing complex features and artwork that later had to be cut.

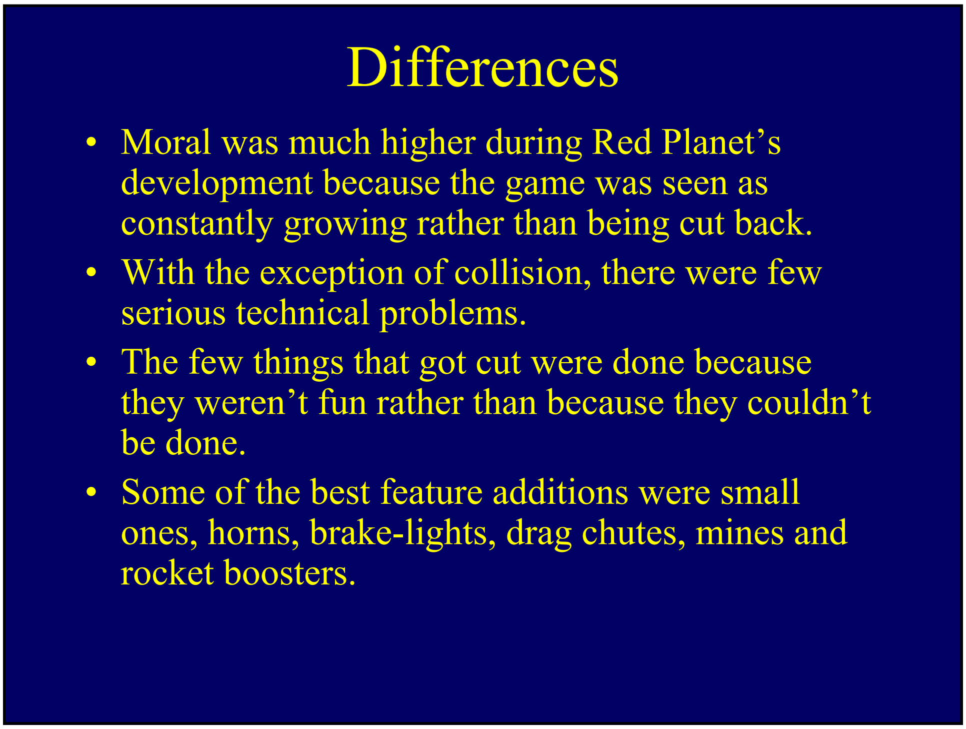
Some of BattleTech's Problems

- Some things from the novels were not achievable in a simulation but players expected them anyway.
- The board game's rules didn't lend themselves to a real time simulation.
- Many of the existing mech designs that people expected to see were actually impossible to animate.
- Lots of people "knew" how mechs should behave from the board game and were disappointed at the concessions we had to make.
- However, BattleTech was always more popular because of it was so well known.



The Red Planet Experience

- Red Planet was specifically designed to exploit the strengths of our existing software.
- Simplifying the rendering and collision problem drove the design of the art and layout of the courses and vehicle designs.
- The initial design was *very* basic, “go fast, smash into things” a cross between semi-truck racing, flying formulia 1 and demolition derby.
- There was very little scope cutting done during development, the basic game was done very quickly and we added more features as we thought of them (like rocket boosters and weapons).



Differences

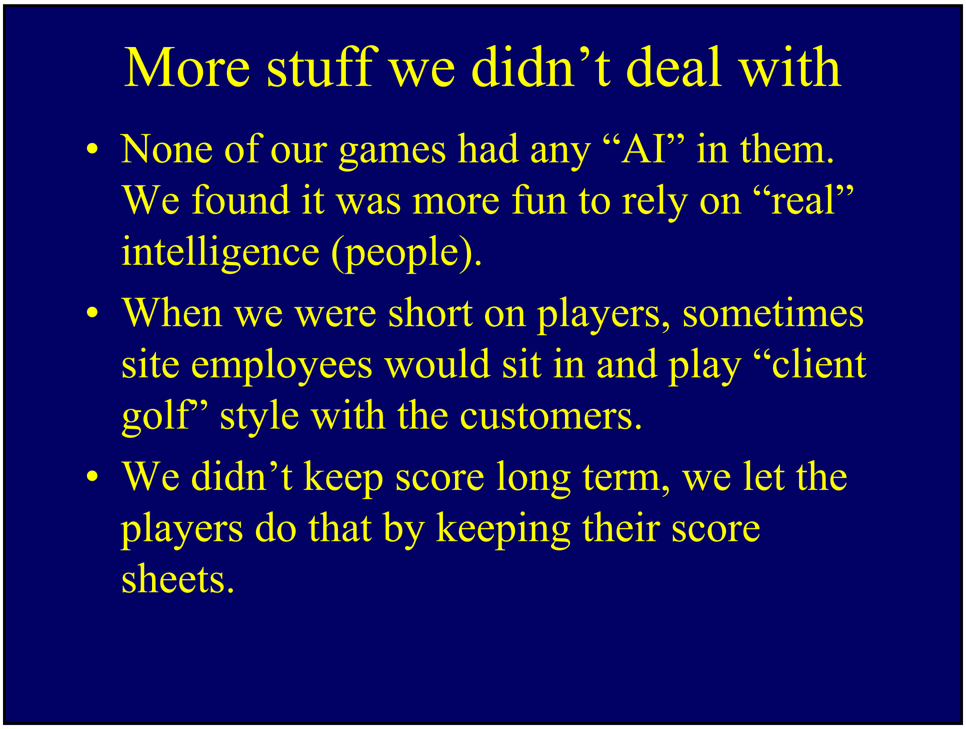
- Moral was much higher during Red Planet’s development because the game was seen as constantly growing rather than being cut back.
- With the exception of collision, there were few serious technical problems.
- The few things that got cut were done because they weren’t fun rather than because they couldn’t be done.
- Some of the best feature additions were small ones, horns, brake-lights, drag chutes, mines and rocket boosters.

Avoid simulating something real.

- When you try to simulate something that actually exists, legions of self appointed experts will come out of the woodwork to complain you got it “wrong”.
- If you create a fantasy vehicle, you get to invent the rules, performance and even physics that it lives by which can save a lot of development time.
- This lets you explain away any problems quite easily.
- It can also give you a way to explain away little glitches in the world where you had to “cheat” your physics & motion models a bit.

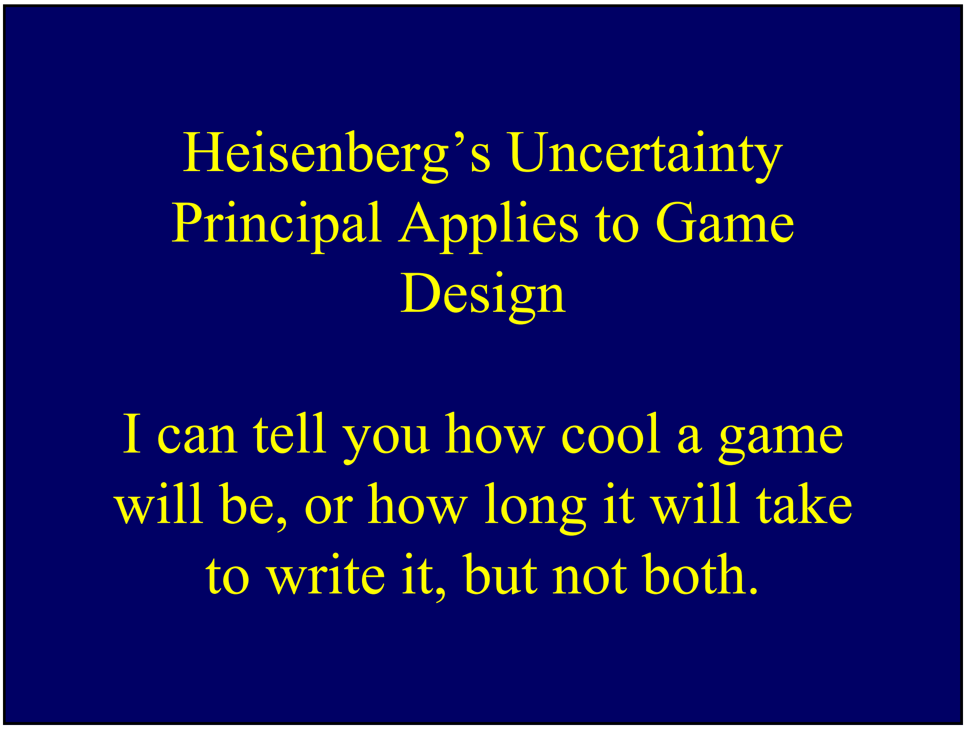
General problems we didn’t deal with

- Because of our environment, security/cheating were not a concern.
- Putting hit determination in the hands of the shooter can leave you open to cheating.
- Some games move hit determination to the server to avoid this, but then the shooter won’t see an accurate view.
- Instead of moving functions into the server, plan to protect your packets with encryption and cross check critical events for “reasonableness” there.



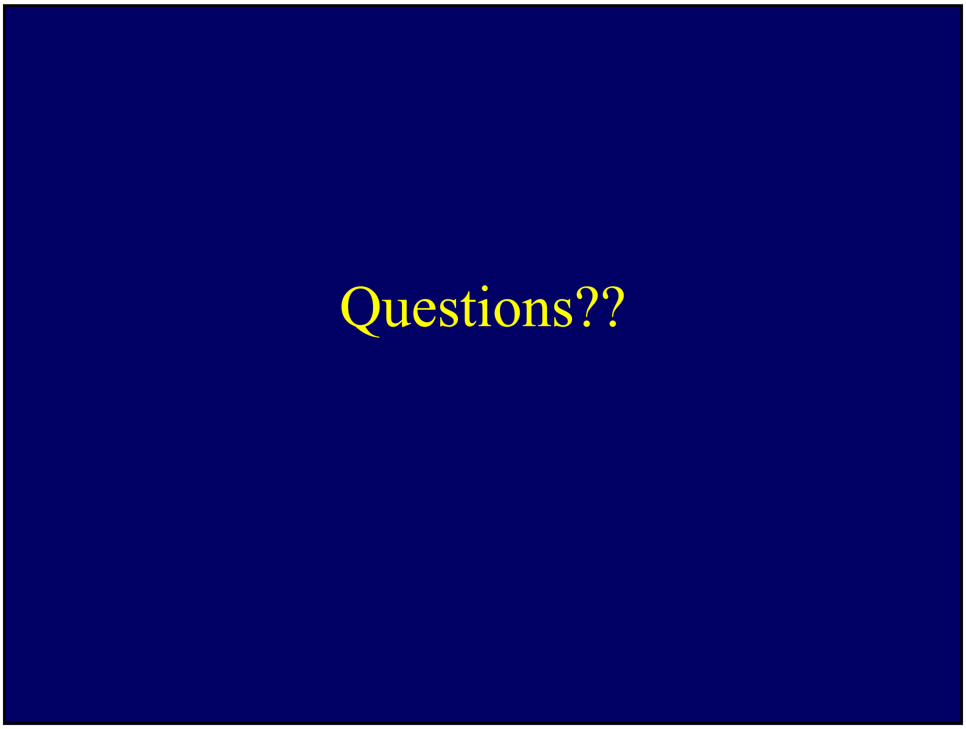
More stuff we didn’t deal with

- None of our games had any “AI” in them. We found it was more fun to rely on “real” intelligence (people).
- When we were short on players, sometimes site employees would sit in and play “client golf” style with the customers.
- We didn’t keep score long term, we let the players do that by keeping their score sheets.



Heisenberg’s Uncertainty Principal Applies to Game Design

I can tell you how cool a game will be, or how long it will take to write it, but not both.



Questions??