

Notes for *Frek and the Elixir*

by Rudy Rucker

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Word Count

Progress Table

The last two columns of this table are based on my current assumption about the target length. My various estimates (discussed in the following subsection) ranged from 136,00 to 180,000. In the end, the first draft came in at 168,000.

Date	Ch ap	Word Count on that Day	Days In	Actual Chap Words Avg 11191	Recent Words/ Day	Avg Words/ Day	Recent Days To Finish	Avg Days To Finish (if goal is 168,000)
July 6, 2001	1	8425	26	9465	324	324	493	493
Aug 21	2	15949	73	9828	160	218	950	697
Sept 25	3	24193	108	9573	236	224	609	642
Oct 29	4	32850	143	0	247	230	547	588
Apr 14, 2002	4	35474	147	10486	656	241	202	550
May 1	5	45453	164	11734	587	277	209	442
June 25	6	58326	220	12157	230	265	477	414
July 7	7	68104	231	13558	889	295	112	339
Aug 1	8	83456	256	11494	614	326	138	259
Sept 6	9	95550	292	11844	336	327	216	222
Oct 14	10	109336	331	13050	353	330	166	178
Nov 21	11	123702	368	14430	388	336	114	132
Dec 17	12	136543	393	11466	514	347	61	91
Jan 29, 2003	13	151319	436	13177	344	347	48	48
Feb 23	14	160840	461	8720	381	349	19	21
March 2	15	167987	468	6878	1021	359	0	0
April 29	V2	165738						
August 10	V3	162400						
August 24	V4	163200						

0123456789101112131415161718192021222324252627282930 (Catcher string for search to replace field codes of new lines in word count table).

This time around, I'm usually doing just one row per chapter in my table. I update a given row as long as I'm in that chapter, so the date on a row is when I *finished* that chapter (in the sense of moving on to the next chapter).

Of course I do often go back and add to an earlier chapter, so the Words in Chap listed in the table may change from the count when I first moved past that chapter. I update the Words in Chap by hand every so often.

Note that I only counted four days between Oct 30, 01 and April 14, 02, as I didn't do any work at all on the book between Oct 30 and April 10.

Estimates and Calculations of Length and Chapter Count

Lengths of recent novels.

The Hacker And The Ants 92,000

Freeware 97,000

Saucer Wisdom 84,611

Realware 105, 351

Bruegel 137, 869

Spaceland 90,500

July 5, 2001. Chap 1 nearly Done.

I don't know yet what word count I'm shooting for. On the one hand, I'm comfortable with doing fast, 90,000 word books. On the other hand, it might be nice to stretch out on this one and do a longer one. Given the somewhat lackluster sales of my existing books, it seems worth a try to do some things differently this time out.

In any case, I'd like to set in stone the decision to (A) do 17 chapters to match the Monomyth. I see how to match it for the first few chapters, and I think I can keep it going. I'd also like to assume (B) the chapters will be of a uniform length. This is something I normally do, just so I know how much work to do on each chapter.

The first chapter seems to be coming in at something like 8 or even 9 thousand words. So, given assumptions (A) and (B), this indicates a total length in the ballpark of 130 to 150 thousand words. Let's say, at least for now, that I'm shooting for 140,000 words.

September 7, 2001. Rolling on Chap 3.

The first two chaps are 16,189 words, so we're looking at 8,000 words per chapter. That times 17 gives 136,000 words.

May 13, 2002. Longer Chapters.

I just finished chapter 5, and in fact the average chapter length is 9200, so 17 chapters means 156,400 words, really quite long, hmm. You're getting into Harry Potter length there, which is of course not entirely a bad thing. Maybe I don't really need to do all 17 stages? Oh, we'll see, one chapter at a time.

June 19, 2002. 15, not 17 chapters.

I'm thinking to fuse Goddess/Temptress into one chapter, the two-faces of woman being Renata and Yessica. Also I think I can fuse Refusal of Return/Magic Flight. This makes three tidy 5-chapter acts. And then my projected length is 138,000 words.

July 6, 2002. Maybe 16 Chaps.

Working on the Renata/Goddess chapter now, I haven't gotten enough Renata in at all, and I haven't gotten to Yessica/Temptress yet at all. So it looks like I will need that extra chapter. That puts me back at projected length of about 148,000.

July 20, 2002. Chapters are averaging 10,000 words long.

This means the book length now projects to, sob, 160,000 words.

October 23, 2002. Chapters are averaging 11,000 words long.

This means the book length now projects to 176,000 words. Ah the Zenonian finish line, forever creeping ahead. Yet know this, turtle, this hare will catch you some day.

December 7, 2002. Chapters at 11,240 words.

So now the length projects to 179,840, or 180,000 words. This is about the length of *Little Big Man*, a long book I just started rereading. Frek and the Elixir will truly be a long book.

January 8, 2003. Maybe 15 Chapters.

I'm in Chapter 13 now, and the action I'd planned is telescoping down in page-count, so I'm thinking merge it with Chapter 14. So I have "Rescue from Without" and "The Return Threshold" in one chapter. Since current average chapter length is 11,438, this projects an estimated length of 171,500.

March 2, 2003. First Draft Length

Okay, today I finished the first draft, and it came in at a "mere" 167,988 words, call it 168,000. The last two chapters are shorter than the others. I guess I'm in a rush to finish. Stylistically I think this might work okay, though, as it's likely that by the end the reader is eager to push to the conclusion too.

April 29, 2003. Second Draft Length

I printed it out, read it through and revised. Turned out I could take out a certain amount, either relating to unused subplot options, or being spots where I had characters repeat things too often because at the time I wrote the speeches I was a little uncertain about what was coming up. New length is 165,738, in other words I cut about 2,000 words, call the new length 166,000.

August 10, 2003. Third Draft Length

So now I went through it one more time. I didn't want to leave too many corrections for copy-edit, as the book's so long I might not have time, especially since I'll be teaching again then. It's down to 162,400 now, and very clean.

Discarded Frags and Unused Twists

The Sick Hindu Raid

They hadn't heard anything at all from Carb since he left. What made the silence especially hard these days was that earlier this week there'd been some kind of mishap on one of the Crufter asteroids, the one called Sick Hindu. The news reports were vague; they said something had happened on Monday, and several people were missing. The rumor among the local Nubbies was that three people on Sick Hindu had been abducted by aliens.

Right around the time when the abduction would have happened, Frek had gotten a funny tingling in his head. Oddly enough, Frek's friend Stoo had said he'd felt it too. Had Dad sent them some kind of message? But Mom wasn't interested in such far-fetched notions, or pretended not to be. She said the lesson for Frek to learn was that

antisocial Mohawk-haired Dad had run off to the asteroids and maybe gotten himself killed. Not a good role model. It was better to grin and bear it, to be a good Nubbie and go school.

Urlbuds

Frek continued picking up his urlbuds. Some of them led to music urls. These were the places where, if you could move your hands and body right, you could play along. Or you could just listen and dance. Other urls held adventure stories and even literature; pretty much everything that had ever been written could be seen as performed by actors or more often by toons. Nobody read books anymore. Frek also had urlbuds for educational zones of toonspace: an atlas of the Solar System, a visual encyclopedia, a collection of logic puzzles and so on.

Organic Metal Ring

Dad had told Frek the metal of his ring was organic, his voice low and intense with his pride over having such a ring. Some very rare kind of plant had extracted gold and copper ore from the soil, and had grown the ring like a fruit whose cells were metal crystals too small to see. According to an url Frek had later consulted, organic metal rings had some remarkable powers. For one thing, the rings from a common plant were forever bound together, their atoms entangled, no matter how far apart they might travel. Mated rings could communicate faster than light.

...

The hemispherical crest looked just like half of Planet Earth, the half with the Pacific Ocean. Carb had loved the Pacific. The jewelers had somehow worked color into the plant-metal gold, and you could see an amazing amount of detail.

...

He'd never actually seen Dad take his ring off, so he wasn't sure if the bulging round part would be hollowed out or not. He found smooth gold metal all across the back of the hemisphere — lightly flecked with copper crystals, the crystals making a delicate pattern that teasingly seemed to change when you stared at it. For a second Frek thought he saw little lights moving about in the patterns of the underside.

...

He'd turned his heavy new ring around so that the bulge was facing in towards his palm, so he could rub the hemisphere with his thumb. It was soothing to feel the nice curve, and the tiny pinpricks of the islands embossed on its surface. It was something he'd been doing off and on all day.

...

As always it showed a half map of Earth: the Pacific ocean. A bright jelly oozed out of the little dots that marked the islands, forming a tenuous, pale-yellow ball.

...

To Frek's surprise Dad chuckled. "Grandma Huggins would flip," he said, rubbing his ring with his right forefinger. "I'd love to see her face. I always enjoyed getting a rise out of her. The rings came from her and my Pop, you know. They grew them. I have Pop's and you had Grandma Huggins's. My ring helped lead me to Lora."

...

"You'll do," smiled Frek. He was thinking about Carb saying he'd used his ring to find Lora. Frek had seen Renata for the first time in his ring.

Biome Collapse

Each little plant was, of course, a high-yielding, dependable production unit designed to flourish in any type of climate or soil. Due to the collapse of the biome, disease-resistance wasn't an issue anymore.

Frek's grandmother, that is, his father Carb's mother, used to go on and on about lettuce, onions and potatoes. But those veggies weren't around anymore, gone the way of the dinosaurs. Grandma had been one of the old generation who'd never accepted the collapse of the biome. Today's average person tut-tutted about the collapse in the half-hearted way that people deplore the passing of handicrafts. Deep down most folks didn't care, and the media generally encouraged them to think the old set-up had been a messy waste, and even a little ridiculous. So what if had lost ninety nine point nine nine whatever of her species? Biota Com and her sister links had replaced the genomic sprawl with much more useful things than monkeys and butterflies. New Custom Critters were coming out all the time.

Lora and Carb

Lora sometimes said she never would have taken on her main job of raising three children if she'd known in advance what a fly-by-night oozer Carb would turn out to be.

Since one child was pretty much like another these days — medium-sized, dark-haired, tan-skinned, healthy, and bright — most people only felt like raising one of them. So Lora and Carb had qualified for a nice monthly credit-stipend by agreeing to raise three.

But then all of a sudden Carb had left. Frek couldn't fully figure out why. Carb had inherited a lot of Grandma Huggins's dissatisfaction with the current state of the planet, and he'd gotten into some kind of trouble at his job.

[I should make Carb more noble. Maybe he was plugged in with the Orpolese all along. Maybe Gov had the Unipuskers kidnap Carb, and just put out a cover story that Carb ran away.]

Lora was pretty and lively, and there were definitely some new men interested in her. One guy in particular, a Linz Martinez, came by the house a lot. He was one of the local Middleville facilitator's for Mindscape University. His specialty was the history of biology. Linz's job was to go around Middleville visiting registered students who'd either requested face-to-face help or who'd done something to make the teacher toons suspicious that they were cheating on tests or ducking their payments. Lora's job was kind of similar, except that she mostly worked with people who were just learning an instrument for fun, instead of for any kind of degree. Lora and Linz had in fact met at a Facilitators' Ball.

Frek enjoyed discussing extinct animals with Linz. But even though Linz came around a lot, he seemed too comfortable with his tidy single life to actually move in with the Huggins family. This was fine with Frek, as he had a persistent hope that somehow he could find his father and get him to change back and come home.

If Lora worried about why Carb had joined the Purists, it never showed. She was just plain mad at him, as mad today as she'd been three years ago. She often complained about the heavy genetic load Carb had stuck her with, and often talked about how being a mother had never been the job she'd had in mind, but when she was done talking, Lora would always pat her children's heads and say, "Don't worry, I'm just a wheel that

squeaks for grease. I love you three more than anything. Geneva, Frek, and Ina. My favorite people in the world. My three tan pigs.” Lora called them pigs a lot. It was just something she liked to say, and it made Frek feel cozy. Frek was glad there were three children in his family, even though most of the kids at school were only children, and the nastier ones occasionally teased him for being different.

Carb’s Background

Dad never had much of a career anyway; for years he’d put most of his energy into underground politics, especially with the group known as the Crufters, who wanted to find a way to turn Earth’s clock back to the good old pre-NuBioCom days. Dad was always going off to secret Crufter meetings. And often as not, when he was home, he was busy exchanging secret encrypted messages with his fellow revolutionaries — or maybe with girlfriends. Frek had heard Lora arguing with Carb about other women more than once.

Dad had never gotten his priorities straight; he was a poor husband and not much of a father. Not that Frek didn’t miss the guy. Dad was funny for one thing. No matter what happened, Dad didn’t take it seriously. Dad could make a joke out of anything.

Another thing about Dad was that he was tough. He had a muscular body and a hard, angular face. He dressed like a gaussy old-time punk, complete with a Mohawk hairdo and moving tattoos on the sides of his head. Whenever anybody gave any trouble to Lora or the kids, Dad got right in their face about it — assuming you could get his attention long enough to tell him about it.

With Dad gone and just Lora in charge, life in the Huggins household had gotten a little stricter and tenser than before. Not that Lora wasn’t doing her best, and not that she didn’t have a sense of humor too, but nobody could poke a hole in a problem as fast as Carb.

Frek’s Dreams of Glory

Frek was smaller than most boys his age, and fighting bore no pleasant associations for him. But if he was going to be the world’s greatest toonsmith he needed a thorough familiarity with the craft’s most popular forms. One of the toonsmith sites that Frek frequented said that the Skull Farmers had a gundo gripper story web, an “interactive and seemingly non-linear plot that cunningly drives the player through a monomythically structured cycle of satisfyingly archetypal situations.” Frek dreamed of the day when critics would say things like that about his own work.

Please-Plant Seeds

Frek had played with his shiny little monsters for most of the winter. He was really too old for toy action figures, but he still kind of liked them. He’d been keeping them in one of his room’s wall pouches. Last week, however, the pouch had spit the seeds out. They’d been starting to sprout, and the house tree wasn’t about to let other plants grow onto it.

Toon Leaves

The next layer of stuff to clean off the floor was Frek’s collection of toon leaves. New toons often advertised themselves via fast-growing illustrator-plants whose leaves bore colored pictures of the toons. Sometimes there’d be whole pamphlets made up of

the tinted toon leaves, sketching out some particular static, non-interactive adventure. Of course it made more sense to watch toons on your wall skins, to experience the story with them, but some people liked the toon leaves for themselves. Frek, for one, treasured his. He didn't at all mind picking them off the floor. They were valuable artwork that deserved to be treated with respect. He made a tidy stack of the bright rectangular leaves and set them on a special spot on one of his shelves.

Frek's Walls

Frek could have been watching toons in his own room, or using an urlbud, but he wanted to focus on cleaning and get out of here fast. For now Frek's walls showed dull, curlicued gray-on-gray wallpaper.

Solar Trader

With all of this gear out of the way, the only thing left to get rid of was Frek's battered old Solar Trader set. He'd been playing a big game with Stoo over several days this week — Stoo liked calling it their "floating craps game" because it had money and dice. It was interesting to have a game be made of real matter, and not just be wall skin images of toons. The colorful money leaves and deed petals and hotel seeds were all over the place. Frek had stepped barefoot on one of the hotels last night and it had really hurt. The hotel was on the expensive Luna City square, and was owned by Stoo. It was high time to close down the floating craps game.

Sao's Shopping

Unlike Sao, Lora Huggins simply got the family's turmites to weave them standard kinds of new clothes as needed. Sao's job besides shopping was to raise their only child Stoo, and thanks to Kolder's status at NuBioCom, the Steiners had all the very latest in home-maintenance creatures.

Glyphers

Even though they were called "slugs" the glyphers weren't actually animals. They were some kind of slime mold wrapped around a fungoid urlbud.

Mavvy Paul

Frek's favorite toonsmith, Mavvy Paul. Someone as great as, like, Mavvy Paul. Talking to Renata in that long list of topics I had: the exemplary life of the toon artist Mavvy Paul who'd only finished sixth grade.

Sextoons

Stoo had also mentioned that there were some rather striking sextoons in the Skull Farmers' world. Not that Frek was some kind of slobbering pervert, but it did pay to stay well informed. Judging from how the older boys talked, sex was something he'd eventually be thinking about a lot — even if for now, he was just as happy not to mess with it. Look where sex had ended up for Lora: stuck with three kids and no husband. Frek promised himself that if he had a family, he'd never ever walk out on them.

House Tree Details

Frek had heard that the house trees' inner walls were based on cuttlefish skin. They were fabulously rich in color. The house tree had so much metal in its veins so that

it could act as a huge antenna, capable of tuning in on any piece of information stored anywhere in the shared, planet-wide Mindscape. An urlbud gave you the address and access code for some particular location in the Mindscape.

A house tree could grow pretty much any kind of furniture or cabinetry you wanted.

Turmites

They weave anything you need. I think of their mounds as looking like the Rotterdam version of Bruegel's *Tower of Babel*.

Uvvy

Just like regular uvvies, peekers were NuBio Com kritters based on sea anemones and electric eels.

There'd been some recent talk about HumanCom finding a way to make uvvies a permanent part of your body, which seemed like a pretty stanko idea to Frek. Maybe then you could fix it so you saw the toons inside your head instead of on a wall. Nobody would even be able to tell when you were watching. The toons could be in your brain all the time.

Angelwing

They were each four or five feet long and covered with light-gray feathers; as their name suggested, they looked pretty much like the wings on angels in old-time pictures. Each of these NuBio Com angelwings had a billed green goose-head at one corner, and two pin-feathered little legs that ended in soft, finger-like claws. As well as the grasping claws, an angelwing had any number of soft, sticky tendrils along its base edge. They had sea anemones in their genes, just like uvvies. Thanks to object-oriented wetware engineering, solutions were cross-platform deployable.

The six angelwings dragged themselves slowly across the floor towards Frek. In here they looked almost crippled. Their trailing feathers were mixed up on top of each other, but all six heads were pointing right towards him. *Kvaar*, went the six beaks. *Kvirr, kvurr, kvak*. The genomicist who'd perfected the angelwings had been Norwegian. Frek got a bag of beans and rice down from the shelf and spilled some into the angelwings' trough. While the angelwings were eating, Frek used a broom-branch to sweep away the soft pellets of waste they left on the hard dirt floor, lifting up the feathery angelwings one by one to reach under them.

When the angelwings had finished eating, Frek brought them a bucket of water from the side of the house tree. And then he used a soft brush to groom them, gathering up the few feathers that fell out.

...

Frek lay down on his back and the angelwings scooted over next to him, clamping their little hands around his upper arms and fastening their tendrils all along his ribs. The tips of the tendrils were fine enough to reach right through the cloth of Frek's shirt. When he got to his feet, the angelwings were comfortably bonded to his back and his arms. The wiry muscles of the angelwings amplified Frek's flapping motions strongly enough to lift him right off the ground. Wow began barking.

Frek's Unusual Conception

The fact was, Lora and Carb had conceived and gestated him completely naturally, something almost unheard of these days. It had been Carb's idea, urged on by Grandma Huggins. Lora had conceived Frek's sisters in the usual way, with a NuBioCom patch culture in her womb to tweak her embryos' genes. But for Frek she'd surreptitiously neutralized the patch culture and taken her chances. Not that anyone outside the family knew this. Frek was as good as normal and maybe, in some not yet obvious way, even better. He had to believe that.

Another thought occurred to him. Might his role as Earth's savior have something to do with the fact that he'd been conceived naturally, without any fetal tweaking by the NuBioCom patch culture?

Dad said, "We never let NuBioCom tweak your embryo. It's not so unusual on Sick Hindu, but nobody grows pure-bred humans on Earth. Maybe Gaia appreciates you for that, Frek. If a planet can think. Maybe she's channeling power to you. That could explain how you can do these goggy miracles like crafting kenner and blocking off the brane espers."

Quarantine for Earth Arrivals

"It's pretty hard for Crufters to come back to Earth. Before they're allowed, they have to get bio-cleaned all over, right down to the mitochondria in their cells."

Wordplay

Frek could hardly believe Suzy Q was talking about his room and broadcasting a real-time picture of him in his pajamas hardly believing it.

Fear of Biome Destabilization

According to the NuBioCom publicity, the arrival of any new, wild, uncontrolled plant or animal could bring the whole planet down.

Uses for Grulloos

Jeroon said, "It's the Grulloos who test out what the Nubbies are scared to touch, by the way. We're walking pharma labs. There's a market for Grullo cadavers as well, not that the NuBioCommers harvest us on sight. That'd be killing the golden goose, don't you know."

Frek's Fat Lips

The lips made his voice sound mellower, more mature. Like the sound reverberated around inside the lips on the way out. [Sounds kind of racist.]

Gibby Fretting

"I'll be tolerable safe for a time," said Gibby, his voice no louder than a sigh. "They'll be testin' me in the lab afore they cut me up."

Gov

It was crazy to think that people had let this thing become the absolute ruler of Stun City, Middleville, and who know how much more of the countryside beyond.

Another Squid

Another space squid, the great-grandson of the one that Stoo killed. He's also called Professor Bumby, and refers to himself as "an instance of the same archetype, fortuitously enriched by additional information drawn from a series of sexually compatible space squidettes."

Bumby Shooting At the Sky Jellies.

Bumby leaning out the door like a drunk mooning people.

Bumby Commenting on Earth

"You're a race like a single cactus growing in an empty wasteland, like a lichen on a frozen polar rock, and, to make it the weepier, the spiny lichen is psycho, and it's poisoning its rock."

Bumby Talking Too Much

"Bumby — " said Frek, trying to interrupt. But it was impossible to distract the squid from his deal-making fever.

"Don't even think of signing on with the Unipuskers, they'd crush your souls. Pocket study guide: (a) Unipusk means, 'Let's be a brain-dead herd of sheep.' (b) Orpoly means, 'Let a thousand flowers bloom.' And don't forget our sweetener. We'll get those branecasters to let you find your elixir down in the Planck brane right after you sign us on. It's going to happen! The Unipuskers have a head start, yes, they're a full turn around the track, but I like our odds of snaking across the infield to the branecasters before the Unipuskers hid the line. First come, first serve, whipped cream on your ice-cream. The Unipuskers branelink is down, you understand, courtesy of some peevish hurricanes on planet Yauche. You're the contender, kid. Pass the word to your Dad. If he comes on to you anytime soon."

"So you're powerful and we're dumb, and you're out to use us," said Frek bitterly. He felt shaky with hunger. He hadn't had any food since last night — and today had been a very long, very strange day. "You want to put us on some kind of gurpy show for aliens to laugh at. Like toons. I bet there isn't any elixir at all."

"Oh, you'll find your special savior sauce in the Planck brane," said Bumby. "The branecasters will embrace the timely grace of watering your home world's ferny biome. Ramifying diversity is the heart of the script I'm visioning for the Orpolese production of the humanity channel, you understand. We show a boy and his helpers on a quest to successfully restore his planet's biome. What it is, Frek. Contrast my greatness of heart with the putative crabbed plans of the monotone monoculture monomaniac Unipuskers. I see Hawb promoting the icky ooey internal uvvies for barb-wiring your whole race into a single psychic concentration-camp. Which version of the humanity show would any questing hero choose?"

The question was rhetorical...

Renata's Irony

"But Crufters teach that we live in the Now moment, and that death is a part of life that happens to everyone, and that when you die you merge back into the Brahman, so there's nothing to worry about. A reasonable teaching, considering that it's shoved

down children's throats by crazy cultists." Renata gave a low laugh and bobbed her head, enjoying her own ironic humor. One of her hanging pigtails bumped against Frek's hand.

Early Warning about Orpoly Being a Star

"Well be warm again, a million degrees!" said Bumby. "I'll reality hack a force field skin for your dirt world bodies before we hit the corona, and you'll be fine."

"You live in a *star*?" said Frek. His voice came out scared and small, almost a squeak.

Dad Describing the Magic Pig

"His voice was like a low grunt, you understand, but the words came through just the same. I took the dream more seriously than Lora ever did. To be strictly accurate, she barely remembered it, I kind of had to prompt her, and she half-thought I'd gotten the rings from a please plant."

This was sounding a lot less dramatic than Frek had hoped. The Magic Pig was a dream his father had, and even if Dad claimed Lora had the dream too, it didn't sound like Mom would necessarily agree with that. Not to be too harsh on Dad, but maybe his brain had already been a little slushed way back when.

Killing Hawb and Cawmb

This pair of Orpolese seemed yet more powerful than Ulla and Bumby, and the other aliens knew it. The Radiolarian ship drew in its tentacles and started jetting away. The Unipusker saucer sealed up its hatch and did the same. Floating alone by himself, Hawb was frantically waving the white cube.

A snake of silver lifted up from the twisted Orpolese donut and sent three blasts of mind-boggling intensity. One by one the targets exploded into glowing vapor: the Unipusk saucer, the Radiolarian sea cucumber, and the struggling Hawb. Even those these beings had been Frek's enemies, it was a melancholy thing to see them so summarily dispatched. A shiver went through him as Orpolese tractor beams drew the seven Earthlings into the safe center of the gold and silver vortex ring.

Lisping Whaler

"Tusky thaw it in the tweet."

Alternate Vaaring Technique

As before, the two stared at their hands and meditated upon emptiness. But this time, emptiness was all they got.

"What about everything?" suggested Dad after awhile.

"How do you mean?"

"Maybe it's backwards over here. Maybe to bring in the kenner you need to imagine, I dunno, maybe imagine everything instead of nothing."

Freedom From Espers

And then a lucky shot caught the mind worm. For just the split second that it took to burn through the thing's five-dimensional flesh, the mind worm and Frek's blaster beam were lined up along the same space axes. Frek could feel a pulse of red as he shot his mind worm in two. And in the echo of the pulse came the vanishing of the golden

glow that had become a continuous distant backdrop to Frek's thoughts.

But with a sense of weariness and despair, Frek realized now that the relief wouldn't last long. Somewhere among the higher dimensions a fresh mind worm was feeling for Frek. Eventually it would take root again, try as he might to comb his brain, to sift it for mind worms, to pull out the branecaster tendrils as they took root. But right now, at least, he was free.

NuFrek (Notes)

[I didn't get to the point of writing this into the book, but I had it in the notes for Chapter Eight for awhile.]

Yessica: "How about this, you make a copy of him, save one to kill when the branelink comes up, if it ever does, and meanwhile send the other one back with Renata. Save both the kids right now. It's better that way. Frek might not even make it back from the Planck brane. It's like you'll be saving him, not killing him. And the Unipuskers still have me as a hostage to keep Carb honest."

Dad: "No, don't kill Frek. He'll cancel the deal for you. But sending a copy back isn't such a bad idea." (At this Frek feels betrayed.)

Renata's so fond of Frek now that she pitches a fit, doesn't want to leave him. With the Unipuskers' help, Yessica clones off a doll-sized copy of Frek for Renata to take back. They rub some goo on his finger, and a NuFrek pops off like a moon jelly. Renata goes back with the NuFrek, not really willing. (When Frek eventually gets back to earth, NuFrek will be full-sized and he'll have to deal with a Double.)

Again, this isn't something I ever actually put it, it's rather a plan I decided not to use. Another form would have been the following.

In Chapter 13, we find an evil NuFrek twin, grown by Yessica and Preemer. NuFrek does something to set back the progress on using the elixir. I see NuFrek as a bit like Frankenstein's monster. He considers killing him. And Renata (correctly) convinces him instead to befriend and work with NuFrek. To not be afraid. To open up a feminine nurturing side of himself. To help the poor "monster." Later NuFrek can nobly die.

Dad's Atonement with Frek

"Do you know how precious you are to me?" said Dad finally. "Do you know how glad I am that the Unipuskers didn't kill you? Do you know how much I admire you?"

Renata Flirting With Frek

"Oh, relax," beamed Renata, taking his hand. "From what I've seen, you can do anything."

"Thanks," said Frek, forgetting his worries and enjoying the glow of her sunny face. He reached out and gave one of her beribboned pigtails a little tug. Renata gave her head a sharp turn to make the other pigtail flip into his face.

Right and Left Helix Races Among the Orpolese

"An Orpolese husband and wife are a pair of ring-patterns on top of each other," said Whaler. "Mounted. Each of us has a screwed-up twist to us. Depending which way the twist goes, an individual Orpolese is a rassen or a znag, and a husband-and wife pair can be both rassen, or both znag, but if you've got a mixed marriage, the pair is znassen."

Bumby/Ulla were znassen, and we inherited it. I'm left, Tusky's right. Bulge your eyes, she's about to give you visual aids."

Silent as usual, Tusky sent out a hundred-kilometer-long tweet, a gold rod perhaps ten kilometers across. The rod twitched and coiled itself into a gentle helical spring, like a spiral staircase. It looked dark against the reticulated plain of the onrushing sun's surface.

"That's a rassen twist; what you'd call a right helix," said Whaler. "How your pink-dome mathemagicians use the word. Tusky having accessed this lost fact from your Dad's sad grade-school memory dump. Ahem! Step the first. Think of the helix as painted upon a cylinder, and think about the cylinder's axis — the 'axis' being the straight line that runs down the cylinder's center. Let your right hand's fingers curve gently towards the palm and hold your right hand so that its thumb points along said axis. Step the second. Observe through tears of boredom, dear dirt-world pupil, that, were you to become a handy gnat flying along the axis in the direction of that thumb, you'd see the curve as spinning clockwise, in the direction of your right hand's fingers. Step the third. Note that if you'd pointed your right thumb the other way down the axis, the correspondingly reversed flying-gnat-view would see the spin matching the correspondingly repositioned right-hand fingers. So our definition is stable. Thus, drum-roll, the right helix. Show them a znag, Ulla. A left helix."

"Stop jawin' and pay attention to whar we're goin', Whaler!" yelled Gibby. "I don't give a squat about your screwy tribes. Forget I asked!"

"Into the sun," intoned Dad, who wasn't listening to Whaler at all. "We're falling into the sun. The white light."

Wow was howling. He didn't like any of this.

The sun had grown so large that you couldn't see anything else. Immense sheets and towers of glowing gas rippled up from the surface, streaming past them. Here and there the rolling donut plasmas of other Orpolese could be glimpsed in the flames, capering like the demons of Hell.

The dogged Tusky continued her demo. A second line of tweet appeared, this one thin and silver, all but black against the star. It coiled itself into a second helical spring. The silver helix was a mirror-image of the gold; it coiled in the opposite sense. Ever the dutiful learner, Frek twitched his left hand, imagining aligning his left thumb with the axis of the silver helix, imagining flying down the axis like a gnat and seeing the curve spin counterclockwise like the curl of his left hand's fingers. Got it.

A slow eruption on the sun sent a ragged cloud of fire up towards them. The fire held four Orpolese donuts, each of them a rassen-rassen pair.

"Put a znag on a rassen and you get a znassen like Tusky and me," continued Whaler obliviously. The gold and silver helices slid together and meshed upon each other, their lines crossing to make a network of diamonds. To complete the too-lengthy demonstration, the double helix began bending in half, as if to touch its top to its bottom.

"The Brussels Illuminations"

[I wrote the Exaplex section in Brussels, and I had this self-referential notion of claming Frek and his Dad had seen a video called "The Brussels Illuminations," which is what I also happened to call my journal notes from that period. Hartwell nixed this literary joke.]

“Let me see that,” said Dad, taking the key from Frek and examining it. “This scene is so, so Y2K. Like a video I was looking at last week. I was thinking about it during our long fall down, as a matter of fact. *The Brussels Illuminations*. You ever seen that one, Frek?”

“Yeah,” said Frek. “Maybe the Hubs saw it in your mind. Could be that’s what they used to set this scene up. You *are* seeing what I’m seeing aren’t you, Dad? We both see the key and, like, the knobby spires on this City Hall with statues on the tops?”

Magic Pig

Maybe there was a Magic Pig. Certainly the rings seemed able to talk to each other. And it was indeed starting to seem like Frek had special powers. He’d been able to force the Orpolese to unyunch to Unipusk, he was blocking the espers from himself and those around him, and he could craft kenner.

Woozy

For a long time (till November 9, 2002) I had Carb and Yessica addicted to a cocaine-like drug called woozy which they sniffed from pods.

But then I decided it would be nice to get the hard drugs out of the book entirely and not have woozy anywhere. And keep the more beer-like moolk, though.

Have Dad instead be concerned with money or power like in a “clean” kids’ book. Funny, by the way, how really odd it seems to me, where I come from, that anyone could be more driven by the quest for political gain than by a lust for drugs. But I know most people don’t think like me. Dad is more, like, “I wanted to be important,” than “I wanted to sniff woozy pods all the time.” And have Yessica going to Stun City to play politics with Gov, not just to fucking *score woozy*. Do have her put up at the Brindle Cowloon, though. And I think I can give Yessica something of a weakness for moolk. Might even dovetail this with Gibby’s love for moolk.

Pig Chapter Titles

I’d considered calling Chapter 12 “The Pig’s Tale,” and Chapter 13 “Saved by a Pigtail.” Use as a standard meter the size of Renata’s pigtail. Saved by a pigtail! Too silly. Make it her Helping Hand. Like in that ancient Peanuts cartoon where Snoopy is “saved by a pizza” they use to lure him out of his doghouse before an icicle falls upon it.

And in fact the pig doesn’t talk for all that long in Chapter 12. And I don’t really know if I want to have Renata stick her pigtail into superspace for Frek to latch onto, that’s a little too silly. “A Helping Hand,” might be better. I had also considered calling Chapter 13 “NuFrek,” but I think that would telegraph the punch (and in the end, of course, I didn’t use NuFrek anyway).

Rundy’s Coarse Distraction Method

“I’ll cut such a big fart that when it hits the fire, it’ll go off like a hydrogen bomb.”

Original Part III Outline

Branecasters chase Frek across the galaxies. He’s almost trapped, but Renata back on Earth reaches out to save him. He returns to Earth and finds things in bad shape. There’s a fake Frek whose taken his place. Gov’s plot to make human thought a monoculture has nearly succeeded. Frek gets rid of NuFrek. He unseals the Elixir. He

expects the Genomic Elixir to restore Earth to its Edenic pre-NuBioCom state. But in fact it does something different. The aliens, after all, have their own ends. The ground is full of cuttlefish aliens, who've taken root like invading species. Frek has to deal with them.

First Frek, then Renata, then one by one the rest of the race achieve a new dimensionality, a new symbiosis, perhaps with each other, perhaps with other species, perhaps with the aliens, perhaps with unseen beings. Everything is changed, in an unexpected way, but it's not for the worse. Perhaps the Unipusk weren't so bad after all. Maybe he manages to substitute the toons as the Branecast subjects instead of humans. The book ends in an upbeat way with acceptance and even rejoicing over the new order of things.

Turning off the Knockout Virus

Just before Gov dies, he surrenders the secret of how to deactivate the knockout virus. Dramatize this action as turning off an electric-eel type antenna Gov had; it was sending rays to a McKenna-harmaline-receiver-type molecule in everyone's genome. And now the jamming has suddenly stopped. Giant love/sex vibe in the sudden silence.

Death of the Kritters

I toyed with the notion of having the newly restored Earth microorganisms wipe out the kritters. Mold on the house tree. The angelwings catch the flu. Or get nibbled to death by rats. One by one the kritters begin failing. So you get an either/or, kritters/original Gaia.

But that's not the way I want to go in Chapter 14, I want surfeit, plenitude, too many species, and then some.

Jumping the Shark

"Yes. The Orpolese had tired of watching Earth's slow upward progress. The audience share had dropped. So the producers Vlan and Tagine producers were pulling one last desperation move to attract viewers. "Jumping the shark," as the ancient television execs used to say."

I was going to do that in the narrative voice, but I think it's too wildly anachronistic. I also considered having one of the branecasters (or Frek) say, like, "Under the Orpolese, the Humanity Channel show is 'jumping the shark.'" That is, by bringing on the shuggoths. "Jump the shark" being a currently popular media expression for a desperation change in a series. I'm not sure, but I think maybe the expression may be known only among people (like me) who listen to Howard Stern, who likes to use it. Cf. www.jumptheshark.com.

Saving Dad

[Hartwell argued that it would be "sadder but wiser" to have Dad be dead when Frek comes back to the Planck brane. Also he's not a very likeable or successful character, so it would be just as well to have him gone. And it would be maybe more satisfying to have him pay the "full price" for his various betrayals of Frek. The following is the part where they brought him back to life. I hate to lose the first couple of things Dad says upon waking up, as I lifted these direct from *Cootchy Cootie Men's Comix* by Robert Williams; Cooch says "Phaw, what a burn. When do I come on?" when

some friends start jabbering to him just after he takes some dope, he's trying to be macho and pretend that the stuff was weak and didn't hit him very hard.]

Miraculously the stiff white mummy twitched.

"Dad," yelled Frek, echoing his sister. "It's Ida and me! We're here to save you!"

A stick-thin arm broke free of the silken shroud, felt about, clawed some threads away. Dad's face! "Phaw," muttered Carb. "What a burn. When do I come on? Where's Batty?" His weathered face was stiff as wood, his Mohawk was crushed.

He wasn't smiling at all. He barely seemed to recognize his children. But at least they'd woken him. Moving stiffly, he twisted about in his cocoon, twitching his long mouth. All at once the silk tore apart and he began to fall. Moving quickly, the Space Monkeys caught hold of him and placed him upon Professor Bumby's back. The toon wrapped a pair of tentacles around Carb's waist to prop him up.

Frek noticed that his Dad was still wearing his ring. And Frek's ring was there too, stuck to Dad's as if by magnetism.

"Hey!" said Ida sharply. "It's us! Your kids! Are you okay?"

"Ida," said Dad, almost smiling at last. He ran his hand along his big nose and rubbed his wrinkled eyes. The smudged blue tattoos on the side of his head writhed into life, sketching pictures of the kids.

"Give me my ring, Dad," said Frek. "I'll feed you."

"Kac," said Dad with sudden vehemence. He took off his ring with Frek's ring rattling against it, and feebly flung the two of them against the towering flat branelink tree. One of the veins promptly absorbed the rings — and they were gone for good. "They always made things worse," said Dad. "Hug me, kids. That's the food I need."

"Family reunion," said Gypsy Joker, carrying Frek to Carb's side. Frek put his arms around his father's emaciated chest.

"How sweet," said Tawni, perching on Bumby's back so that Ida could reach Dad too.

Carb let out an enormous sigh. "Together," he said. "I'm starting to be me again. Just don't ask me any questions. Bless you, kids." His eyes came into focus. He glanced past Frek, taking in Gypsy Joker, Tawni and the swarm of toons below.

"They're helping you? I never liked toons, but maybe it's time to change my mind. Hey, where's Geneva?"

"She's back home with Mom," said Frek. "Handling Hawb and Cawmb. It's a long story. We're here to try and stop the branecasters."

"Your second big mission," said Dad, remembering. "The elixir — did it work?"

"Perfect," said Frek. "You'll love it back home."

[Didn't have Dad do all that much then in the last chapter, just converse a little to provoke some info exchanges. And then Frek brought him back home.]

And then Lora noticed Dad.

"Carb!" she exclaimed. "Oh Carb, what's happened to you!"

"I spent the last year wrapped in a cocoon stuck to the side of a leaf," said Dad.

"Hi Lora. It's great to be back."

“Meet Linz,” said Mom quickly. “He’s my new friend.”

“Yubba,” said Dad calmly. If Frek had harbored some hope that his parents might get back together, he could now see that it wasn’t going to happen. Carb was in no mood to try and get back in with Mom. Well, hey, at least he was on Earth.

“I might settle down somewhere around here,” said Carb with a comfortable yawn.

“Just not in my house,” said Lora, making things perfectly clear. “But you can use the garage for tonight. Or that dog-cottage the counselors grew. And Renata, it’s too late for you to fly back to Stun City. Why don’t you sleep in Ida’s extra bunk.”

“I’d like to live in Stun City,” mused Carb.

“Frek and I can help you rent a place tomorrow,” said Renata. “My friend Deanna knows her way around.”

“I’ll stay with you sometimes,” Frek told Dad. “I’ll be in Stun City a lot to help make new toons.”

“What about your mother?” Carb asked Renata. “My old pal Yessica. What’s the word with her?” Frek still hadn’t had time to tell Carb everything about the last year.

“She went back to Sick Hindu,” said Renata. “She got in tight with Gov before the revolution took him down. She’s not too popular on Earth. I talk to her now and then.”

“No rush to tell her I’m back,” said Carb. “I’m ready to take it easy here. Gov’s gone. And the elixir really worked. The lawn smells wonderful, like flowers. I’m hearing a lot more birds — over there, is that a mockingbird? And look under those trees — lightning bugs.”

Classic Toons Attack the Branecasters

[Originally I wrote up the attack of the toons on the branecasters as involving existing commercial toons of today. But I want to be free of that entanglement, and plan to use made-up toons of 3003. I formerly described it like this.]

“I have a vision of, like, Wiley Coyote blowing up the mind worms with Acme dynamite; Daffy Duck blasting Chainey with a shotgun; Lara Croft and Yosemite Sam shooting up the Exaplex with bazookas; the Skull Farmers eventually chasing the Magic Pig all the way out to the horizon.”

The Toons’ Marching Orders

“Renata, you go with Goob Doll Judy, Soul Soldier, Puffy Pam and the Klaxons to blow up the Exaplex. And make the Happy Eaters to chew up all the mind worms you see. Ida, you go after the branecasters; I think they’ll be right on the other side. You’ll take Goob Dolls Tawni and LingLing, Strummer, the Da Nha Duc family and Fax Frog to help you. Professor Bumby, Gypsy Joker, and Space Monkeys, you stick with me. We’re gonna climb a tree to free my father and then we’ll see about the Magic Pig.”

The toons: the hard-looking Skull Farmers and their familiar rivals the Financiers of the Apocalypse; the colorful Goob Dolls with their Mean Queen foe and her talking cat Tommy; the foolish Fax Frog and his inane friends Nita Spinner and Thad Pole; the wealthy, backbiting Klaxons; the choleric Da Nha Duc and his three nephews; Geneva’s fat Puffy Pam dragon; the alien-designed Professor Bumby; and a few score of the round,

smiling Happy Eaters that were part of a pachinko ball game Ida liked to play.

Frek visualized himself and the Space Monkeys unwrapping Dad, Soul Soldier blowing up the Exaplex with a dark matter bomb, Da Nha Duc blasting Chainey's head with a Nguyen War singularity gun, and the bore-you-to-death Fax Frog chasing the Magic Pig all the way out to the horizon.

The Magic Pig's Museum

Before Frek could even look inside, Flinka had darted in with a slippery wriggle. Frek wouldn't have thought the flying trout could fit through the door. Evidently she was even more curious about the Pig than he. Frek, Ida and Renata followed Flinka.

The glow from Flinka's flesh filled the room with cool blue light. The space was easily twenty meters across and ten meters high. The walls were set with little windows into three-dimensional scenes. It was like a personal museum; a history of the Magic Pig.

The images nearest the door were of recent times. The Magic Pig stopping the tram beside the Exaplex; the Magic Pig helping Frek into the branelink tree. A few meters further in was Rundy proudly giving Cecily Pig's hand — or trotter — to Sid at a fancy wedding, with all the branecasters in attendance.

"It looks like he was even around for the creation yuga!" exclaimed Flinka from the back of the room. Frek went over to see. Flinka had found a picture of the Magic Pig sitting on a cloud amidst a group of — gods? Imposing beings with the heads of animals: a jackal, an ibis, a hydra. "I thought those was just myths," mused Flinka.

"Here's a picture of him with — they look like suns with faces," called Ida.

"Come out of there now!" called Aunt Guszti from outside the study door.

"You're just scolding because you're too fat to get in here," said Flinka. "Too fat and old and stiff. Look, Frek, over here the Magic Pig is watching the Big Bang that started your plane brane."

"I warn you, young minnow!" said Aunt Guszti. "You get pounded very soon!"

As she said this, a hundred Hungry Eater toons pushed in to the Magic Pig's study and started bouncing off the ceiling and walls, smashing things. The toons felt every bit as solid as normal objects.

"Back outside," yelled Frek, after a couple of the hyperactive Eaters had thudded into him.

They fought their way out to the wallow. Guszti was waiting there, floating close the ground, innocently nibbling the grass. Above her the swarm of toons circled like a gathering whirlwind.

"You sent those Eaters in there because you were jealous," snapped Flinka.

"It's bad to snoop around in there," said Guszti. "He might find out."

"It's like I always thought," said Flinka. "The Magic Pig's been around forever. He's been helping the branecasters lately, but soon he'll move on."

"So you know it all," said Guszti. "I'm lucky to talk with you."

"Can you two stop arguing and lead us to the Exaplex?" interrupted Renata.

Summaries and Outlines

Purpose of the Book

I want to write a far future galactic epic. Somewhat more traditional science-fiction than I usually write. It would be nice if it were a big seller.

I'm also thinking children's book.

Possibly but not necessarily allow for sequels. It's nice to have a series, and now that the *Ware* series is (probably) done, I need a new one.

As regards series, though, I could possibly go back to an earlier book and add on another novel. I'm thinking in particular of *The Hollow Earth*. But probably it would be more fun and more commercial to start something new.

I also want to use the Campbell blueprint for the action of a book. Though if I'm planning a series, then should I stretch the Monomyth over three volumes? Probably not a wise plan. Better simply to do the Monomyth three times, in three varied ways.

What do I want to *say* in this book? That is, what to say other than the usual subsubtext of, "I like to write, I like to be read, and I like to get paid for my writing."

I'd like the theme to be how to subvert the Monoculture. More generally, I want to play with what I call the Art/Mall Dialectic below.

I'd also like to present a teaching that's important to me: that we can overcome our fear and trust in God.

Title

Monomyth 3000 (Use Campbell's framework for a year 3K novel.)

The One and the Many (View the One as bad for a change, One as in Mall, and view the Many diversity as good.)

The Big Box (as in Wal-Mart, and the book is against WalMartization.)

Big Box

Breaking the Mold

M3K

Monoculture 3000

Monoculture 3K

Frek and the Space Squid . For the hero and his helper, but that's only the start of the book.

Gaia, Inc. (One of the enemies.)

The Gaia Namespace (Note the generic "The Proper-Noun Noun" format here...)

The Gaia Directory, List, Spreadsheet, Table, Database, Tier...

The Gaia Vector (More and more commercial...)

The Mindscape Invasion (The secondary threat will be that the Pig not only has taken over the biome but wants to take over our minds as well.)

Human.com (But this is owned by someone in Santa Cruz)

Human Com (Nice resonance with *The Human Comedy* as well. I think William Saroyan wrote a play with this title? That was, in turn, a riff off Dante's *Divine Comedy* of course. A "Com" can be the future name for corporation of any kind. GaiaCom has taken over the Biome, and Human Com plans to take over the Mindscape. I like the sound Human Com. It has a big, epic ring to it, just as a Monomyth novel should.)

HumanCom (Easier to say, to remember, to read. I'm not going with the Human.com as that would be so very time-bound, and mainly because there actually is a human.com, of course, owned by an outfit in Santa Cruz.)

But, wait, HumanCom, which I now think is NuHumanCom, is just one small element of the big picture, just one of the enemies.

Smash the Monoculture. Heavy-handed.

3003. Now, I like this one today. A riff off old Arthur, of course, also timely as I hope to finish it by 2002, also it's a palindromic number and looks nice. It's a nice new date to replace the soon-to-be-superannuated 2001. And this is where all my groundwork in *Saucer Wisdom* pays off, I know the future, man, I got it straight from Frank Shook. To me, at least, 3003 seems like so obviously the thing to do after 2001, I almost wonder if anyone else is doing it. 2+1 is 3 for one thing. Also 3 is the first number not mentioned in 2001. Also with our Millennium just over, 3K is so obviously the thing to wonder about. The start of the Fourth Millennium, it'll be. ***A month or so goes by.*** I just don't think 3003 will work. It's too tainted by Clarke, the guy hogged the year-name thing too much, he even did write a 3010, I think. If I call it 3001, people will just think it's sharecropped spin-off of the Clarke franchise.

Frek Huggins and the Genomic Elixir. I really like the Elixir word, I got it from Campbell. And I like genomic too. Could put Quest instead of Elixir, but that's pushing it, the reader should decide on his/her own if it's a quest or not. The only problem with this title is that it's an exact *Harry Potter and the Something Exciting* clone, and this sets up expectations that I don't want to match and immediate questions and thought modes that I'd rather not have people be into. Maybe drop the boy's last name, so it's more like that wonderful title I had recalled to me by Gordon Van Gelder last January at John Oakes's house: *Freddy and the Baseball Team from Mars*. This was about Freddy the Pig, I read a whole series of these books, it would be fun to see them again.

Frek and the Genomic Elixir. Could also just be *The Genomic Elixir*, but that's too cold, and it doesn't tell you up front that this is a boy's adventure novel.

Frek and the Elixir is even shorter. I like that style of title a lot. "Somebody and the One-Word-Plot-Device." Like *The Hacker and the Ants*.

Summary

Frek and the Elixir is a profound, playful SF epic about an individual standing up against the encroaching homogeneity of global culture.

It's 3003 and the biotech tweaked plants and animals are quite wonderful — but there are only a few dozen of the old species left. Nature has been denatured by the profiteers of NuBioCom. It's up to Frek Huggins, a lad from dull, sleepy Middleville, to venture out into the galaxy to fetch an elixir to restore Earth's lost species. At least that's what a friendly alien cuttlefish tells him the elixir will do. But can you really trust aliens?

Frek finds himself in the midst of a galactic struggle for humanity's freedom, accompanied by his talking dog Wow, the down-home mutant Gibby, and an asteroid-raised girl named Renata. The final liberation depends on freeing Frek's long-lost father with the help of a benevolent alien called the Magic Pig.

Frek and the Elixir is an archetypal saga reminiscent of *The Lord of the Rings*, the *Harry Potter* books, and Phillip Pullman's *His Dark Materials* series — enlivened by

Rudy Rucker's trademark originality and wit.

Ages 12 and up. Projected length 170,000 Words. Estimated completion date April, 2003.

Three-Part Outline

Part I: Departure

The ecology has been ruined by a greedy biotech corporation called NuBioCom; there are only a few dozen species left. On the up side, machines have been entirely replaced by the biologically tweaked NuBioCom "kritters." People live in house trees and fly in lifter beetles.

Twelve-year-old Frek Huggins of Middleville lives with his mother and his sisters; his father Carb left his family and moved to the asteroids a year ago. Frek dreams of becoming a toonsmith, making a living crafting the interactive toons displayed on house tree walls.

Frek's life is upended when a small alien craft is found amid the clutter beneath his bed. A tentacled creature from within the ship tells Frek he is destined the change the world, but then the NuBioCom "counselors" (read "police") appear and seemingly destroy the alien.

In their zeal to interrogate Frek, the counselors are on the point of destroying the boy's brain. Frek flees to a nearby woods inhabited by two-limbed mutants known as Grulloos, and befriends a country-accented Grullo named Gibby.

Frek and Gibby travel to the nearby Stun City, where the NuBioCom headquarters is found. Just as Frek is in danger of being trapped by the counselors, the alien who'd been beneath his bed reappears in the form of a flying squid wearing a mortarboard. He is Orpolese, from the galactic core. He offers to take Frek to a time pool where he can find the codes for all of Earth's lost species.

After a pitched battle between Frek's party and the NuBioCom leader Gov, Frek sets off towards the center of galaxy in the alien craft with his talking dog Wow and his new sidekick Gibby. They are in search of the elixir to restore Earth's biome.

Part II: The Elixir

The trip to the galactic core is interrupted by a call for help from Frek's father Carb, who claims he's imprisoned on a world called Unipusk. Frek crash-lands the alien ship near Unipusk, only to find that his father is a tool of the Unipusker aliens.

The Orpolese and the Unipuskers are competing over the right to produce "the humanity channel," which is to be a reality show based on direct broadcasts of the minds of the people on Earth. The mechanics of the transmission are controlled by the so-called branecaster aliens, who live in a parallel world called the Planck brane.

In the process of crash-landing the Orpolese ship, Frek and his companions dip briefly into the Planck brane and meet the thoroughly unpleasant branecasters. They force Frek to select a producer for the humanity channel. By default, Frek picks the Orpolese. This means that exclusively Orpolese aliens will be able to watch through people's eyes. The branecasters set Frek and his companions down on Unipusk.

The Unipuskers are Victorian monsters, scaly humanoids with shell-like heads. They speak only in commands. They want Frek to make them (and not the Orpolese) the

producers of the humanity channel. The best thing about Unipusk is that Frek meets a girl he likes; she's Renata, daughter of his father's screwball woman friend Yessica.

Frek reconciles with his father. By means of ingenious stratagems, they escape to a spaceport bar and catch alien spacecraft away from Unipusk. Renata and Yessica head straight back to Earth, while Frek, Wow, Gibby, and Frek's father make their way to the galactic core, home of the Orpolese, hoping to finally obtain the elixir to restore Earth's ecology.

The Orpolese turn out to be sentient sunspots who talk like beatniks. They show Frek the way into the Planck brane, where Frek again encounters the nasty branecasters. It's a colorful world, like a painting by Hieronymous Bosch. Frek obtains a patterned egg containing the gene codes needed to restore Earth's lost species: the elixir.

The branecasters nearly prevent Frek from leaving the Planck brane. He escapes with the aid of a Planck brane character called the Magic Pig, but only at the cost of leaving his father behind in a kind of suspended animation.

Part III: Earth's Fate

Frek, Gibby and Wow find their way across the galaxy and back to planet Earth. As soon as they arrive, Renata steals the elixir — it turns out she's had a NuBioCom control unit placed inside her head by her treacherous mother Yessica.

Once again the counselors are on the point of capturing Frek, but he's saved by a pair of Orpolese aliens. In return, the aliens require him to finalize the deal whereby the Orpolese produce the humanity channel. The really troublesome part of the deal is that, not only will the aliens be watching through the eyes of people, they'll be free to affect the actions of the people they watch. In other words, humanity is to become like a set of characters in an alien-controlled computer game! But Frek has no choice. He does manage to exempt himself, Renata, Gibby and their families from control.

In the short term, the Orpolese, who love chaos, are helpful. Frek is able to heal Renata and to recover the elixir. They bring down NuBioCom and destroy the evil leader Gov — although Gibby dies a hero's death, leaving his son Bili to carry on his legacy.

Frek and Renata reseed Earth's biosphere with the elixir, bringing back all the good old species. For awhile, it's like a new Eden, but there's a catch. There are some new species designed to embody Orpolese alien minds. These flying squid and so-called shuggoths are ungainly and destructive.

Frek manages to reach out to the Magic Pig back in the Planck brane; the Magic Pig sets up a communication channel for Frek located, again, beneath Frek's bed. Frek uses it to get in touch with the branecasters and bring in the Unipuskers as humanity's producers in place of the Orpolese.

Immediately the pendulum swings too far the other way. The Unipuskers are uncreative neatniks, law and order freaks, monoculturizers. Humanity's only hope is to stop being a "talent race," and to end the branecasting of humanity for once and for all.

Accompanied by Renata, Frek sets off for the Planck brane again. He frees his father, and they enlist an unlikely set of allies for the final battle: the artificially intelligent toon characters living in Earth's various simulation games. Together with the toons, Frek, Renata and Frek's father bring down the branecasters and make the restored Earth safe from alien meddling. A new era of galactic citizenship has begun.

Calendar

May 3003

Sun	M	Tu	W	Thu	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April 30, 2091. The Magic Pig enters Carb Huggins's dream, and gives him two rings. Frek Huggins is born about 4 AM.

April 30, 3003. Saturday. Frek Huggins's twelfth birthday.

May 2, 3003. Monday. Unipuskers abduct Carb.

May 5, 3003. Thursday. Orpolese reach Sick Hindu.

May 6, 3003. Friday. Unipuskers and Carb yunch back to Earth and warn Gov about the Anvil

May 7, 3003. Saturday. Frek sees the Anvil. Plants the seeds.

May 8, 3003. Sunday. In the AM, the cuttlefish appears. Frek is peeked.

May 12, 3003. Thursday. Frek come out of the fog, runs away, meets Jeroon.

May 13, 3003. Friday. Frek rides to Stun City with Gibby.

May 14, 3003. Saturday. Frek meets Wow, gets into the puffball. Takes off in Anvil. Yunch, crash into the Planck brane, drifts towards Unipusk.

May 15, 3003. Sunday. Land on Unipusk.

May 16, 3003. Monday. Try and escape Unipuskers, locked in room.

May 17, 3003. Tuesday. Early AM escape Unipusk. Taken to Orpoly.

May 18, 3003. Wednesday. Makes his own way to branelink and Planck brane.

Magic Pig reaches back in time to Frek's birth. Frek goes to Exaplex theater.

May 19, 3003. Thursday. Meet the Magic Pig. Flee the Hell world of the Planck brane. Get stuck in an endless upward yunch to the size of the universe.

May 20, 3003. Friday. Arrive back in Middleville at dawn. The Orpolese take over. Gibby is killed. Gov is destroyed.

May 20, 3004. (3004 is a leap year, so this is 366 days later, which is 52 weeks and 2 days, so it's Sunday.) The attack of the shuggoths. Frek rids the Planck brane of the branecasters, celebrates with his family that night.

Chapter by Chapter

These are notes about what I plan or planned to put into the chapters. Rather than continually going back and revising this outline to match what I actually did put in, I'm going to leave the original, partial plans, even where they're superseded or contradictory or unrealized.

Act I. Departure. "Departure"

Chapter One: The Call: Middleville, 3003

A 12-year-old boy named Frek on Earth 3003. Biotech and nanotech have taken over, though the people who use them live in separate communities. The biotech users are Nubbies, the nanotech users are Nanners. Frek is a Nubby; in his town of Middleville there aren't any machines at all, which at first seems nice. But the biome has been Wal-Marted, and there only a few hundred species anymore. No weeds. They live in house trees.

Frek's problems: (a) His father has left his mother, he wants his father back but at same time resents him. (b) He isn't well-liked among his peers, he's considered odd. He's worried he will never fit in. (c) He's interested in plants and animals and bugs, he wishes there were more different kinds of flora and fauna like there used to be.

He notices something weird under his bed but doesn't have time to check it out. He goes to his sort-of friend Stoo's house to play a toon game called Skull Farmers, and the Skull Farmers tell Frek that a UFO is looking for him. The police, now euphemized as "counselors," arrive at Frek's house.

Chapter Two: The Call Refused: The Anvil

A pair of counselors search the house. They speak of "biohazard" and the like. Frek doesn't tell them about the thing under his bed. The counselors set up watch from a small house tree they grow in Frek's yard. **The tree's voice.** There's also a hummingbird sized "watchbird" to follow Frek around outside.

Frek and his mother have a talk about Carb, she tells that they've gotten divorced or "unwebbed."

In the middle of the night, there's a noise under Frek's bed. He leans over and there is a triangle of light in the ship. A form comes out, growing bigger as it squeezes out of the tiny door, the space inside the ship is negatively curved. He sees an alien resembling a stubby squid, or cuttlefish, coming out of the small heavy UFO, which is a purplish-black ship shaped like a cubic Mandelbrot set.

The space cuttlefish looks up at him with big, kind, wise eyes. "You're the one," it tells Frek. "You will save your world. The space cuttlefish looks so friendly. They touch, hand to tentacle, and..."

The house tree and the watchbird are sounding the alarm. A counselor comes in, there's terrible fighting and squealing. The counselor hacks up the cuttlefish. Its tentacles try and crawl away. They burn it all, in a plant-alcohol fire. News reports about it are flickering across the house tree walls.

The Nubbies gather to see the event. Worried about biohazard. "Burn the sport!" The Steiner family is there: Kolder, Sao and Stoo. Sao is ickily excited, as in Burroughs's classic *Naked Lunch* scene, "Burn him slow, honey-face."

The counselors take the little UFO away for their leader, who is a toon called Gov. The counselors "peek" Frek, damaging his brain.

He's recovering slowly. He can't remember things, isn't well yet. They plan to kill him or give him a new brain next.

Lora helps him kill the watchbird with a badminton racquet and then Frek runs away. Lora gives him instructions on where to go.

Chapter Three: The Helper: In the Grulloo Woods

The Wal-Marted woods. All maples, then vegetables, then cliffs with everyfruit trees and please plants. Frek flies down the river, he's supposed to go left to an abandoned hydro plant. But he gets distracted by watching the farmers with their pickerhands and elephruks, and then suddenly PhiPhi the counselor is coming after him, his brain isn't working well, at the river he turns the wrong way, heads downstream towards Stun City.

The counselors chase Frek, he hides under some bushes, they go downstream, then circle back and look for him. They've brought Wow to sniff him out. Wow finds Frek, but doesn't give him away. Then Wow runs away.

After the counselors leave, Frek hears a noise and he finds a little man, a creature with only a head and two arms he walks upon, his name is Jeroon, and he's what's called a Grulloo. He has a tail caught in a log he was splitting. Frek saves him just before a bad, flying, cannibalistic Grulloo named Okky comes to attack them. They make their way back to Jeroon's house in the bank of a stream. On the way, Okky kills Frek's wings. Jeroon gives Frek some tea with stim cells in it to heal his brain.

In the morning Frek is fine. The Grulloos sell things to the Nubbies in Stim City, and specifically to NuBioCom. Tobacco, rugmoss, and stim cells. Wonderfully lush and ever-changing carpets of rugmoss, like a cellular automaton rule. They grow special stim cells for themselves, the Grulloos need them as their bodies are so mutated and poorly designed. The stim cells don't last long, you have to growing new ones. They need the latest NuBioCom knockout blocker updates to keep their tobacco, rugmoss, and stim cells working. In return they give NuBioCom stim cells which are samples of their DNA.

Frek decides he ought to get the Anvil back from Gov. The Grulloos are very interested in it too. Gov lives in the NuBioCom puffball in Stim City. The puffball is the biotech equivalent of a really big computer. Jeroon says he'll help Frek, but then he gets distracted by his girlfriend Ennie, who's finally ready to hatch out an egg with him and thus become his bride.

So Frek goes to Stun City with Ennie's brother Gibby.

Chapter Four: The Threshold: Stun City

Gibby disguises Frek. Withers his arm and ages him. Gibby plays a fiddle, perched on the elephruk, uses the tuning pegs he got from Jeroon who got them from please-plants.

Frek and Gibby at the cowloon. Phamelu near them. She offers Frek a mug, "First one's free." "Okay," says Frek. "No, you're too young," says Gibby. "Don't mess yourself up." Phamelu notices.

Frek a little bored after a bit, walks back down near the pasture. A new moon over the fantastic walls of the inn and above the shapes of Stun City beyond that. The Stun City skyline. The buildings grow in realtime from smart crystals. They have giant toons on their walls, like Ginza or Shinjuku, like the signs in *Bladerunner*.

The rumbling of the elephruks. Peace. What's he going to do, though?

Back at the cowloon, Gibby is lying on the ground passed out and Phamelu is going through his pockets.

Frek takes him upstairs. "you're strong" says Phamelu, "some cowloon juice wouldn't hurt you."

Frek goes back down. First feeds the toad some worms so he'll let him back in.

Has a mug, gets dizzy, Phamelu talking to him, he is talking too much, says he's not as old as he looks. She hints around he might be able to get a job at the inn, and he's telling more to get in good with her. On the run from the counselors. trying to impress her. fascinated by her breasts. Suddenly remembers Gibby's warning. Feels sick. Goes upstairs. Barking outside. can't think. falls asleep.

The counselors came before dawn. Toad bites one, Gibby kicks the other one in the gut, gets web gunned, Frek gets out the window.

Wow is there. "I've been barking for you."

Run around Stun City a little. The people are maybe like gearheads, like tweakers? The flavor of the Stun City monoculture is different from that of Middleville. They have very little visible nature at all. It's mostly crystals. Mall culture.

Wow tells Frek that Lora's been arrested, helps Frek find a sewer to sleep in. Frek really wants to do something. He makes his way to the puff-ball, desperate to save Lora.

How to get the Anvil? Wow's with some other dogs near the Meatworks. Maybe Gov wants to get rid of dogs, weave back about "discontinue" dogs.

Chapter Five: The Belly of the Whale: Professor Bumby

Frek is camouflaged, but not all that well. They nearly corner him, but he gets inside. He sees the alien on the wall of the building, a toon of a space squid with a mortar board. It's the cryptoon the Skull Farmers were talking about.

The toon guides him to a kitchen garden behind the puffball cafeteria. And there a space cuttlefish comes out of the ground. His name is Bumby. He got there because of that extra please plant seed, it hatched and he tunneled underground.

He'll say, "Eadem mutata resurgo," and the Frek'll go "What?" and the alien will say, "That's Latin for, 'I return, different and the same,'" and Frek says, "What's Latin?"

They are about to send the Anvil off to the sun, Frek and Bumby have to get to it before it's lost. But first they hide?

There's some really scary shit here. Spooky enemies, holographic toons, but more than that, demons. Spectral. Gov knows where he is, he can't hide from Gov.

Revelation of the plot to monocrop human minds. Gov wants to harness psionic energy to make himself manifest. The upcoming internal uvvy is going to make life a complete zombified monoculture Westfield Shoppingtown Mall hell. Gov is a hookworm, i.e. he evolved from a hookworm genome as wild alife.

The space cuttlefish's name is Professor Bumby. He says Frek has to heal Earth or else the Unipuskers will use it for a component in a cosmic computer. He says he's just an independent Orpoly scout, that he's lucky he found Earth before a Unipusk developer did. He says Earth can survive only if it keeps its integrity and diversity, they have to work their way out of the monoculture attractor.

Why does Bumby want to encourage diversity? So people will be more tolerant of aliens and the full panoply of the Galactic Federation? That's what Bumby says at first, but I think he should have a more concrete and selfish motivation than that. Also Bumby is concerned about the deleterious effects of NuBioCom and the forthcoming HumanCom. There also has to be a real reason, something practical. Galactic survey? Looking for a base? No, the Orpolese are producers for the branecast show.

Frek should save Gibby before leaving. Frek won't go till he does. Like Bilbo Baggins being loyal. In fact Gibby comes with him, as does Wow.

Frek and Bumby crawl into Bumby's craft (which is a living being, another Orpolese, in fact his wife), so much larger on the inside than the tiny door might lead you to believe, and then the saucer is supposed to transmit Frek in the direction of Orpoly. (I was considering Squidnor 777, but I think this name would be too parodistic, also Bumby isn't "really" a squid, he's a sunspot.) And on the way out, they pick up Gibby and Wow.

The inside of the Anvil is like the Placida Galena mausoleum. Tessellated scenes. Brilliant colors. To make it super duper, the tessellations are actually 3D polyhedra.

The jelly beams another laser blast at them and they lift into the sky.

Act II. Initiation. "The Elixir"

Chapter Six: The Road of Trials: Yunch!

They start out for Orpoly Prime, but there are going to be Trials before they get there.

The trip is supposed to be fairly rapid. They yunch, that is wind tight the component strings of their bodies, get as large as the galaxy, shrink back down, and will arrive at a spaceport field like the Miami International Airport — but they will, as discussed below, arrive in fact at the wrong spaceport, at, say, George Bush's home town Crawford, Texas, instead of upon Orpoly Prime. Krawf. They're drawn in by a tractor beam. The Orpolese are like squid made of energy, but the Unipuskers have oversized attack dogs and they SUVs. Like the bullying pigs on Wonder Warthog's home world.

Before this we have the yunch trip, and the things that Frek sees on the way, the galactic starscapes.

Also on the trip there is a little time to discuss why does Bumby feel Frek is the savior, the monomythic Hero to enlist? And what does Bumby want? There's some kind of Force that won't let a race take over Earth without being invited in, Bumby tells him that much. Bumby doesn't tell him about the Unipuskers. He tells him that he selected Frek because of his father Carb being known to them. The Orpolese and the Unipuskers had in fact been feeling things out on the asteroids.

In fact there's recently been a disaster of some kind with many of the people on the asteroids disappearing. (Carb and Renata were two of these).

I'm not sure that Bumby will tell him the truth, yet,, which is this.

It has to do with Carb Huggins, Frek's father, who was living in the asteroid belt. Carb is now with the Unipuskers (they're like Stalinists maybe) and the Orpolese picked Frek as their agent because they (correctly) figure Carb won't be willing to kill Frek. Carb will be the Unipuskers' hooded Executioner supposed to kill Frek, and of course he'll then have to save Frek instead, and we'll have lad 'n dad in an adventure together.

Preemer and the Govs picked up something about the Anvil on the Web, gabble from a slushed rebel friend of old Carb, about what maybe the Anvil told them up in the asteroids.

Bumby kills off the sky jellies around Earth (I'd kind of like a one-word name for the rulers of Earth, Gov is a local force, the international force is, who? The Govs, there's lots of these worms and they work together. Supreme overlord leader Prez? Chairworm? Vice-President Dick Cheney? Preemer? I like Preemer.) Preemer sends a

warning to Frek that Bumby is rendering Earth defenseless. Frek has doubts about the Orpolese.

Something goes wrong on the trip, so they don't end up where they wanted to go. Frek makes them crash land. The Unipuskers diddle with them and they land in the wrong place, near Unipusk itself. A dump, a trap. Frek is lured there by a Princess Leia kind of hologram Frek sees of a sweet girl he longs to be with, a little "Goddess" named Renata. Renata, whom he sees in this Virgin-of-Guadalupe-view, transmitted via the subaether. She's like a guiding light. Frek's talking to her and she shows him a glimpse of his father, who seems to be in great pain.. So Frek does something to sabotage the Ulla/Bumby flight, throws a monkey-wrench in the slobber.

The unplanned unyunch drops them into the Planck brane. The branecasters are furious, they take Bumby and Ulla off to torture them. To honor a last request from Bumby, Frek makes a deal for the Orpolese to be humanity's branecast producers.

They leave the Planck brane then, near they unyunch near a transport tube from the gas giant Yauche (like collected cattle piss, in German) to its moon Unipusk. By the way, Unipusk is a Terran world with a real Heinlein-style spaceport. (It would be too hard to have the Unipuskers live on a gas giant, having the Orpolese live inside a star will be ambitious enough.) But for now, Frek is falling towards Yauche.

Frek calls for help with his ring.

Chapter Seven: The Goddess: Renata

On the ring talk, Frek learns his Dad was faking on the ring-call. He's not being tortured at all. Dad speaks disparagingly of the Orpolese. He's hot to close the deal for the Unipuskers. He doesn't realize that Frek's already been to the Planck brane, and Frek doesn't tell him. He's high on some squeeze bulb dust from the Unipuskers. He's not wearing a spacesuit.

Frek and the others fall very close to the surface of Yauche. Unipusk saucer picks them up. Frek et al.'s spacesuits dissolve as they enter the saucer, they're concerned, but they can breathe the air, though it has an unpleasant sulfur smell to it.

The saucer is manned by Hawb and Cawmb who seem to be a couple, though both are "he." They're turd-colored, with an iridescent sheen. Turd creatures, but with big flat clamshell heads, appropriate as you find clams in mud anyway. The saucer is inordinately large, like an SUV. There's a pilot as well, a crusty character called Evawrt after Everett the lobsterman we knew in Maine.

A thousand-kilometer-long "bobblie" jumps up and tries to eat the saucer. Hawb and Cawmb explain that the bobblies aren't animals, they're pieces of weather. Intelligent vortices. The bobblies hate the Unipuskers for siphoning off liquid metallic helium with their transport tube. Frek lies and says the bobblie ate the Orpolese, rather than saying they're zerovibed in the Planck brane. The Unipuskers are surprised and a little dubious that the bobblies would attack the Orpolese, as the Orpolese are friends with the bobblies (because the Orpolese too are weather, i.e. sunspots, but we don't reveal this yet.)

Hawb and Cawmb quarrel and snap at each other a lot, bicker like an old married couple like, say, Henry and Corinne. They have a pet vig on board, they offer Frek some vig meat, they slice it off the vig's rump, which regenerates. Plus a few stems of rickrack, like asparagus or bamboo shoots.

The Unipuskers aren't gendered, but they're a couple. All Unipuskers are "he." They reproduce something like how moon jellyfish do, they bud off scions from their tails. They do some sexual gene exchange as well, but that's too disgusting to talk about, at least for now. The tails are kept covered demurely. Hawb and Cawmb have 735 children, are pregnant with like 17 between the two of them, they have a very large rickrack tree to live in. They're wealthy.

The dogs get in a fight, tear off Cawmb's tail cover, she's embarrassed and mad. A baby is coming loose.

Right about then Renata appears. Frek likes her right away, she's a natural pal for him. The Unipuskers lock up the dogs and Gibby starts babysitting the new baby. Frek and Renata head upstairs alone.

Rather than going straight to the cockpit they pause in an empty lounge and chat, eventually looking at a flickerball that's sitting there.

Renata tells Frek some things. The Unipuskers stuff is all kennies which are things made of intelligent dark matter, known as kenner. The ship is a kenny as well.

Renata thinks Earth is romantic and exciting, she has moments of seeming like a small-town girl, makes Frek feel like Jerry Lee Lewis impressing wide-eyed teens. Yet in other ways, she's a bit worldly and jaded from having grown up in a colony of religious nuts.

Hawb and Cawmb make their living as branecast producers. Renata shows Frek a flickerball, which is a branecast receiving unit. Flickerball is very popular on Unipusk. Everyone wants to see new stuff.

They turn on the flickerball. It makes a flickering light and an annoying buzz, but when you focus in on it, the flicker and buzz goes away and you see and hear things. They call it "esping brane." Frek esps some brane. It shows him a few alien races, including a bobblies on Yauche who is putting a bomb in the transport tube. He sees Mom but can't reach out to her. Frek gets into a view of himself here and now, and this freaks him out with an infinite regress. He snaps out of it.

Hawb tells him he knows that Frek already made the deal with the branecasters. Frek is to undo this as soon as the Unipuskers get their branelink working again. It got blown up by a bomb that came through the transport tube from Yauche, thanks to those pesky bobblies. Frek and Renata go up to see Evawrt.

The planet is covered with lit-up buildings. It's night as they land, but dawn breaks. The spaceport is like Miami International Airport, huge and sprawling, with oddly shaped buildings. And more saucers than you've ever seen.

Woo runs away when they land, disappearing into a star-shaped alien warehouse.

Chapter Eight: The Temptress: Unipusk

They proceed to the mansion of Hawb and Cawmb, which is a large, branching horsetail-like rickrack near the spaceport. The party is Hawb, Cawmb, Frek, Renata, Gibby, three new babies, Wow. It's evening, one sun sets, then the other. Lights all in the rickrack trees, they are like Chinese lanterns, lovely shades of green. The lighting substance is kenner gas.

Make the house exceedingly elaborate, encrusted with ornamentation like the Paris Opera. Statuary, all the images, mounds of stuff at the bases of the walls. Maybe they have a column like in the Place Vendome, with Hawb and Cawmb on top instead of

Napoleon. Remarkable how this column is in essence a pile of dead bodies.

Yessica comes wafting down a flight of endless winding stairs like Scarlett O'Hara. Veils of color, washes of strings, incense. Dogging after her is Carb. Yessica acts very kittenish with him, it sickens Frek to imagine how she rubs her six breasts on his father.

Yessica starts hassling the Unipuskers, saying they don't need three hostages to keep Carb honest, they can send Renata back.

Yessica *likes* the idea of mind control, as long as it's for something good like the Crufter cause. In a way she's like Gov, the other side of the same coin. Unipuskers have told her they'll help Yessica spread Crufter cause. Carb supports Yessica. Unipuskers tell Yessica, Frek is the negotiator now, and they all pressure Frek to cancel the deal for the Orpolese, and get it for the 'Puskers. The branelink will finally be up again tomorrow.

Frek asks the 'Puskers to tell him more about branecasting and how they produce. "We're all so unexciting," says Hawb self-deprecatingly, explaining why his fellow citizens love the flickerball. "We're always looking for something new. Cawmb and I especially. That's why we're such great producers." Cawmb adds that says too much novelty isn't really good, though. They politely regret about how they're going to change Earth to pull it further into conformity with the Unipusk Branecast Code, which is designed to forbid branecasting too many things that could prove upsetting to Unipusk society. They plan to help Preemer and Gov, to make Earth be more standard. They praise the NuBioCom plans for ooey.

Hawb adds that how the Orpolese on the other hand like to push their branecast worlds into chaos, which Bumby hadn't mentioned to Frek. Note that no inputs are allowed until a producer takes over.

Frek decides never to help them, but doesn't make a fuss yet. He goes up to his room. They see a lot of the little Unipuskers, they're like the oysters following the Walrus and the Carpenter, they have to chase them out of the room. He has a room out on the tip of a branch with Gibby and Wow. In the night they hear Woo barking.

Renata comes on the tour, but the Puskers keep Wow and Gibby in the bedroom to have a little leverage over Frek.

They head across town away from the spaceport to see the branelink. They pass some Unipuskers. All the Unipuskers say the same three or four things, including a witticism, like people all saying the same TV thing like "I lied" or "ExCUSE me?" Most of them are esping brane. The buzz of the flickerballs is everywhere.

They pass some farms. They see some vigs. The vigs close their eyes in contentment, cropping the young rickrack plants, peaceful as Swiss cows. Someone is milking a vig.

They come to some kenny crafters. We see some kenny crafters at work in a special building. They are artists, somewhat rebellious. One of them in particular called Gawrnier (after Charles Garnier, architect of the Paris Opera.) H & C leave Frek with Gawrnier for a bit (they have to run back and get Carb and Yessica, who were asleep when they started). Gawrnier actually likes the idea of the transport tube bomb.

They visit the branelink. There's an oil-war kind of thing relating to those transport tubes, which is why the branelink is down. The site is right where the tube comes in, the place is like a refinery. They convert the incoming stuff into kenner. The

bobbles are like Arabs.

The branelink is back up. It's a hovering ball of ER bridge floating on kenner gas. Hawb asks Frek to go in there and fix the deal. Frek says no he won't. He is ready to die. Hawb says, "Okay, we're going to kill you and send Carb." Carb says no way. Yessica says, "Kill Frek and I'll go."

Frek's bomb goes off. Chaos. Frek escapes, using his chameleon mod. He's got his branelink golden glow turned off due to his excellent willpower. The transport tube is broken, flailing across the sky, it's snowing red and yellow. He's hiding behind the kenny crafters' building.

Chapter Nine: Atonement with the Father: The Spaceport Bar

Gawrnier sees Frek, it helps that he can "vaar" him by seeing the dark matter in his body. He takes Frek in, and in ten minutes him the rudiments of Kenny crafting, says he could tell right away that Frek was special, that he had the skill, he wants Frek to take the skill back to Earth. Frek's chameleon mod wears off, he puts on his last dose of the stuff. Also Gawrnier's show him how to craft a spacesuit shaped like a vig. Frek reflects that, in just ten minutes, Gawrnier is being more of better father to him than Carb ever was.

Cawmb and Hawb are searching the kenny crafter building. Gawrnier takes off with Frek towards the spaceport, angling a bit to one side. They get hunted down by the producers near the Talent Race Zoo. Frek merges into a herd of vigs and eavesdrops to Gawrnier talking to Gawrgor, Hawb, Cawmb, Carb, Yessica, and Dad.

Gawrnier denies helping Frek, and then spills the beans about the zoo, upsetting Yessica. Cawmb and Hawb sweet talk her again.

Yessica has Dad's ring now, and she uses it to find Frek, right there on all fours amidst the vigs, event though Dad and Renata tell her not to. Frek quickly turns off his vig suit, he doesn't want her to know about his new kenny crafting skill. He's very upset Dad gave the ring to Yessica, he takes off his own ring and lets a vig eat it.

Meanwhile, his treason exposed, Gawrnier has taken off for the neutral ground of the Taz bar at the spaceport.

Frek runs for it, heads inside the courtyard of the Talent Race Zoo with sample members of the branecast channel talent races. The 'Puskers would want to have, stands to reason, a cage of actual physical mascots of each of their branecast creatures. They run this little zoo as a kind of side line. They have the lizards, a gout of lava, a tornado, etc.

The 'Puskers catch him in there. They take Frek back to the mansion and Angawl locks Frek up with Gibby and Wow. Renata is locked in with them too because she's been making so much trouble. Frek vaars himself some clothes, Renata's impressed. A long, slow day passes. They don't know how to get out.

That night Woo outside barking again. She tells Wow how to open the locked door, he can taps it a certain way with his paw. It's something the Radiolarians told Woo. Wow hears the sweet whistle again as well.

Frek vaars them all kenny spacesuits that look like Unipuskers. And Renata thinks of making it look like they have ickspot. Frek, Renata, Gibby, and Wow dress up like Unipuskers with ickspot.

They walk down the halls, the baby and child Unipuskers are running away and

screaming, “Ickspot!” Before Hawb and Cawmb can come down from their room at the tip top of the rickrack, Frek, Renata, Gibby, and Wow manage to drop down the shaft, and near the bottom Frek deploys the Aaron’s Rod and it fills up the whole rickrack shaft with impenetrable ferny vines.

On the ground floor they drop their disguises. It’s their big chance to run off to the spaceport! Yessica and Carb are there in the big room, asleep. Carb wakes up, but Yessica is pretty zonked. Frek makes a gun, they wake up Gawrgor on the hoverdisk, Dad blows Gawrgor’s head off, but Gawrgor keeps on coming, a Unipusker’s control circuits aren’t in its head. Dad shoots Gawrgor’s arm off; Dad is a good ally. Frek shackles Gawrgor with a kenny jo net. Gibby gets control of the hoverdisk, he figures out how to fly it.

They find Woo outside on the ground barking. The Unipuskers in Hawb and Cawmb’s mansion fly down on wings, launching a last attack. Frek, Renata, Dad, Yessica, Gibby, Wow and Woo make it to the Taz Spaceport Bar and enjoy the local color there. It’s kind of haven, a Temporary Autonomous Zone, a free port, the Unipuskers have no jurisdiction here. They have cool music.

The only Unipuskers there are Gawrnier and the pilot Evawrt, talking together. They look friendly.

Woo introduces them to a Radiolarian singer who looks look like sea cucumber with feathery branches on their heads. Nefertiti is her name. Yessica is passed out on a couch. Renata is playing with Woo and Wow. Gibby is slugging the moolk and getting wasted.

Dad and Frek do some bonding, the Atonement with the Father. And then they discuss why it is that Frek has gotten the following powers: (a) ability to use his (now lost) ring, (b) the ability to block branecast visibility, (c) the ability to learn kenny crafting. Dad tells Frek that, unlike everyone else, Frek came from normal sex, without any kind of genomic tinkering. Maybe Gaia is giving him power.

Renata thinks they should fly home with Evawrt, who’s willing, but the Radiolarians also offer to take them on their way. Frek and Dad think that’s probably safer. The Radiolarians claim to be friends with the Orpolese. They say they don’t esp brane at all, they have no interest in branecast producing, the others confirm this.

The Radiolarian ship is itself a large sea cucumber. It boards them by attaching all of them to its everted fan, then bringing the fan inside its body. They hesitate, but then the Unipuskers are coming so they leave in haste. Everyone is stuffed in there, packed motionless into place, imprisoned.

Exhausted, Frek falls asleep.

Chapter Ten: Apotheosis: Orpoly

And the fan pokes through their skins to make a hardware link to their nervous systems, foiling Frek’s brane esper lockout.

They are merged into one mind, the seven plus the five Radiolarians: ship plus four passengers. Twelve in all.

The Radiolarians want to exploit humanity, but not by esping brane. They want to wire the race up. They don’t know the way to Earth and want the seven to show them. They get the people to keep remembering view to use them like dowsing rods. Their bodies will give off “hot” or “cold” signals that can guide the downward yunch.

Present the merged state with a page or so of talk, formatted like
Name: "Said this."

Other Name: "Answered that."

The conversation is a dramatic set piece, rising to a conclusion.

Yessica is still hung up on the branecast thing and is actually trying to talk the Radiolarians into killing Frek and letting her talk to the branecasters. The Radiolarians are more interested in getting to Earth and wiring them all up, though.

The Radiolarians view talent races as orchestras. Thus Nefertiti is a singer. Maybe they like to lock each subject member into his/her current state so as to reliably be able to reproduce scores.

Frek is powerless, trapped, but Gibby cuts himself loose and crawls to the base of the Radiolarian stalk, and cuts it off with the new knife that Frek vaared for him back in the rickrack tree.

Meanwhile Frek reaches out and contacts the Orpolese with his mind, he feels more confident all the time. Frek crafts spacesuits for everyone. The Orpolese show up and kick ass. It's a pair as before, they say they're children of Bumby and Ulla, they're called Whaler and Tusky.

Renata doesn't want to be with her Mom anymore very much, Frek mentions that she could wait for him at his house, and get word to Lora that he's okay. Woo says she'll go back too, she says she doesn't like the trip anymore either. She's bonded with Renata. Renata plans to go on to Frek's house. Yessica says she'll come to Earth too, but doesn't want Renata to go to Frek's. It's left a little up in the air. The Orpolese fission into two ships, and take the boys on towards Orpoly and take the girls back towards the Solar System.

So Frek, Dad, Gibby and Wow yunch down to Orpoly.

Orpoly turns out to be a sea of suns near the galactic center. A globular cluster of thousands of stars. and they are going to have to be vortex threads inside it. Perhaps a display like fireworks greets Frek. The Orpolese are magnetic loops, closed coronal loops, what Benford calls spheromaks, that's the punch line of "what Bumby really looks like." He's a plasma vortex ring. The patterns don't live in one particular sun, they fly out from one to the other like Polynesians among their islands. The Orpolese give them super duper Planck-temperature resistant magnetic bottles for spacesuits to keep them safe.

A kicker here is that the natural size for the Orpolese spheromaks is a thousand kilometers across. They had actually yunched down to way below their natural size when they visited Earth. But this time, for Orpoly, they stop the yunch at their natural size. And they leave the people this big too. They touch up their space suits to make them impervious even though they're so big and yunched up. So the Earthlings are like gas in a neon tube. Meat gas. This is a perfect touch for the "Apotheosis" chapter, they've become like giants, titans, gods in heaven. Frek thinks about how it would be to have people walking around inside him like passengers in a generation star-ship.

The Orpolese go and graze on some smaller vortices. There's two factions of Orpolese, the lefts and the rights. This has to do with the fact that you can have left-handed or right-handed helices around a torus, just like around a cylinder. It's a Montague and Capulet kind of thing. Bumby and Ulla were Romeo and Juliet. And of course Whaler and Tusky inherited their parents' chirality [ten-dollar word for

“handedness”]. They use “znag and rassen” for “left and right,” and a mixed marriage couple such as Bumby/Ulla or Whaler/Tusky is “znassen,” named after the Moroccan restaurant where I’ve been eating lately, Beni Znassen.

They eat chaotic zones, grazing on chop, as it were, “chop” like the gnarly standing waves of the “potato patch” off the Golden Gate. They call it loofy. They also may eat each other.

We’re interrupted by a bit of intrigue, a spot of trouble among the Orpolese spheromaks. There’s this left/right twist tribal thing. There’s a fight between Whaler and Tusky leading to Whaler being killed and eaten by a new husband Yonny for Tusky, his old wife being eaten by Tusky, and it turns out the new couple has no interest in helping Frek and his pals anymore, so Frek has to do it on his own. The new husband, Yonny, thinks branecasting is tacky.

They go in towards the core, there’s a giant black hole. The surface of the black hole looks a little like a Yorke attractor. They circle the hole with the other stars.

And let’s suppose that they’ve actually turned some suns into “big screen” flickerballs. Campbell says the hero becomes All Men and All Women, so enormous Frek can in fact tune into every member of the race at once right now, he sees a star showing all humanity.

And in the middle is a star that, to Frek and Dad anyway, looks like the Bodhisattva that Campbell describes, maybe even lift parts of his description. It looks like vig meat to Woo, and to Gibby it looks like the door to his house.

It’s up to Frek himself to make the million kilograms of gold. Yes. He does it. There’s a lot of dark matter here, rich kenner pickings. But it’s too much work for him. Dad helps.

And then the four “guys” — Dad, Frek, Gibby, Wow — drop into the Planck Brane. The entrance is a gem in the Bodhisattva’s forehead.

Chapter Eleven: The Boon: The Elixir.

No more golden fog like being in the Sun. It should start very literal, bouncy, cartoony, shading into realistic, creepy, dark and scary. When I’m done, I can go back and touch up the initial branecaster sequence to match. (I won’t be limited here and now by what I did there and then.)

Initially I was thinking I’d make it be like a cartoon, but I want to save the toon world for a later chapter, where Frek enlists the aid of Earth’s toons (like Goob Doll Judy, of whom I really want to see more).

So I’m going to make the Planck brane be like a painting, with a view towards turning it into a Bosch/Bruegel hell world at the end of the this chapter.

They dive into the link with the asteroid. They see a little toonland town, it’s Node G. They’re still a thousand kilometers tall, 0.5 million times normal size, but the town is human scale. They steer so as to land in some foothills, not on the toony town. A jet plane comes speeding over from Node G, six branecasters parachute out, very animated. Sid runs up to Frek and kicks his foot really hard. Like Super Mario hitting something.

Fweet Frek shrinks, his suit too, the extra thickness of the suit spallates off as transparent shells. *Fweet, fweet, fweet* the others shrink too.

The branecasters have seen the trillion ton ten-kilometer asteroid of gold, but

they're being pricks as usual, saying maybe they need another asteroid. But the branecasters are just weird funny-looking people, the guys you'd find in a Hollywood meeting room, like Mike and Artie at Phoenix, not supermen, just dumb Mike with his coronary bypass and Artie the cozy Citizen Kane Jew. There's six of them, three couples, Sid and Said, Batty and Bitty, Chainey and Jayney. Those scary things on the walls of the cube before were like shadows of the branecasters. In "person" they're not as scary at all. They're painted people, colored à la Fauve or Expressionist style, 3D caricatures.

Dad slugs one, Gibby puts a knife to another's throat, and Woo bites a third. So they give in and say they'll honor their deal. And from one frame to another they're by City Hall in a town that I'll make somewhat like Brussels.

They call the town Node G, and they call the inhabitants Hubs. (Originally I was going to call them Wights, which is an old-fashioned word for "creature," but I like Hub better for its connotation of being a node in a network of links.) The Hubs have already eaten the gold asteroid. A bit more arguing with the branecasters now, about being on live branecast, Frek is still trying to find a way out of it, and the branecasters don't want to hear of that. Chainey says Frek can find the elixir by taking a tram to the Exaplex. He warns him not to touch these things called the "mind worms." As in, "Don't try anything funny with the mind worms." Then Chainey's gone.

Maybe give the Hubs a pulsating quality. Like the One/Many rhythm I talk about in *Infinity and the Mind*.

Frek and Dad release Bumby and Ulla who were in a jail cell under City Hall guarded by Boschian insect-winged fish with mouths like cats. Little chat with Bumby. He warns about a coming storm, won't give ground on the branecasting commitment. Frek tells about Whaler/Tusky having reproduced, Bumby is excited, "We're grandparents!" Frek realizes he never found out the name of the new ones. (We will see them again, by the way.) He tells about the death of Whaler and the new marriage of Tusky. Bumby and Ulla take off, they're eager to leave the Planck brane. They give a warning. "Things can change in Node G really fast. Everything you see here is an illusion." They claim they'll wait near the Bodhisattva to ferry the boys home.

The Exaplex theater a few kilometers away. They ride a tram. On the way they get into conversations with some of the locals, also they witness some local scenes that have a bit of a quantum-mechanical nature. Like have the fat Bruegelian guy I saw in the Brussels Metro last week quantum-tunnel through a closed door by acting like a wave.

The creatures in the Planck brane are generically called Hubs, only a few of them are branecasters. The branecasters aren't all that popular among the Hubs. Sample conversation.

Frek: "Why do you look like paintings?"

Hub: "When you say 'look like,' remind me about this, you 'see' with photons? And you project reality into a flat 4D space? Or is it 2D? I always forget."

Frek is reminded again that the things he's talking to are masks. Who knows what's behind them. *Creepy*. The tram won't stop, but the Magic Pig appears, standing on the tracks.

They jump out, but he's gone. And there, looming above them is the immense glowing sign of the Exaplex.

I'll model the Exaplex on the UGC Brouckère cineplex. Endless catwalks. Mix it

in with the inside of the UGC Toison D'Or and its endless branching stairs and passageways with flimsy doors, all covered with red felt, the "exa" prefix means 10^{18} = quintillion screens.

The Exaplex shows the viewpoint of every planet, or perhaps ever sentient being, in the universe! But we don't make that big a deal of that, as we already saw something similar in the flickerballs. Each room is empty, except for one person in the front row watching, the face faintly lit, demonic in the film light, but just as they come in, he gets up and leaves from a front exit. Sound of his feet echoing in the theater.

At first they try letting Wow lead them, but he just takes them to a dog world screen. They get involved with a Hub at the Exaplex, he's Black, his name is Zed. He's the one they keep seeing him ahead of them in each room, he leaves right when they come in.

And then when Dad, Frek, Gibby and Wow are lost, they beg Zed and finally he helps them, the room with Earth is "next door," right through a suddenly appearing door in the wall.

Zed is a projectionist, he's like Dez the projectionist from *Desperately Seeking Susan*, a hipster greaser, except he's Black. He has that warm vibrato in his voice, like he's moaning as he talks.

There's a catch: Zed wants to keep Dad, he whispers this to Frek, and Dad doesn't know yet.

So they're in a room where the three dimensional screen is showing real life on Earth, it's Yessica, Lora, Renata, Geneva, and Ida together in Middleville. Typographical gimmick: box this memory flash and the ones Frek sees in the time pool. Write them in a kind of breathless you-are-there style, a little faux-naive, a little "schoolgirl."

Very odd contrast to see this incredibly photoreal and familiar thing in the expressionist and weird Planck brane world.

And then it's back to the projection room, which is where Earth's past is kept. Nobody's actually in any of the screening rooms, which is creepy too. It's a 4D theater, with a 3D screen, 3D film, a 0D projection bulb, a 4D lens.

Frek follows the footsteps up the dark ladder to the projection room. Scared. This is an initiation thing, symbolically, climbing to the *projection room*. Behind the curtain.

There's some gnarly dangling crap on the ceiling but for the moment they mostly ignore that. Those are the mind worms. They resemble lamprey eels, slimy eyeless heads, mouths with a rings of teeth, tongues that are rasping files.

The main thing in the booth is the film projector showing the reality movie. The projector look's like Gyro Gearloose's assistant Li'l Bulb, except he has a chess piece body like René Magritte's *bilboquets*. The film isn't broken into frames, its raw time from a time pool that Li'l Bulb is standing in. He has an indeterminate number of arms and is higher dimensional, leaves trails like the drawing I noticed in the Antwerp station of a train, represented as the front of the diesel with the tail sticking out from the side. There is no flicker.

Instead of having a pile of film, the "film" comes out of a time pool on the floor. Oily, iridescent, a mass of pixels. Conceptually its like having a movie on a hard disk, and for projection purposes you pull a temporary film out of it and let the film sink back

in. But I make it vaguer than that.

One question does arise, though. If the branecasters only found them now, then how can they have the braneframes of the past? Zed's answer: The branecasters are outside time, they pull up the whole thing, all of the beet's roots.

Now Frek and Dad go through some flashbacks, working their way backwards.

First Dad tries looking into the time pool alone.

Dad keys on Frek's origin tale, there was some special message when Lora was pregnant with Frek. A Magic Pig came and talked to them. They're not sure who/what is/was the Magic Pig. It was a little like a toon, but 3D. Frek is magic. The Magic Pig is a Hub. But at present that's all they can tell.

Frek and Dad begin rooting around in the time pool, they stick their heads in. Frek flashes back to page 1 of the book. Zed kicks their butts so they fall all the way in, Dad and Frek.

(a) Right away it comes out that Dad recently sold out Frek to Gov, it was he and the Unipuskers who told Gov about the Anvil coming for Frek. And the Unipuskers told about the hideout where Frek was supposed to meet the Crufters. Lora didn't get peeked after all. Dad did it to become more important. He admits that thanks to his political striving, he's gotten "out of the habit of being me." Says that being with Frek these last days has made him a new man. But still questions very much whether he'd want to go back to Middleville, or to Sick Hindu, or even to Earth. Says he's a lost soul.

(b) Flip back in time to where they collapsed the biome. Make the point that the NuBioCom didn't really need to eliminate all those species, it was just because they wanted to be sure the other stuff didn't come back. Maybe [weave] they didn't have sufficiently sophisticated algorithms to simulate a full world.

Frek will need to find the antidote to the knockout gene, [weave] but he doesn't get that here and now. We'll do that in a later chapter. For now he just gets the old genes themselves.

See NuBioCom destroying the backup codes. An unparalleled act of barbarism. This code is what Frek needs. Make it visual, the genomes are little models of the critters. Frek can't copy it all into his head. So he kenny crafts copies of the millions of genome models. We'll assume the process works in the Planck brane, though just for grins, over there you think of "everything" instead of "emptiness" in order to get some kenner.

To package the elixir we have Carb use his tweaker fingers to jigsaw them together into an egg that's 3D Escher tiled Perplexing Poultry style with animals. Or like the stone oliphant I bought Vincent Horsten at the Tervuren Museum of the Congo.

And now they have to get the elixir back to earth.

Act III. Return. "Earth's Fate"

Chapter Twelve: The Flight: All Hell Breaks Loose

In this chapter we'll have these six modules: (1) fighting with mind worms and with the giant Zed, (2) riding the sky fish around the Planck brane, (3) with the Magic Pig near the branelink, (4) decohered by the six-headed dragon and then rescued by Dad, (5) through the branelink to join Bumby and Ulla, (6) begin an endless upward yunch.

(1) When they come out, Gibby says they've been gone about ten minutes. Zed

left, he had too much stuff to do, he said something about needing an assistant. Need to make sense of this notion. The concept isn't so much "assistant" as "component," but an extra RAM-like component to plug into the congeries that is the Exaplex. Dad isn't that worried.

After all the work of the encounter session with Dad and the marathon memorizing of a Noah's Ark's worth of genomes, Frek is tired. The others are tired too. They know they are supposed to get out of Node G as soon as possible, but they're so tired. They lie down on the cushiony floor and fall asleep.

They wake hours later, a distant noise of whipping wind. Occasional thumps of objects bumping around in the gale outside. [TK, let's see a few go by in the air as they're leaving town.] Frek looks up at the mind worm festoons. He's wondering again what the Exaplex is really for if nobody's watching.

What really is the Exaplex? Frek realizes its about the mind worms. The Exaplex is the mind worm server/router/switchboard. Frek stares up at the mind worms. He can see them better than before. While he was asleep he dreamed of the Magic Pig, who gave him five-dimensional vision, also the Pig told him he should attack the mind worms to prove that he has courage. The Pig's voice is grunts, but the noises carry meaning: the thoughts form in your head as you listen to him.

It's not just one lamprey eel, it's four billion lamprey eels overlaid upon each other like the multiple heads of Santa in my story "Schrödinger's Cat." They're hydra-headed and one head is fastened from the fifth dimension into the pineal gland of each and every human and even animal on Earth, including Frek, Dad, Gibby, and Wow, Frek can in fact see loops of mind worm lamprey eel body five-dimensionally arcing over into their very own brains.

Frek is under a kind of post-hypnotic suggestion from his dream of the Magic Pig, or rather, the M. P. is still grainily grunt-talking in his head. Frek kenny crafts three blasters and they blaze away at the mind worms. The worms, and Li'l Bulb, who is in fact part of them, cry a warning, the voice is like one of those weird sounds I heard in the CCMIX studio, a voice that's dilated and amplified out into a chorus.

There's many Li'l Bulbs, by the way, he's the outputs, the mind worms the inputs, the time pool the data base and Zed the controller of the branecasters' switchboard-router-server-database-studio that is the Exaplex.

Frek's blown away the walls of the projection booth, they're slanting down over the Earth theater floor. The time pool slops out, I reassure the reader that this doesn't affect Earth's actual past. The floor domes up, it looks like a 3D Mandelbrot set, like its covered with corn-row pigtails, whoah, its the top of Zed's head. Zed is a mind worm too, the Exaplex is one big super organism.

The Magic Pig in Frek's head tells him to shoot upwards, they blast a hole in the roof, the storm rips the roof off, and the wind pulls them up into the sky.

(2) Looking down, the illusion of the Exaplex being a theater goes away, and Frek sees it as it really is, a five-dimensional knot of vipers. The theater and seats thing was just the human illusion he projected onto it. [TK pump up this aspect of the Planck brane, that what you see is in some sense created by what you expect, you the Participant / Observer.] In fact the Li'l Bulbs are the output units that send out whatever viewpoint a flickerball viewer is requesting, said view being synthesized from the time pooled inputs of the mind worms.

Node G has become a roaring hell world, complete with a *Temptation of St. Anthony* pair of sky fish who comes over to help them.

Why *is* it a Bosch world anyway? “Who sees me for real in indifferent thicket?”

The sky fish are good guys (gals, actually): Flinka the trout and her Aunt Guszti the catfish. Aunt Guszti is a friend of the Magic Pig’s. [TK She tells them some more about the fight between the factions in the Planck brane. Bad guys are the branecasters, good guys are the regular Hubs.]

The Magic Pig is just another Hub, he isn’t really even that bright or anything. He has a name, too, it’s Rundy (which is how our Lynchburg neighbor used to spell “Rudy” on our Christmas card, I want to name the pig after myself as in college I was indeed the Magic Pig of the Enchanted Forest).

Aunt Guszti has been talking to Rundy. The Magic Pig thought maybe Frek could kill the mind worms just like that, he’d had higher expectations r. e. Frek’s power, was surprised Frek couldn’t make any headway. Rundy didn’t mean to get Frek into so much trouble just now with the advice to start shooting. Aunt Guszti says Rundy says to tell Frek he’s sorry. Rundy’s waiting near the branelink to help Frek get home.

There are “reapers” chasing them, but they aren’t a big deal. With the fleeing and the storm winds, they’ve drifted far away from the branelink. But not to worry. For the Planck brane has toroidal geometry, like an Asteroids screen, and soon they will “wrap” and drift over the transmogrified and medievalized Node G again.

It’s cold, but they make it through the wrap-surface that glues the two sides together. The reason the Planck brane wraps is that it is a *Hilbert Cube*! Totally bitchin’.

(3) And they get to Pig Hill, which has a branching branelink tree on top and peeping from his burrow at the bottom is Rundy the Magic Pig. He’s a bit grizzled and gray. Not a young pig by any means. Up by the branelink a lot of Hubs are waiting for Frek and his company, things like goblins Bosch devils are dancing around a bonfire. They see an evil giant bagpipe, walking on its sticks like one of Bruegel’s cripples. The Satanic Bagpipe from Subdimension Z.

The Magic Pig, Frek, Carb, Gibby and Wow lie low in his sty. Rundy tells his tale as described under the Magic Pig character entry. He is smaller and less imposing than expected, less powerful.

And at the end of the tale, Rundy says that, being outside of our time, the Hubs can see our future coming, so the Magic Pig knew all along that Frek was going to be The One. Or, put differently, he found out about Frek a few Planck-brane days ago, and reached back to affect Frek in the past. There’s a closed causal loop involved, as the Pig’s influence helped bring Frek along to the point of attracting the MP’s attention.

Why does the Magic Pig care about a boy on a dirt world? Because he thinks Frek is the one to upset the apple cart for the branecasters and destroy the mind worm, thus freeing the Hubs from the branecasters as well. Frek’s gonna clean that riffraff outta the Planck brane and drive evil monocultural branecasting from the Universe! And the Magic Pig knows.

Rundy wants them to make up a “Plan B” for conquering the branecasters. They go back to Earth and try and think of something. In the short term he has a plan for getting them past the dragon and through the branelink. Something involving maybe a decoy of some kind.

Or, no, let’s suppose he has a tunnel that creeps up through the hill. But can’t the

branecasters read their minds? Well, no Frek has this special blocker power, which is another reason Rundy had such high hopes for him.

The branelink looks like a dead hollow tree atop Pig Hill.

They creep up through Rundy's tunnel and come out of a hole under a bush next to the dead hollow tree that's the branelink. They only have to run a short distance to the shaggy hole at the base of the tree. Rundy charges out towards the demons to distract them. They start hacking him, and burning him, but nothing can hurt him as he has so much autopoiesis, he just regenerates. Wow, Gibby, Dad and Frek run for the hole. The first three make it, but then something reaches down from the branches of the tree and gets Frek.

It's a dragon with six heads: I'm thinking of the many-headed dragon in Bruegel's *Fall of the Rebel Angels*, and (b) a picture in the paper of George Bush, Dick Cheney, Condoleezza Rice, Rumsfeld, and Colin Powell planning war. Its heads are the branecasters, including Cecily, she's the one who knew.

Rundy charges out to The goblins and the six-headed dragon with three heads chase off The Magic Pig. The Pig's powers aren't all that great, it's more that he's opportunistic and possessed of a certain low cunning. Dad, Gibby, and Wow make it to the top, but not Frek.

(4) And then the branecasters decohere Frek. It's like having a psychologist with a clipboard perched in every nook and cranny of your mind. Frek, ends up lying up in the top of the tree in the dragon's nest, he's up there staring at the branches. But it doesn't last long, for now, thanks to the pair of rings, Dad is able to get in tune with Frek and wake him up, jog him out of zero, and by doing this he is effectively trading places with. Once Frek is in gear, his autopoiesis takes over and heals him. But its hard. Maybe Dad is feeding him self-entanglement qubits.

By now, Dad had already been at the branelink with Wow and Gibby. Dad returns to Hell to save Frek. It's something redemptive and heroic. As Dad enters decoherence, he tells Frek that surfing across the Orpolese archipelago with Frek was the happiest time of his whole life. The tears of things, *lacrimae rerum*.

Frek swears he'll come back to save Dad, Dad nobly says don't worry.

(5) In the branelink tree they are falling upwards, confronted with branching after branching, as in Felix's dream at the start of *White Light*. The image ahead resembles a mandala with small sub mandalas growing in it, and then you have to twitch into one of the little ones, its the one you focus on. Inspired by the video accompaniment to Gerard Pape's "Tantric Transformations" that I saw in the concert on December 5, 2002, in Paris.

Frek, Wow and Gibby pop out of the branelink, ready to go home. Of course some bad aliens are converging on them — Unipuskers and Radiolarians, and a couple of Orpolese are out for revenge because Dad killed a pair right before they jump into the branelink. (It would be too much at this point to have the branecasters sticking angry heads out of manholes in the Void, looking like, let's say, the Virgin of Guadalupe.)

Bumby and Ulla whisk Frek, Gibby and Wow away.

(6) But they do an out-of-control yunch out past the galactic size, up to the intergalactic level, on and on without stopping. The reason Bumby and Ulla do an out-of-control yunch is they, like, die. Some evil force comes out of Frek's ring, it decoheres Ulla and Bumby once again, the decohering force works by vacuuming up internal

entanglement qubits. (Possibly the force was aimed for Frek but he dodges it?)

He's stuck with Gibby and Wow in Orpolese spacesuits but no ship around them, locked into eternal upward yunch. Every possible thing continues to go wrong, in other words.

Chapter Thirteen: Rescue from Without and The Return Threshold: The Revolution

(1) Galaxies like snowflakes. Superclusters, seeing beings of intergalactic size. Interact with one of them. Assuming the universe is a hypersphere, then the largest creatures must be crowded on top of the other. A big friendly character, not too well-defined, maybe an "angel". Call him Q'lem, he gives Frek a little advice about how to interact with the cosmic wave function. [TK A hard conversation to recall, as it consists of Herbertian rapprochement.]

(2) Frek is everywhere, Wow helps him find his family. He gets into peoples' dreams and asks for help. He tries Mom, Geneva/Ida, and then Renata. Renata extends a dreamland Helping Hand. And this is enough. Frek just needed a, like, standard meter to know how to come home. Thanks to Renata, he pops back, he unyunches along with Gibby and Wow into his bedroom back in Middleville.

(3) And then we are back, but we can't talk very much as Gov's equipment is watching through the eyes of the house tree walls. Renata is acting a little funny. Yessica is living in Stun City, hanging out with counselors. It turns out, though Frek doesn't know it at first, that Yessica put an ooey on Renata the day before. Renata steals the elixir egg, calls in the counselors, and takes off on her angelwings.

(4) The counselors descend, tie up Frek. He tries to kenny craft a blaster, but it doesn't work. The counselors are about to put an ooey on him like they did on Renata.

(5) Vlan and Tagine are still tooling around like a UFO. [TK No anger about Ulla/Bumby.] They save Frek, a doughnut of light appearing and swallowing up the counselors' lifter beetle. They are Orpolese representatives to help Frek, in gratitude for him arranging the broadcast rights.

(6) Cuttlefish Vlan gets Frek to "shake hands" to "close the deal" and activate the Orpolese control of the humanity channel characters. You can tell someone has a player because then they have a little halo resembling the Orpolese donut controlling them. PhiPhi and Zhak immediately get controllers cast off their Gov uvvies and are ready to help Frek. But Frek is still free of his mind worm, he is still his own man, and gets them to agree to lay off his family, Renata and Gibby.

(7) Frek, Gibby, PhiPhi and Zhak head for Stun City. On the way they see Jeroon and Bili on the Grulloo Woods-Stun City road

(8) Frek finds Renata at the Brindle Cowloon gets the ooey out of her head.

(9) They hit the streets and catch up with Yessica who was on the way to the puffball. Some drama with Yessica, who isn't Orpolese controlled, maybe she has autopoiesis like Frek. They wrench the elixir away from her and run into the Kritterworks.

(10) Frek and Renata like the new Adam and Eve, they seed the elixir genes into thousands of embryos, image of rows of vats, not glass vats mind you, kritter vats that look like artichokes.

(11) They go outside and the others are cheering, but then Gov appears in his

Raven-mask form on the animated billboard, mocking them, saying his knockout virus will make it all for naught. And then all the people surge towards the puffball, and its throwing fireballs, sprays of acid, sending out killer critters like hyena jaws on two legs, a fierce battle.

(12) Gibby gets killed by a space bug as they wing in towards the puffball roof, Frek breaks his ankle.

Let's say that Yessica blasts off in a different space bug as Gov gets invaded, Yessica goes back to Sick Hindu. I want her out of the picture, at least until Volume II. And then maybe we'll learn that Gov backed up himself in Yessica's brain!

Renata and the counselors fight their way in and kill off Gov, who warns them they'll regret giving the world over to the chaotic Orpolese. The puffball burns to the ground, and they kill all the clones.

Chapter Fourteen: Master of Two Worlds: The Shuggoths.

(1) Cut to exactly a year later, Sunday, May 20, 3004. Frek wakes up back in his house-tree. It's the weekend, and, as before, on Monday he'll still have to go to school. Some things never change. On his own time, he's working on the script for a toon about his big adventure.

Ida and Geneva are watching the Goob Doll toons. Frek notices the Magic Pig in the toon show, not for the first time. The Magic Pig is watching them, but when Frek tries to talk to him, he scuttles away. Frek has been wanting to reach the Magic Pig all year because he wanted to find out about Carb, but the Magic Pig is being coy. Frek and Ida get Goob Dolls Judy, LingLing and Tawni to chase the pig into a corner. "Wheenk," said the pig. "Wheenk, wheenk, wheenk." He disappears into the ground.

Lora says her boyfriend Linz Martinez is coming over for dinner, without his halo today, and she's glad it's the real him. Less and less people are being "played" by Orpolese espers these days. It seems the humanity channel isn't getting a very good audience share among the Orpolese.

There are lots of animals around. Birds, gnats, butterflies, moles. Woo and Wow have puppies.

Renata is living in Stun City with a foster mother, Frek is planning to fly to meet her, get a tour of the Toonsmithy, and then go to the Grulloo Woods to visit with Gibby's family for the one-year anniversary of his death.

As Frek prepares to leave Middleville with his angelwings he encounters Sao Steiner. As he's talking to her, she transitions from being esper-run to being herself. Yet another Nubbie being dropped by the Orpolese viewers. Once she's herself she turns nasty as, thanks to Frek, her husband no longer has his good job working for NuBioCom. She also discusses the dropping subscription rate to the humanity channel. She reveals that Kolder has made some suggestions to the Orpolese producers and some changes are likely to be made.

(2) In Stun City, the Kritterworks has grown to three times its old size.

Renata lives with the toonsmith Deanna; Renata got to be an apprentice because she's so good with her turkle. She's allowed to do her schooling via toons. The Orpolese haven't been bothering to control the toonsmiths, they don't seem to be interested in toons. We get a little tour of the Toonsmithy, go up to Deanna's studio where she's working on a game called Star Surfer, inspired by Frek's adventures among

the Orpolese.

(3) Renata and Frek fly to visit Gibby's family. Frek wants to be like a big brother to little Bili and LuHu. The Grulloos are in good form, there's a bigger market for Grullo egg than ever, thanks to the increased scale of the Kritterworks. Also the Orpolese aren't controlling many Grulloos.

They walk through the woods to Gibby's grave, a half hour from his family's burrow. In the woods Frek is admiring all the animals and plants, Earth is a new Eden.

Gibby's tomb is a pyramid which Bili put up with the help of Dibble. Bili and LuHu treasure the keepsakes that Gibby brought him: the Unipusker statuette, the blue Unipusk stone, the foamy stone from the galactic core, and Guszti's fish scale. Frek tells the stories of the objects, they go back to their burrow and —

Enter Jeroon and Ennie, who missed the ceremony. They're muddy, agitated about seeing something they call a "shuggoth." It ate Ennie's other sister Pfaffa, cornered Ennie and Jeroon on a cliff, split into many copies. They're heading for Middleville.

Frek and Renata take off for Frek's house. They spot some of the slug-like monsters, maybe wallowing around in a creek bed. A shuggoth is a congeries of lots of creatures. Like Pally Love's giant leech in my Lynchburg story, "Bringing in the Sheaves." Shuggoths are like conglomerates, holding companies, multinationals, megacorporations, the parts stuck together with no rhyme or reason. Ungainly and destructive, shuggoths lack the discipline of having a genome. They absorb the living things that they touch.

Frek and Renata see a shuggoth eat a tree and split by fission — which ought to remind Frek of the way that Orpolese reproduce. Indeed, the shuggoth has a large Orpolese esper halo, and when it fissions, the child gets a new halo.

The new shuggoths gobble down plants and animals and, in a matter of minutes, split again. In the course of the next few hours, we have a population explosion producing millions or even a billion Shuggoths from the original one. The monsters are eating across the landscape, leaving trails of destruction like rapacious slugs. It's a disaster in progress, a fast-breaking catastrophe.

(4) Frek and Renata reach his house only a few minutes ahead of an advancing wave of shuggoths. He decides he has to get in touch with the branecasters to stop having the Humanity Channel produced by the Orpolese. He and Renata get Ida, the Goob Dolls, and the Skull Farmers to help find the Magic Pig among the toons.

They finally manage to talk to the Magic Pig. Pig says (a) you have to get new producers, can't just drop the old once, (b) have to do this in person in Planck brane, (c) would need a branelink to get there. Frek says (a) Unipuskers, (b) let's do it (c) bend a branch of the branelink tree my way. *Whump*, there's a branelink tunnel entrance in, oh goody, the kitchen pantry.

Frek pops over the Planck brane, which looks entirely different once again, like a Magritte painting, say. He's under the huge branelink tree, which looks like a single leaf. He cranes upward, trying to spot Dad, sees only a fuzzily wrapped thing like a spider-wrapped insect, stuck to a leaf high overhead. But has to talk to the Magic Pig and the branecasters are right there, all six of them, under the leaf-tree.

As before, there's six branecasters, three couples, Sid and Cecily, Batty and Bitty, Chainey and Jayney. Only now the Magic Pig is nestled in Cecily's arms. Seems like

he's not really against the branecasters at all.

Frek closes the deal to let the Unipuskers produce the humanity channel. The 'casters have already been checking out the deal and, yes the Unipuskers like the action, and, yes, they have a good pay-off for buying out the contract, so the 'casters are go.

And then Frek gets the bum's rush back to Earth before he can find out how his father is doing.

(5) All the haloes are gone. The shuggoths are disorganized, falling apart. But all the humans are free. A moment of hope.

But then Hawb and Cawmb show up in Middleville. Frek swears he won't sign the humans back into slavery. Tagine and Vlan briefly appear, we have a nice quick battle of the UFOs with the Unipusker saucer vs. the glowing donut of Tagine and Vlan. Hawb and Cawmb easily win.

Hawb and Cawmb emerge from their saucer, Hawb sticking out his hand to shake and close the deal. Frek starts stalling. He sends Ida into the house, tells her to start up the toons.

Frek talks with the Unipuskers a bit, playing for time. They want to cut the biome down to nothing but rickrack plants and vigs, like on their world. The Unipuskers are, uncreative neatniks, law and order freaks, monoculturizers. Possibly the 'Puskers threaten to let their old pal Yessica Sunshine make a planet-wide broadcast about her "philosophy" from Sick Hindu.

Frek says he has to have one last word with the branecasters; the Unipuskers wait as he disappears into the house.

Chapter Fifteen: Freedom to Live: The Toons

Frek heads for the Planck brane once again, this time with Ida and Renata along, plus all the toons they can find. The toons slide across the kitchen wall and into the Planck brane world with them. Frek has come to understand that the Planck brane is a world of ideas. The Hubs are no more substantial than virtual reality creations. Of an equal reality with toons. In the Planck brane the toons pop up into 3D.

Frek starts with the idea of a three-pronged attack: Renata getting the Exaplex, Ida getting the branecasters, him getting Dad and the Magic Pig. He has a vision of, like, Gypsy Joker blowing up the mind worms with a hydrogen bomb; Da Nha Duc blasting Chainey with a bazooka; Goob Doll Judy and Soul Soldier shooting up the Exaplex with blasters; the gibbering Space Monkeys chasing the Magic Pig all the way out to the horizon.

But when they get to the Planck brane there's no sign of the branecasters. What does Node G look like now? I want a Magritte look. Photorealistic with surreal incongruities and disparities of scale.

First of all they free Dad from where he's stuck to the leaf. This is suspiciously easy. They check the Magic Pig's burrow and he's not there. But there are pictures of him with the branecasters. Flinka and Dad are right, the Magic Pig is a branecaster. As part of making the humanity channel interesting to watch, he's been deliberately putting obstacles in Frek's path all along. The Pig was double-crossing them. Those rings he gave Frek and Dad were only to make things harder for them. The problems they seemed to have in leaving the Planck brane before were all just put on to make their show more interesting. The Magic Pig knew Dad would get caught.

They need to make their way to the Exaplex, but they're not sure where to find it. The flying fish Flinka and Aunt Guszti appear. "We're fixed points," they say. "We never change during the renormalization storms."

Frek asks why they didn't tell the truth about the Magic Pig. They were intimidated. There's always been a legend of a boy coming with a platoon of helpers to bring down the branecasters, and they've been scared. But where are they?

"Let's take out the Exaplex and the mind worms," says Frek. "Where is it?" The flying fish help them get there. I could have the branecasters attack, looking like giant evil politicians. But I think they'll just appear after Frek and the boys blast away most of the Exaplex and kill the mind worms.

Frek's toon friends can replicate a trillion-fold. The air is a complete dense tessellation of Skull Farmers, Goob Dolls, Ducs, Happy Eaters, Fax Frogs, and Professor Bumbys. The toons destroy the Exaplex and the mind worms and they utterly undermine the branecasters wham by making them seem boring and ridiculous. (How sweet it would be to do that to an inept and corrupt political administration ! I'm realizing that a "renormalization" is in some ways like a "national election.")

The renormalization storm is kicking up. The branecasters are going to be blown away for once and for all. Frek collapses the toons back, though some of them insist on staying in the Planck brane. The Magic Pig is digging up the mud covering the door to the branelink back to Earth. Frek and his companions make it back just in time to stop the pig. The door home looks like Rene Magritte's painting, "L'Ami d'Ordre" of 1964, except I make the outline be a woman (door to Gaia after all) instead of a man.

Back in Middleville the Unipuskers are still waiting. Have a nice scene of them picnicking with Lora, Geneva, and Linz Martinez. Lit by a toon-pillow.

Geneva had them playing some game with the puppies and then they start watching toons. They really like the toons. They say if they can have toons, they don't have to invade after all.

Earth finds a place in the cosmos as something more than a talent race. Many alien races know about us now, but we're not viewed as a primitive race to be exploited. Instead we have the status of traders. Aliens are interested in buying our pure mental creations: our toons. Our culture is safe.

And a whole new era of galactic citizenship is dawning.

Words

G-words

gaud. cool, reckless.
gaussy. Incredible.
geevey. Crummy, crappy, perverted.
geevin. fuckin', freakin'.
gitgo. lively
glatt. very nice, satisfying.
glawk. talk, hang out, goof off together..
glozy. Cozy, peaceful, bland.
glug. drink.
glypher. info slug.

godzoon. exceptional.
goggy. wild wacky gnarly. good.
gollywog. crazy, nutty.
gonegone. drunk, zonked.
googly. wacky.
govvy. pertaining to Gov.
grexes. slug like things.
grinskin. skinny person who smiles a lot.
grobread. like Wonder Bread.
guddly. cuddly.
gump. crippled bum.
gumpy. gimp
gundo. a lot.
gurp. a stupid person.
gurpy. Stupid.
gleep. creep.

Other words

fubbed. Messed up.
kac. Shit.
suckapillar. Too silly? No, it's fun. Word for the vacuum cleaner beast.
shecked-out. Crazy.
unny. creepy, uncanny.
yaya. yeah.
yubba. hello.
zook. Dummy.

Not used yet(?)

crod. Jerk.
glary. bright
klaua. Sort of like shit.

Some possible names for mobile architectures

(I wrote this list in answer to repeated email question from an architecture grad student in Slovenia called Spela Hudnik).

snail shell
pup hut
house tree
pod
instant yurt
nest egg
diggie
homedome
pop up
pupa
gopher mound

humper
McWhinney (after the children's picture book McWhinney's Jaunt where the hero sleeps under a beach umbrellas with dangling curtains)
nonvan
popper

Phrases to use

During the Third Punic War BC 149 - BC 146 between Rome and Carthage, Cato, a respected senator began to clamor "Carthago delenda est!" meaning "Carthage must be destroyed!" And eventually it was.

Possible Names

PhiPhi Tran (One of Sylvia's students.)
Marnie Fertal (Name (probably fake) of a woman in a weight-loss ad in the paper. A name so stupid it hurts. Especially brutal is the crippling, degenerated, devolved spelling of "fertile" as "fertal." Close to "fart" as well.)
Yuan-Yuan. Annoying name, somehow. Baby talk, like any doubled name.

Glossary for Frek and the Elixir

I wrote this glossary up on August 27, 2003, to go with draft 4. David Hartwell had suggested a glossary, though maybe he'll find this too long. I wonder if the definition of the Magic Pig is too precious.

aircoral, airpolyp. Airpolyps are gnat-sized flying krittlers that build up curvy houses called aircorals. Like sea-going polyps, they create these reef-like structures by depositing tiny bits of silicon and calcium.

angelwing. An angelwing is a krittler resembling a one-meter-long dragonfly body with a single two-meter wing. People use pairs of angelwings to fly.

anyfruit. A tweaked fruit tree that yields all the traditional fruits.

anymeat. A meat product grown in loaves for food.

artigrow. A krittler resembling a large artichoke. Serves as an incubator to grow krittler embryos to term.

autopoiesis. The process by which a living (or social) system creates, organizes and maintains itself. (A standard word, popularized by the Chilean biologists Humberto Maturana and Francisco Varela in the 1980s.)

bindmoss. A durable ground-cover resembling wiry moss.

bobblie. An enormous sentient weather pattern in the atmosphere of the gas-giant planet Jumm.

brain nodule. A dense nexus of fungal tissue found in the Govs' puffballs. Functions like an organic computer.

brane, branelink. A brane is a universe, and a branelink is a hyperdimensional tunnel connecting two parallel branes. (Brane is a standard word, derived from "membrane," and is used by cosmologists and string-theorists.)

branecast, branecaster. The branecast is a process by which the branecasters extract the thoughts of "talent creatures" in our universe and display them to "clients". An entire race's activities become something like a reality TV show. The branecasters are a tightly knit group of six.

counselor. A police agent employed by the Govs.

cowloon. A balloon-like cow-derived kritter that yields an intoxicating fluid called moolk.

Crufters. Rebels dedicated to turning back biotechnology and restoring Earth's original ecology.

cryptoon. A toon creature that acts as an autonomous secret agent.

decoherence. A standard quantum-mechanical notion expressing the notion of a system being in a simple, collapsed state after a measurement is performed. The terminology is a bit counterintuitive, in that a "coherent" state is a mixed state of being simultaneously in many modes, and a "decoherent" state is a definite, classical single-mode state.

elephruk. An elephant-like kritter with a lowered back. Used as a truck.

esp, esper. To esp someone is to see into their mind.

Exaplex. A huge organic entity in the Planck brane that acts as the machinery of the branecast. Seemingly created by the Magic Pig. The Exaplex has hyperdimensional mind worms that extend out to the brains of talent race members, as well as Li'l Bulbs that send the information to clients' flickerballs. The controlling intelligence of the Exaplex is a creature called Zed.

facilitator. A teacher.

flickerball. A device resembling a crystal ball, used by espers to experience the branecasts of other beings' minds.

foamskin. The foamy, leathery skin of a tweaked thistle. Used to make casts for sprains and broken bones.

gaussy. Far out, extremely fashionable, uncompromisingly chic.

geeve, geever, geevey, geevin. Geeve is an obscenity with the force of the f-word, and is used in a similar range of combining forms.

giga. A lot.

glatt. Smooth, excellent, very nice.

glawk. To hang out.

gleep, gleepy. Creep, creepy.

glozy. Cozy and nice.

glypher. A slug-like critter that posts images onto house tree wall skins. Used by schools to send messages home to parents.

godzoon. Very, extremely.

gog, goggy. Excellent, wacky, mind-boggling.

gollywog. Weird and crazy.

googly. Funny, entertaining, cheerful.

Gov. A highly intelligent kriter evolved from a certain kind of worm. Govs live in fungal structures called puffballs and act as the rulers of Y3K Earth.

grinskin. A person who takes psychotropic and weight-reducing medications that render the individual's personality artificially bright and flat.

grobread. An organic, living bread culture that continually renews itself.

groover. A dumbbell, a pawn, an individual whose thoughts are completely controlled by the media.

gump, gumpy. Impolite word for a handicapped person.

gundo. A large quantity, very much.

Great Collapse. The catastrophic occasion in 2666 when the NuBioCom directorate chose firstly to deploy a knockout virus to block reproduction, and secondly to destroy the genetic codes of all but 256 of Earth's species.

Grulloo. A humanoid mutant with only one pair of limbs which perform

function as both arms and legs. (Derived from the medieval term “gryllos,” used for fantastic creatures of this type, often depicted in the margins of illuminated scriptures. The painters Hieronymus Bosch and Peter Bruegel often painted gryllos creatures into their scenes of Hell.)

gurp, gurpy. Very unintelligent person. A dope.

Hub. An inhabitant of the parallel universe called the Planck brane. Their appearance is quite mutable, and their continued existence depends upon their level of renown (see “wham”).

ickspot. A deadly disease peculiar to Unipuskers, with symptoms of gray, flaky spots.

jocktoons. Toon shows about sports.

Jumm. The large gas-giant planet orbited by the moon of Unipusk.

kac. Obscenity for excrement, with the same force as the s-word.

kenner, kenny, kenny-crafter. Kenner is invisible dark matter, found throughout our universe. Kenny-crafters have the ability to transmute kenner into visible matter, and to “vaar” it into whatever shape they want. Objects created in this fashion are kennies.

killtoon. A violent toon show.

knockout virus. An agent used to block the reproductive processes of every species on Earth. The exact formula is continually changed. NuBioCom licenses temporary antidotes so that people can from time to time have children.

kritter. A genomically tweaked plant or animal. Generally kritters are designed by the NuBioCom corporation.

loofy. Collective word for the smallish vortex rings found in the atmosphere of a star. Larger vortex rings (such as the Orpolese) feed upon loofy.

Magic Pig. A multiversal being simultaneously present in all the possible worlds, and who manipulates Frek’s reality for his own entertainment. (One of my nicknames in college was the Magic Pig, and I used to have a neighbor who spelled my first name as Rundy.).

mapine. A tweaked plant that is a cross between a maple and a pine-tree, but which resembles a maple that simultaneously bears colored autumn leaves and fresh green spring foliage.

matchbud. A tweaked plant that produces stalks with phosphorus heads used as matches.

mind worm. A hyperdimensional tendril connecting an individual's brain to the Exaplex in the Planck brane. The mind worms make branecasting possible.

mod. A jelly-like substance which a person smears onto themselves to change their appearance. The effects, which can be dramatic, appear rapidly, but normally dissipate within a few days.

moolk. An intoxicating form of milk obtained from cowloons. (Suggested by the moloko of Anthony Burgess's *A Clockwork Orange*.)

newbio. The radically different ecology produced by genomics and biotechnology in the Y3K era.

newstoon. A toon creature that acts as a newscaster.

NuBioCom. The ruthless company that takes control of Earth's genomes during the third millennium. NuBioCom is effectively the Earth's government, with its puffball regional centers housing the rulers called Govs.

Nubbie. A citizen of Earth who takes advantage of the NuBioCom biotechnology. A well-off citizen, comparable to a Y2K yuppie.

nutfungus. A spicy nutmeg-scented fungus that grows in the cracks of dying trees.

oldbio. Earth's original untweaked ecology.

Orpoly. An archipelago of suns near the galactic core, inhabited by intelligent plasma vortex rings.

oxymold. A tweaked mold that produces oxygen even in the absence of light.

peeker. A creature related to the "uvvy." Unlike the uvvy, the peeker is very invasive, and uses its electrical fields to pry deep into a subject's brain, normally causing considerable damage.

phenomenological autozoom, pzoom. The technique by which a toon show adjusts its view to the wishes of one privileged viewer. That is, whatever the viewer focuses on tends to get larger. The particular instance of the show "watches" the viewer for cues using eyes in its wall skin display. (Phenomenology is the branch of philosophy that seeks to analyze the actual perceptions which people have.)

pickerhand. A kriter like a disembodied hand, used to harvest rice and other

crops.

Planck brane. A parallel universe inhabited by creatures called Hubs.

please plant. A kriter plant with eyes in its flowers. It grows seeds to match whatever shapes are shown to it.

puffball. A large, torus-shaped fungus inhabited by a Gov worm. Also contains offices used by NuBioCom functionaries. Is responsible for spreading the latest knockout viruses to block reproduction.

qubit. A quantum bit. Unlike an classical bit, which must be 0 or 1, a qubit can be in a mixed, “coherent” state that is a weighted combination of two possibilities, such as twenty-five percent 0 and seventy-five percent 1.

rassen, znag, znassen. The Orpolese have bodies which are something like tornadoes of plasma bent around into rings. These vortex rings have an inherent rotation which is either clockwise or counterclockwise. The rassen rotate in one direction, and the znags rotate in the other. Generally the rassen are of higher status. To complicate things, it turns out that the Orpolese actually travel in pairs, with two vortex rings overlaid upon each other. In a “mixed marriage,” the two rings have opposite inherent rotations. The znassen pairs are a combination of a znag and a rassen. (While working on *Frek and the Elixir* in Brussels, 2002, I often ate at an inexpensive Moroccan restaurant called Beni Znassen.)

renormalization. A standard physics word for redefining an system’s numerical attributes in some new, improved way. I use it to suggest the notion of recasting the quantum reality of the Planck brane in terms of some new set of axes (eigenvectors). During a renormalization storm, the entire Planck brane gets reformulated, and any of the local Hubs with a low amount of wham are likely to disappear.

rockworms. Kritters that hollow out the insides of asteroids.

roseplusplus. The ultimate futuristic gene-tweaked rose plant. (The name is a play on the “doubleplusplus” of Aldous Huxley’s *Brave New World*.)

rugmoss. An attractive tweaked moss that changes its colors in rhythmic patterns, with each region influenced by the colors of the neighbors. (This is a biological form of the two-dimensional cellular automaton rule called “Rug,” see, for instance, www.cs.sjsu.edu/faculty/rucker/cellab.htm.)

sextoons. Pornographic toon shows.

shecked out. Freaked-out or jaded or world-weary. (Cf. SF writer Robert Sheckley.)

shuggoth. A slug-like creature that's a glued-together hodgepodge of many other kinds of creatures. (H. P. Lovecraft sometimes wrote about shuggoths, although not in precisely the same sense. My sense of shuggoth was first described in my *Saucer Wisdom*.)

sky-air-comb. The autopoietic meditation technique that Frek uses to restore the integrity of his mind, also to block out the espers.

Skywatch Mil. A system of jellyfish-like space stations circling Earth, ostensibly to provide a protective network.

space bug. A flammable critter used as a single-passenger rocket ship. (First described in my *Saucer Wisdom*.)

spheromak. A standard fusion-science word for a vortex ring of superheated plasma. (I learned this word in a conversation with Gregory Benford at Con Jose 2002.)

stim cell. A tweaked cell that serves to repair and improve anyone who eats it. A necessity of life for Grulloos.

suckapillar. A critter that functions as a vacuum cleaner.

Three R's. The physical removal, recycling, and replacement of a person's brain. Used by Gov as a dramatic and irreversible treatment to bring rebels into line.

toon. A cartoon creature that acts as an autonomous agent. Toons are artificial life forms which evolve and have a high level of intelligence.

toonsmith, Toonsmithy. Most toons are initially designed by toonsmiths working at the Toonsmithy in Stun City. Once they are released, of course, toons continue to learn and to change.

turkle. A critter resembling a turtle. Its back can be used as a drawing pad. A turkle remembers all the images drawn upon it. (The word comes from the Mr. Turkle character in Ken Kesey's *One Flew Over the Cuckoo's Nest*.)

turmite. An enhanced social insect something like an ant or a termite. Turmites can be instructed to weave fabrics or to build papery structures. (The term puns on the name of computer pioneer Alan Turing. "Turmite" was originally coined by computer scientist Greg Turk to describe a certain kind of two-dimensional Turing machine which was later popularized by A. K. Dewdney in a *Scientific American* column collected in his *The Tinkertoy Computer*.)

tweet. An insubstantial colorful object created from dark matter by an Orpolese. Tweets function as a visible language. They also can fly through a person's head and pick up their thoughts.

Unipusk. The habitable moon of the gas-giant planet Jumm.

unny. Spooky, unnatural, scary.

url, urlbud. An url is a web site, and an urlbud is a soft little vegetal object that includes the address and access permissions that allow a Nubbie to access a given url on a wall skin.

uvvy. A universal communication device that rests upon the back of the user's neck. The uvvy interfaces directly with the user's brain by means of gentle electric currents. Uvvies were originally made of computational plastic, but in *Frek and the Elixir*, they're organic krittters remotely related to electric eels. (First described in my books *Saucer Wisdom* and *Realware*.)

vaar. A term used by kenny-crafters in two senses. The process of turning invisible dark matter (kenner) into a visible substance is the first type of vaaring. The second type of vaaring is the process of forming the kenner-derived matter into some specific shape or device, that is, into a kenny.

vark, vheenk. Noises made by vigs.

vig. An edible pig-like creature living on Unipusk; you can slice off a piece of vig and eat it. (Inspired both by the schmoos in Al Capp's *Li'l Abner*, and by Philip K. Dick's "Beyond Lies the Wub.")

wall skin. The living wall-covering in the rooms of a house tree. Like the skin of an squid, a wall skin is rich in chromatophores, and is capable of showing any possible color. A wall skin can act as a large flat graphical display.

watchbird. A hummingbird-sized krittter devoted to following and spying upon a suspect individual. The watchbird wears a small uvvy that allows it to function as a remote camera for some central control. (The name is from Robert Sheckley's classic story, "The Watchbird.")

webgun. A spider-like krittter that shoots out entangling strands of silk.

wham. The amount of credibility or recognition that an individual citizen has in the Planck brane. (The notion is related both to Google Page Rank and to Corey Doctorow's whuffie, as described in *Down and Out in the Magic Kingdom*.)

yubba. Hi, hello. Common greeting in Y3K.

yuga. A standard Hindu word for a long period of time. Used in the Planck brane to mean the time between successive renormalization storms.

yunch, unyunch. Yunching is a string-theory-based method of changing size. Yunching makes you big, and unyunching makes you small. (The idea come from Brian Greene's *The Elegant Universe*, where he describes a duality between a particle's size and how tightly its elementary strings are wound. My notion of using this method for faster-than-light travel was anticipated in Harry Harrison's *Bill the Galactic Hero*, where it's called the Bloater Drive.)

Characters

Notes for ideas on characters.

Lora

I think of a Beverly Cleary mother, like Ramona Quimby's mother. Also my own mother.

Carb

After yunching, an alien is quite weak for, say, three days or a week.

When the Unipuskers came to Sick Hindu they'd rested a weak, and were strong, they took Carb and Yessica easily.

At that time, the branecast started. Everyone on Earth should have noticed a slight disruption as a mind worm plugged into the pineal glands of each and every one.

The Orpolese deduced Earth's location (they'd been shadowing Cawmb and Hawb), and went there to try and beat out the Unipuskers for the channel.

Back on Unipusk, the Unipuskers watch the Orpolese show up at Sick Hindu.

The Orpolese were rushing it, they knew they had to play catch-up ball. They found out from Yessica's sister Katreena that Carb had a son. They decided to get his son.

The Unipuskers want to block this. Frek's dad suggests that they send a message to Earth. So real quick, the Puskers yunch back to the Sol system and send the warning to Earth. Maybe Carb comes along for this, too, he does the talking.

There should be some sign of this visit the same night that the Anvil comes down. Carb gets them to act really saucerian, that can be the flashback that Frek sees.

Also Carb should be the one who tells them about Frek's escape attempt, betrays him to Gov when he runs away from Middleville. This is so rotten, why would Carb do that? I think that's too evil maybe? But maybe Carb just doesn't want Frek to end up on Sick Hindu like him. He feels guilt about having blocked Frek from escaping with the Orpolese? About Frek getting peeked? But would he really then turn around and set Frek up for the Three R's? I don't think so. Naw, Carb wasn't responsible for this, it was the Unipuskers doing that on their own.

Frek

Frek has a growing series of powers.

First the ability to control the ring, he finds this out above the galaxy.

Second he can hide from the branecast.

Third he can craft kennies.

Fourth he'll get some power over the branelink.

Why does Frek have the powers?

Gibby

A Bosch/Bruegel Grulloo, tough with a heart of gold, like a Tolkein dwarf. Classic Helper figure from the monomyth. The little man in the woods.

Bumby

Neal Cassady as a classics professor who also happens to be a flying cuttlefish.

Yessica

I see Yessica as an annoying know-it-all Santa Cruz stoner woman, lean and lank, enhanced to have six breasts. Maybe the implants have been removed, in a change of heart. Perhaps Yessica looks like Lora “oddly enough,” but is salacious, dressed in leather.

Yessica is concerned about the safety of her daughter, in a shrill self-regarding kind of way. This is done more as an exercise of her power to get her entitlements, rather than out of actual love and concern for her daughter.

Renata

My inspiration is a little girl named Renate whom I knew in school in Königfeld when I was 12 or 13. My memory of the day of the Zinzendorf Gymnasium outing for our class, when I actually got a chance to talk to Renate in a meadow by the pines near Ruine Waldau. And the day she plucked one of her long golden hairs from her pigtail and dropped it where I could reach it. And the day she gave me her address, written out in a beautiful hand, on a paper wrapped in cellophane — so that I could be her pen pal when I went back to the U.S. My “helpers” (Gibby and the dogs!) were giggling and excited at each contact. Like the tummybelly men in that SF book I read years ago; the tummybelly men would bounce and shriek and laugh when the man and woman got romantic.

She has a merry laugh. Dark brown pigtails.

Frek charms Renata, he wins her, he can't be passive. They soon love each other, in a twelve-year-old kind of way. I need to stretch this out for quite a few pages, make her a bit quirky as well, give Renata a full personality. She doesn't get along with her mother.

I can't just gloss over it, Renata must be real. Not some milk-white Tolkein elf princess with a golden fall of hair, nor a mirror-Frek chum tom-boy. A real girl with real thoughts of her own.

I need to go back and flesh her out more. I need to give her that drawing thing. Or make her a tinkerer who builds little machines. Or a shape-knitter. Something. 'Cause I want my girl readers to have a good strong character to root for, and it's been pretty much all-boy for most of the book, I gotta at least let Renata get some good strong action in now.

Zed

Have a Black keeper of the Exaplex, not actually a Hub though. His speech has increased timbre variations, a warm rumble — I notice this quality of voice when I hear Congolese talking French in Brussels.

The Magic Pig (vs. the Branecasters)

His real name is Rundy, he just gets the Earthlings to call him the Magic Pig. He should be old, a little white-grizzled.

He is pink, he has a halo. At one time, I'd thought maybe a chef's hat, but no, that's too mixed-message, and then I'd thought maybe a golden crown, but an artifact is odd and its close to the chef's hat, then I'd thought of having a crown that's a permanent part of his toony flesh, like multiple horns, or giraffe antlers, but I don't like that, it's icky. So just a halo?

Why halo? It's a stabilizer, an eigenstate. It allows him to look the same after each of the Planck brane's renormalizations. Eigenvalue, eigensphere, eigenvector, eigenstate — the halo is an eigenstate.

Rundy lives in a sty in the side of a nice solid hill near the end of the park. He's lived there a fairly time as Hubs reckon it, maybe five thousand years. He lived there with his wife Cynthia. Or Cunthia for a better rhyme? Whoops, no, better not. Rundy and Cynthia. He has a nice garden where he grows sugar beets and yams. A nearby stream with a nice muddy wallow. They had two piglets, Garth and Ariel. Fine stout children. Or Gurth?

But then!

The branecasters — Chainey and Jayney, Sid, Batty and Bitty — came up with their business model. They had discovered a parallel universe or brane. The plain brane next to the Planck brane.

Dimensions in the Planck brane are a bit fluid. Everything gets churned up by a storm every so often. But some things are kind of constant. Like Rundy's sty. And Cynthia, and the children, should I call them Girth, Barrel and Bulb. No, don't use Bulb as that conflicts with Li'l Bulb. Let's just have two, and let's make the names plain, a baby boar, Garth (just like in *Mr. and Mrs. Pig's Evening Out*), and a little sow, Ariel. The solidity of the hill is a nice thing, Rundy inherited it, yes, it's been Pig Hill since time immemorial, there's always been a sty beneath Pig Hill.

In the Planck brane there isn't much real matter. It's all just geometry, linkages, wave functions. Things look like you expect them to look. When there's a storm the world is getting reconfigured. Real matter is lovely, it anchors things down, so you don't have to reinvent yourself. Reality storms are also known as renormalizations. Getting the infinitely many axes of some new Hilbert space set up, each renormalization carries with it and Infinity Questions game about how to divvy up the world.

So the branecasters had the idea of getting matter from the parallel brane, the so-called plain brane, plain because it only has three dimensions and isn't subject to those dratted weekly renormalizations.

They can't reach in to get the matter, they are too tenuous, the Hubs, too ghostly to actually grab the matter. They need for the robust plain braners to bring it to them. So how to get them to bring it?

Well they hit on the idea of the branecast. It's a way of moving information around. It's easy for them to do that. They made the Exaplex to siphon in with the lampreys, they reroute it and send it out with the Li'l Bulbs. How did they create the Exaplex? It's a living thing, no? Is it in some sense Chainey and Jayney, Sid, Batty and Bitty? A spawn of theirs? I need to decide so that I know how to kill it.

In particular, the book's punch line will be to have the toons overwhelm the

Exaplex. Daffy Duck with a shotgun, Yosemite Sam with his pistols, Bugs Bunny with insecticide spray, Pokemon with a time bomb, Goob Dolls with sneezing powder, scowling Mr. Natural lugging a four-o'clock-shadowed Fat Boy hydrogen bomb.

The Exaplex, can we personify it as Zed. Are Zed and the Exaplex one and the same? Zed means zero in the U. K. Zed Alef. Zed is the brain or soul, the Exaplex is the heart or body. Body and soul, heart and soul. Zed isn't a Hub.

In any case, the decision was to enslave talent races, to sell the controllable images of them to subscribers who pay the branecasters with matter.

Why even bother making a deal with the talent races at all? Is there some higher authority in the Planck brane to whom the branecasters must answer? Why not just sell the talent races to the highest bidder?

Perhaps to cover up how sleazy they are, and to prevent social ostracism with possible punishment, the branecasters have to maintain the fiction that the talent races submit voluntarily? Like advertisers finding one simp to say s/he finds ads useful so as to excuse their bullshitization of the populace's nöosphere? Like colonialists handing out glass beads before carting off a civilization's vast laborious stone monuments, but then they can say, "Well, we traded with them."

Suppose the Hubs are strict about being fair dealers, which is why the branecasters need to maintain the pretence of dealing square with the talent races.

If someone becomes too looked-down-upon in Hubland perhaps everyone "stops believing in them" and after the next renormalization storm they never manage to recohere. They're unable to establish a new orthonormal basis for themselves, the socially emergent new axes fail to include a set that spans their space, they become orthogonal to reality, they drift into irrelevance, desuetude, otiosity, bogosity, unness.

So the way the toons can stomp out the branecasters and Zed Alef will be to somehow make them beyond the pale. "It [believing in his continued existence] just got too remote," as they say about Slothrop in *Gravity's Rainbow*.

What if they gave a war and nobody came?

What if nobody noticed monoculture?

Oxymoronic bumper sticker:

Ignore Monoculture!

Rundy's sorrows began when the branecasters took over his nice solid little hill, and put their branelink on top of it. He should have won his case with the Hubs, but he has a bad way of phrasing things, they think he's an obnoxious crank, and they like the fallout bread that the branecasters spread around. The extra matter helps to stabilize things.

But then little Garth got curious about the branelink and disappeared through it. And Cynthia went to look for Garth, and Rundy never saw either of them again. And then Rundy's beloved little Ariel went to work for the Exaplex.

Tagine and Vlan

Bumby and Ulla's child Vlan and Tagine are still tooling around like a UFO. Vlan after a sign I saw on the way to the Brussels airport, and Tagine after the Moroccan dish, the other day Sylvia started calling herself, out of the blue, for a joke, "Tagine

Stekerlapatte,” Stekerlapatte being the name of a restaurant we like here.

At one time, I had Whaler speculating on what names they’d pick, “Ham and Clove, I’d say, or possibly Nog and Magog...”

Maybe they eventually move into our sun?

Effects

Here’s some special effects or visions that I might want to work in.

The Virgin of Guadalupe as a Mandelbrot Set

I love the way the V of G always has that chaotic, thorny, layered halo, so very much like a few terraces of the Mandelbrot set. I want to have some beings that appear like that. Maybe the Goddess will come on that way.

I always think of the Princess Leia hologram at the start of *Star Wars*.

A Race of Sunspot Vortex Tubes

In Rimini I got a chance to discuss my *Saucer Wisdom* notion of a race of vortex tubes in sunspots with Richard Dawkins. He stressed that you need a very large population for a long time to have evolution, so we’d better do this in a giant star. He also wondered if the “genome” of the space curve is sufficiently expressive.

I thought about it some more, and decided it might be good to have knots in the vortex, alternating overhand and underhand knots, e.g., could code up bit strings. How do you reproduce a knotted vortex that runs from one edge of the vortex medium to the other? You split, all along the tube, not changing topology. You slide the end of one tube to the end of the adjacent tube, and then slide the end down along it, getting something like a lowercase h, shrinking length as you go, ending up with a copy of the knotted thread disentangled from the other. Then grow the bight back to the original border and make a mouth. You’ve reproduced a knotted vortex tube. I have a picture of this maybe I’ll paste in here.

I got this kind of argument from an old Martin Gardner column I recently reread in his new anthology *The Colossal Book of Mathematics*.

How does Frek see the sunspot creatures? By radiotelepathy — but that’s only lightspeed. Well, he yunches to a spot near them and watches from there. Yunching is perhaps quite easy from the main base. Yunch-a-vator. Or just put him in a super duper Orpolese spacesuit.

Will the Unipusk/Orpoly Biz/Art conflict even spread into the hearts of the stars? Or are the vortices just happy Orpoly spaghetti? Maybe they’re solidly on the Orpoly side. Or maybe if a star goes over to the Unipusk side it ends up becoming a brown dwarf or neutron star or something.

Quote from Saucer Wisdom

Sunspots Are Alive

“For instance,” Herman tells Frank, “There is a race that lives inside your own Sun. It’s rather easy for us to observe them, even from this distance. You call them sunspots.”

Herman shows Frank a view of a sunspot which is really like a solar tornado, or rather like a pair of maelstroms lined by a subsurface vortex thread.

As Frank watches, the vortex wambles and splits off a child vortex like a tornado spawning extra funnels. “Vortices are expert at non-wetware reproduction,” says Herman. “The children aren’t grown from programmatic codes; they’re cloned off whole. There’s a sense in which a parent vortex cares for its children; it feeds rotational energy into them.”

“But are they intelligent?”

“Intelligence to a wetware-based person, this means reducing the world’s welter of information to small wetware-like codes. Aphorisms, poems, laws of nature, concise mental concepts. The sprawling non-wetware beings think in a different way. They emulate instead of summarizing. Look more closely at the sunspot’s central axis. I’ve highlighted it for you.”

Now Frank sees a glowing purple space curve which runs along the twisting axis of the great sunspot. The curve is of a remarkable intricacy, like a tangled phone-cord gone mad. The view zooms closer and Frank can see that what he thought was a single curve is in fact a braid of narrower curves. Odd wave forms travel up and down these woven lines, and each of the lines is thousands of miles long. And, of course, each of these individual lines is itself a braid of yet finer structures. So much information!

Frank remembers reading an article about how astronomers are always being surprised by the new behaviors of sunspots. Suddenly this makes perfect sense.

“And of course there’s non-wetware life much bigger than sunspots,” says Herman. “A star as a whole is sentient, and so is your planet Earth. But these minds are too slow and too vast for us to properly encompass. And there are levels upon levels after that.”

Email to Benford about Closed Coronal Loops, Sept 6, 2002

I’d like to have a little email discussion with you about closed coronal loops — what I used to just call sunspot vortex tubes. As we both seem to be about to write about these as living beings, it seems we could perhaps share info and reciprocally amplify our strangeness. My SF experience thus far indicates that no matter how much we share, what we produce will seem very different. And if there are similarities, well, that will just “prove that it’s really true.” I’m writing this quite soon, it’s in the next chapter (Ten) of my work in progress FREK AND THE ELIXIR.

Talking to you at ConJose last week I had two big insights: (a) rather than a vortex thread running from boundary to boundary (a sunspot) we can have a closed loop and (b) the loops can travel through interstellar space from star to star like Polynesians colonizing new islands.

There are few issues to think about r. e. evolving an intelligent race of loops.

Information storage: In SAUCER WISDOM I talked about having the loops be somewhat fractal structures, like flowing water with its streamlines. Another, cleaner, option is to code up info having knots of different kinds in the tubes.

Reproduction: I think its pretty easy to split a vortex thread in two, completely replicating the fractal and/or knot structure. disentangling the knots can be a bit tricky — I was talking about this at lunch. I’m not sure the method I described would work for closed loops, I haven’t thought about it enough. Certainly you could get it down to at most one crossing. Poincaré tells us that crossing two threads is a no-no, though maybe you could do it really fast it would usually work but not always (death in childbirth).

I need to make Ulla look less like a ball at first and more like a pumpkin or a blood-cell platelet. I could even give her a pinhole “anal” rear door opposite her “oral” front door.

Ulla ought to have the twist visible in her from the start, the Anvil should have a kind of paperweight look to it, with the grain ever so slowly twisting — I know there’s some twisted torus pastry, is it a bialys?

I think of a candy-cane designed barber pole, except the pole isn’t spinning. And the pole is first bent into a torus and then finger-molded top and bottom like clay to fill in the dimples, so that now the cross sections are like letter D’s, with the fat part facing out, and the color lines are still winding around. But I can’t formulate any easy-to-read way to express the difference in appearance between the grain of the left and right ones.

What if I made the hole a pure whirlpool? If I had counterclockwise in at the top, and at the bottom coming out, I’d see clockwise coming out. The problem here is this is the wrong kind of twist. There’s no absolute sense of a rotation around the hole, only in a rotation around the cylindrical mass of the ring has an absolute sense.

Gov is an Evolved Roundworm

This picks up on what George Dyson said to me in Rimini: “Maybe in a thousand years, the descendants of some lab worm would rule the Earth.” It doesn’t even happen as a deliberate alife experiment. It’s what Dyson calls alife “in the wild.” How? It becomes the standard ‘lab rat’ for genomicists, they get its code into digital form and start fiddling with it. It does millennia of evolution in a few years. “The Worm Turns.”

Gov is actually from a ringworm culture from some KwakWakaWak Indians in, Sitka or Prince Rupert or the Charlotte (?) Islands. At some point he discovered his First Nations geographic origin, which is why he does the Raven thing. It’s not well-known this is where he came from.

This idea is so much fresher than having Gov be an “evil computer.” He’s an evolved roundworm!

And cf. Poe’s poem, *The Conqueror Worm*.

Gov’s Plan for Man

Evolution is a kind of intelligence in that the race as a whole solves problems. By putting internal uvvies into everyone, Gov can get us to evolve to solve some worm type problem. Like (joking), what temperature and acidity of crap is best for laying your eggs in?

To make it totally sinister, Gov’s fate is decoupled from humanity’s fate. “The Planet of the Worms.” He’s already got his mind out on the Unipusk Aether, he’s sold out.

Gov sold out quite awhile back, and he knew the Unipusk would be sending an agent, which is why he’s so quick to attack Bumby. Unipusk has an in with the worms.

How about this: maybe the Unipuskers would actually have the worms be the stars of the Earthly Branecast show, while the Orpolese plan to star the humans.

Madonna Paintings for Aliens

I saw, like, 200 nearly identical painting of the Madonna and Child in the St. Vitale museum. Important to us because it stands for life, for reproduction. So imagine the obsessive repetition of one reproduction-related image by some aliens. Like

Squidette Holding Egg-Case.

Non-Raster Display

The mosaics in Ravenna were, of course, eerily reminiscent of the pixelized images we see all the time now. But, since the tiles aren't in any pre-ordained grid, the pixelization is crisper and more efficient. Specifically, the tilers can line up a row of dark tiles along a curve to very clearly mark it out; also the tiles can be trimmed to oblong shapes and aligned so that their "moment" or orientation matches the direction that you want the color field to flow.

The tomb of Galla Placidia is a small cross-shaped dull brick building with a slight dome, doesn't look like much more than a mud hut from the outside. Inside, the central dome and the barrel vaults of the four cross-arms are totally tiled. It struck me that this building would serve as an excellent model for a UFO. Or for a human being. Dull mud outside, glowing colored images on the inside. Of course in a human, and probably in a UFO, the images will be moving. But I love not having them in any specific raster, that's much cooler. The raster has to go. What data structure to use instead? Polygonal mesh will do.

Cloud Aliens

Aliens that are clouds. The creepy feeling I got on a mountain slope in the Alps this week (July 11, 2002) seeing a cloud roiling and seething up the slope towards me, moving faster than I would be able to run. Notice the way clouds are full of hollow cells with fat corners and the thick parts along the edges, and the solid parts are full of cells as well, fractal style. It's taken me years to be able to see clouds as fractals, even though I read it in Mandelbrot, gosh, back in the 70s. I feel that I finally got the picture yesterday atop the Genschberg.

Radiolarians

The aliens that Woo hooks up with are H. P. Lovecraft style radiolarians. Five-fold radial symmetry. Their warehouse is a starfish, their space ship is a barrel with tentacles at the end. Whoops, the warehouse and the ship *are* the aliens. But they have a smaller "polyp" form that's like a brittle sea-star.

The Vato

I had this idea of how they free humanity from being enslaved to the branecasters' monoculture, I had this idea of a "Vato" being the spirit they have to revive and liberate. I don't think it works after all, but here's the rap.

A little wooden box, the Vato's ashes are in there." It will turn out the Vato was the freedom of the human race, the Vato was cremated by the start of the Humanity channel branecast. There really is a personification of the race, and that's the Vato. The Vato is stinky, messy humanity.

But they don't see the Vato yet.

They hear a noise from the Vato box. The Vato is the key to roll back the forces of the Mall, Amerikkka, Inc., Spam, Conglomerate, Branecasting. A homie?

The saving spirit can't really be some ethereal tree-hugger pixie. Or a steel-spectacled humorless Santa Cruz P.C. cadre. The Vato should perhaps be female. Grandma with the thanksgiving turkey. The good old ways. Turning off the TV or even

having it on, but not buying into it. What's real. Earth and growth and family, warm woman things.

Or it could be the anarchistic thing, John Lennon making fun of the jeweler, the skater girl stealing the mall cop's hotdog, the three stooges, the Beats, but I don't know how strongly I can grok on buffoonery. Bruegel as opposed to standard generic Academy religious art, is what I'm thinking. Not just buffoonery and reactivity, but the crisp sky in the back yard. The branecasters didn't want Frek to unleash the Vato, but Gibby opens the box, and the Vato comes back to Earth with them too.

But, naw, I think the Vato is a dead end.

The Planck Brane

Maybe it should be a funhouse mirror of Earth, or maybe an archetype zone where the archetypes leave and breathe (cf. Pynchon, "Gawrsh, there's the Tree of Knowledge!").

Like a trip to the Underworld.

Actually I think it would be nice have it transreally start as Brussels, since that's where I'm living as I write about it. Can even put in an in-joke, of having Frek's Dad mention a video called *The Brussels Illuminations* that he was thinking about when they got there. [*The Brussels Illuminations* is a commercial-formula-title in the familiar pattern of "The Proper-Name Noun". And "Illuminations" is a word beloved by dear Ginsberg, God of the Beats.]

At first I thought the Planck brane should be a toon. Characters like Super Mario Sunshine, lively little 3D animations.

But then I decided to use the toon world for a chapter of its own, and have the Planck brane be like a painting. And at the end it should turn into a Boschian Hell world.

The resonance of "Planck". The name does build up an expectation that we will witness visible quantum phenomena, or quantum computation, or uncertainty principle run amok, or wave-particle duality made manifest similar to the car missing the garage in George Gamow's *Mr. Tompkins in Dorkland*.

One resonance that I think I can use is the notion that the Observer actively brings reality into existence. The Participant-Observer, as John Wheeler liked to say.

In this vein, having the world be a painting is quite apposite. For a painting is a reality in which nothing is "free," nothing grows like a crystal, everything is put there by an individual toothpick-sized act of volition. God making a universe out of Lego blocks, one at a time.

The Brussels-to-Bosch's-Hell transition could I suppose be thought of as a kind of observer effect, I mean I could claim that a bit, enough to make it feel like I'd delivered on the implicit "Planck" promise.

What should the branecasters call their town?

Plancksburg kind of works for me, it's like the familiar Plattsburg in upstate New York. But that brings the "Planck" thing into higher relief than I want.

But maybe totally different kind of name would be funner. Perhaps a name to prefigure the Bosch Hell thing. A pamphlet or book with a title like *The Dream of Tundale* was the medieval "SF" tale about a trip to Hell that inspired Bosch. So Tundale? Or go Greek and call it Erebus.

I think I like something more simply science-fictional. Node G. The G is for

galaxy (as in at the center of ours) and also because G is “the” letter for the characters’ slang (like X was in our Y2K times). It’s also nice that capital G is a spiral.

The Exaplex Theater

What should the branecasters call the “movie theater” where the reality of each planet (or each individual?) is being broadcast?

I’d initially wanted to call the theater the Vogue, Vogue was the theater in St. Matthew’s, Kentucky, ca. 1956, where I saw those unforgettable films, *I Was A Teenage Werewolf*, *X the Unknown* (which was a knock-off of *The Blob*, which my parents wouldn’t let me see), *Flying Saucers vs. Earth*, and that 3D one with the alien in a cave like a fried egg, what was its name?

Then there’s Hermann Hesse’s Magic Theater: For Madmen Only (do I have that right?).

But Exaplex is simple, and everyone can get the joke. And the Exa sounds good. Let’s see, it goes giga, tera, peta, exa, so exa is ten to the 18th power. Should there be a movie for each particle in the universe? “The World As I Saw It” by A. Electron. In that case you might need ten to the 24th (though I haven’t checked lately on the latest informed guesses about the number of particles in the cosmos).

The marquee lists a single feature: *Everyone*.

The projection bulb is displaced *ana* a bit so as to cone an individual light ray through each point of a film frame, then through the hyperthick 4D which collimates the rays to land nicely upon the large 3D projection screen. I suppose the film cubes use an Escher trick to squeeze endless space into a finite cube, though it might be too much weirdness at once to go into this here, in fact I won’t even make much of a fuss about the 4D.

The Toon World

I’d like to have a scene where Frek is in the toon world, though could also do that back on Earth, have him in there with Gypsy Joker, Strummer, Soul Soldier, Goob Doll Judy and the others.

Maybe Frek himself becomes a Producer, and that’s how he’s able to get the branecasters off of humanity’s back. He’s producing the branecast of the toons. And the toons don’t mind; they’re so rubbery that nothing fazes them.

Dinosaurs

Should Frek also pick up the genomes of the dinosaurs? That might be fun. Aladdin getting greedy in the treasure cave. But they might screw up the world too much.

Becoming a Dream

Imagine being inside everyone on Earth’s dreams. You’d be anithypostasized (i.e. not an idea made material, but a material being made into an idea, there’s probably a better (real) word), idealized, become a Platonic form, a universal idea that everyone thinks of, something as basic as twoness or affection or rest.

The Volume of a Menger Sponge

When the Kritterworks triples in size, that would be 27 times the volume if it were a cube, and if it were a true Menger sponge, it would be 20 times the volume. Since

we're only Mengerizing it along one axis, it will be 24 times the volume.

Sketches, Things Seen

Sick Hindu

"Sick Hindu," a graffito all along the Cal Train tracks north of San Jose. Imagine a stoner skater kid from an Indian family.

Girl in Brussels Subway

At the subway station we stopped next to a subway going the other way, I saw a girl with long teeth, curly red hair, twirling a curl with her fingers, talking, pushing her face forward as she talked. I could use her in the Chapter 11 tram scene, that gesture of pushing her face forward for emphasis.

Magritte

I want the Planck brane in the final chapter to look like Magritte's paintings. So I was flipping through two books of his last night (that is, February 24, 2003). Something I noticed.

A black background with, cut out in it, the shape of a bowler-hatted man, and inside the man is a misty hilly summer landscape, with trees and a crescent moon in the center of the man-shape's head. This would be nice for the door back to Middleville.

"La Jeunesse Illustrée" shows a road with: a barrel, Venus de Milo, a lion, a pool table, a bicycle, a tuba, a bed, an elephant (or skull or boulder?), a curtain, ... Maybe Frek could pass these as a series of hilltop buildings.

"The Voyager" shows pretty much the same objects, wadded together in a ball over an endless sea. I also see an armchair and a mirror.

"Chateau des Pyrenées" that shows a mountainous rock hanging in the air above a similar Endless Sea, with a castle atop the rock.

"The Promenades of Euclid," which shows a view out a window of a city with two gray triangles, one is the conical top of a tower (cf. the Porte de Hal or Hallepoort in Brussels just down the street from where we lived) the other triangle is a road in receding perspective, p. 96 in the little Magritte book.

"The King's Museum," a fine columned building atop a wooded hilltop, p. 171 in the little Magritte book.

That picture of the horseback woman amidst the beeches, she's drawn on top of the trunks instead of in between them. The trees are just as I saw in the Forêt de Soignes or Zoniën-Woud.

"The Pleasure Principle," shows a man in a suit with a ball of white light for his head. Very stoner, very R. Crumb. I see this as Magritte's pal Scutenaire *really* enjoying a beer at that cool little Brussels *estimanet* bar, La Fleur en Papier Doré.

Don't forget "L'Univers démasqué," and similar paintings, which show the sky broken up into giant blue blocks stacked upon each other. Would be good for the end of the last visit to the Planck brane, with the renormalization storm really kicking up. The blocks of night sky tumbling down, darkly bouncing.

And how about "Golconda," with all the men with bowlers and furled umbrellas raining out of the sky.

Human Society in Year 3000

One thing I'll do to try and figure this out is to work the 3000:2000::2000:1000 analogy.

Society; Cepts

At the basic level, men and women remain much the same. As in 1000, we sleep in beds, we eat vegetables and animals, we pair and mate, we have children, we need shelter. We are jealous over relationships.

Seeing some cheery Bruegelian dumbbell on campus, his muckle lips a-jut, I think we'll have the same goofs and clods around in 3000 as we do now and as we did in the Middle Ages. In the Star Trek scenarios the futurians are always these effete snooty guys with faint British accents, but that's so wrong. The peasants and rednecks will be as plentiful as ever, indeed more so. The pullulating mud people. Note how on the way to school I always see Latino women with two or three children in tow. The poorer elements of society will at any given time be out-breeding the richer elements.

There was something I really liked in a novel I read many years back, maybe it was *The Wanting Seed*(?) by Anthony Burgess(?), in which someone had a theory of social change that society oscillates between an ascetic Gusphase (for Augustine) and a Dionysian Pelphase. I liked the idea of someone having isolated in a really clear way something about the historical pulse of social change, as clearly as a description of a reaction/diffusion system.

Might be worth looking at *Foundation* to see how Asimov did his particular "science of history" thing. (I was always a C student at best in History classes, so maybe I'm just the guy to write SF about it; like an innumerate guy writing SF about physics.) Rather than having to prove some theorem about history, the SF author gets away with mentioning the theorem as a quotidian fact of intellectual life in the future. A theory as familiar and widely accepted by them as, say, the notions of evolution or the subconscious are for us. It would be good to have two or even three future Cepts like this. ("Cept" was a word briefly in vogue in the early 60s to mean a boiled-down version of some intellectual concept.)

The Art/Mall Dialectic discussed below is one of my Cepts. Imagine that this dialectic were completely familiar to everyone.

The Monoculture/Polyculture Dialectic

Originally I was calling this the Art/Mall dialectic, which isn't a general-enough phrase. Art/Biz? Biz/Art? Boho/Bobo. Moulin Rouge/Academy. Salon des Refusés / Megacorp. Spa/Fon, where "Spa" could be Biz and "Fon" could be Art. Rrrright.

There are two complementary processes going on, as the two eat each other yin/yang style. Art breaks off crumbly pieces of Biz and makes something cool out of it. Like Rudy turning news into his off-kilter websites. Biz gets hold of glitzy Art spots and makes them into Hard Rock Cafes. Liberation/Gentrification. "Liberation" in the Sixties sense of the word, as when Hungerford shop-lifted a container of yogurt from the Rutgers cafeteria and said he'd "liberated" the yogurt. Reclamation a more modern word for it.

One angle I'm thinking of is the thing about the Art/Biz tension. The Art side is the new artistic ideas, new expressions, new movements, new forms of life, underground comix, pirate radio, small publishers, internet art, weird screens. Bohemians, beatniks,

hippies, punks. The Biz is the Malling of Amerikkka, business spamming and putting ad banners all over the web, gentrification of artists' communities, Taco Bell ads naming a piece of food La Revolucion, corporate mergers crushing diversity of publishers.

There's various basic contradictions that keep the thing unstable. Gentrification, selling out, commercialization, exploitation, Art-to-Biz. The outsider artist in fact often wants commercial success. He or she dreams of changing society to match his or her vision. But in the end it never works, the greedheads eat it and turn it into hot-dog filler. Hippies in ads for cars. Liberation, reclamation, vulgarization, repurposing, idiosyncraticization, Biz-to-Art. If a mall or a publication becomes sufficiently dull and plastic nobody goes there or looks at it anymore. The plastic cracks and crazes and drops off. A wasteland, peeling paint bare brick walls. And then the bums move in and then the artists. "The street finds its own uses for things." Hackers repurposing things.

This is happening to SF right now, come to think of it. SF was a despised subliterate, free to do whatever it wanted because nobody cared. Then there turned out to be money in it, and it gets crushed by Star Trek, by movies, by Stephen King. And the legitimate, native SF writers like myself are turned out by their old publishing companies (like Avon giving me the heave-ho).

I'd like to dramatize the ways in which people forever keep culture vital even as those in power continually try to stamp out the vitality. "Those in power" could be the Church in the Reformation times, the Republikkkans, the malls, Global Business, the Salon, the Academy, TV producers.

Biz	Art
Mummification, freezing, killing, embalming, control	Reviving, melting, growing, engendering, chaos.

The Orpoly/Unipusk conflict is an Art/Biz conflict. Perhaps Bumby himself is an artist. A producer/director of branecast shows, but maybe some other art as well.

Imagine the Art/Biz happening to cultures being branecast. Unipusk snaps up the diverse ones and drives them into the ground. Then branecasters drop them because of low ratings. Then Orpoly builds them up again. Did this already happen to us once, like maybe in Ancient Egypt?

Advertising and Other Things that Suck

Noise pollution. Every public space is filled with music. Restaurants. Fireworks even are now ruined by sound tracks. God, I hate noise. Imagine an internal ad track, news track, public safety track that you can't turn off. Ugh.

Architecture

I see the buildings as being more organic. The beauty of natural structures is so patent — I thought this looking at water cutting a channel in the sand at the beach, the beautiful overhang of the little bank, the fine shapes of the rocks. Our obsession with the rectilinear is perhaps a passing thing, dictated only by our current building technologies. Note, indeed, how many modern architects are beginning to dream of non-latticed forms, e.g. the museum at Bilbao. Hell, make them truly organic, make them be plants. Or possibly fast-growing crystals (cf. *Virtual Light*, dammit).

A cubical lattice is relatively easy to navigate, imagine the hero getting lost.

Art

Were there writers in the year 1K? Not exactly. There were bards who made up eddas and song cycles, like *Beowulf*. So maybe there won't be anything exactly like novels in Y3K. Would be replaced solely by movies, holograms, videogame scripts? Well — don't forget that there really is some magic to the word as opposed to the image. The word contains so much more, thanks to the "coolness" of it as a medium, in its ambiguity, a word is a nexus capable of expressing, oddly enough, more than an explicit image.

So there will be a word art, but somehow different. Consider: the technology of the printing press let the novel exist, and made it no longer necessary to recite a ballad known by heart. Might some new tech create a new kind of word art? The book reads itself to you? Or just hypertext, like stream of consciousness, all of my words at once, you have the word thoughts that the author would have. The auctorial voice, harrumph.

Dreamland

Might be interesting to somehow have the story relate to the issue of trying to break through to the dream world, something I keep wanting to do and not managing to. I wrote a little about Dreamland in *White Light*, and I wanted to get deeper into it at the start of *Realware*, and again in *Spaceland*, but in those two I never got close. The very fluidity of the dreamscape makes it kind of inimical to narration.

I do still remember the excitement I felt as a boy first reading about PSI forces. This is akin to Dreamland, but more focused.

A guy emailed me something that made me think, about things invading the Mindscape, here's is Q and my A.

Q. Could other intelligences "invade" the Mindscape? Or might there be infections of the Mindscape?

A. I've been having some thoughts along these lines for my next book, as chance would have it. Recently I've been kind of exercised over the evil of Mall Culture. It might be interesting to push this out into the astral plane.

The guy also asked me if there might be parts of the mindscape that some could see and some couldn't, or whether different races might have different mindscapes, and there the landscape analogy seems apt, i.e. that maybe the Saucerians work the mindscape over on the other side of like a mountain range which we don't normally cross but which we could, in principle, find our way through.

He also asked if time passes in the mindscape. I think we would want a 'yes' on that, otherwise it wouldn't make sense to speak of things changing in the sense of their memes invading our space.

Could possibly have a takeover from another brane threatening the Planck brane, which is how Frek gets the Branecasters to back off.

Toons

Suppose that the Saturday Morning cartoons are in some sense alive. Like Memes. And they interact with the viewer in a personalized way. They reproduce by being passed on to other potential viewers. The mindscape has become hypostasized or incarnated as the infoweb. Maybe they just call it mindscape. That's the art, getting your

toons out into the mindscape. Frek wants to be a toonsmith. The monoculture is about to come down on the mindscape. Or is already trying to.

Or maybe the space squid will invade the mindscape? The Galactic Survey Pod of Bumby the cuttlefish. (His personality based on my grad-school Algebra Prof. Bumby.) Also have Bumby for sure on the walls when Frek comes back.

Stoo and Don Steiner pour gasoline on Bumby and burn him, like a lynching.

But then Bumby is on the walls of the house trees, he made it into the mindscape. If everyone has an internal uvvy, how really continuous and seamless the mindscape would be.

Do another scene with Gypsy Joker, Strummer and Soul Soldier, I love those guys already.

The Genomic Earth

Might we have an objective correlative for the Monoculture be an Earth in which every species has been bioengineered, and in which, as a result of this meddling, the number of species has collapsed down to only a few hundred. They're trying to bounce back, but in a half-hearted way. Like how in San Jose they've flatbed-trucked some old mansions off to a corner of an unfashionable city park, but meanwhile all they put up is generic strip-malls and curtain-wall high-rises. Mansard roofs. They say they're trying to do historical preservation, but they'll gut out an old movie theatre and fill the thing up with concrete handicapped ramps.

So there's some feel-good attempts by a few to bring back more species, but the average Joe will kill any kind of "mutant" he sees. Thus Stoo and Don Steiner burning Bumby.

Re. the collapse, and the missing species, people will pay lip service to genetic diversity, but in practice they won't do jack about it. And in fact they will be sarcastic and ironic about diversity, wallpapering their guilt with mockery. This is exactly like the current state of affairs regarding our attitudes towards, say, handcrafts.

Let's suppose there's some reason to have collapsed the biome. Some, say, Kruze-Chang-Yokuda cycle of enzymatic autopoiesis whereby a certain constellation of genes form a locked and stable biome. It's not that they really wanted so much to get rid of the extra species (though in fact they DID because they own rights to the all the new ones, cf. Monsanto releasing bioengineered corn-pollen onto native corn fields), as that they need the cleaned-out situation for a stable saddle-point in the fitness landscape. In fact they don't really need to clean things out so drastically, but the computational abilities and known algorithms can only handle a limited degree of complexity, cf. the way today's computational aerodynamicists might be forced to analyze an airplane wing as if it were a rectangular prism affixed to a cylinder.

How did the genome collapse? Perhaps Gaia, Inc., released some incredible prion called, let's say, New Day. The New Day prion killed off any DNA-based creature that didn't contain the patented Gaia "authenticity code" which is, one might imagine, a *.JPG string showing a picture of Gaia's founder Hank Nguyen. Better names for the virus? There is a weed killer called Round Up. Corral, Clean Slate, Dragnet, Fresh Start, Headstart, Leg Up, Freshen, Rationality, Bookcase, New Eden. I think I like New Eden.

The Great Collapse was justified by people's fear of bioterror. Only "licensed" genomes to be allowed. Cf. towns in which structures must all be built "to code." Safer

for all, but less various.

The fish are tuna, krill, catfish, halibut, trout.

The Economy

Regarding the Gaia company or conglomerate, I don't think it actually makes good futuristic sense to speak of it as "Inc." We didn't have "Inc." a thousand years ago, we had guilds or ententes or whatever. So we need a different word for a megacorporation a thousand years from now. Probably it wouldn't be a "corporation" either, that is, I don't see it as having stock-holders.

I have, frankly, such a low level of understanding about the economy now that I have trouble extrapolating to the future. Well, a good SF writer ever lets ignorance be much of a hurdle!

Names instead of "corporation". Framework. Unity. Namespace.

Let's call it GaiaCom. No, call it NuBioCom. There's always something so stunted and plastic about "nu" in place of "new."

The Internal Uvvy

If everyone has an internal uvvy, how really continuous and seamless the mindscape would be. This is the ultimate invasion of the monoculture, letting it set up shop inside your head. Commercials and country music round the clock. Of course the commercials are endlessly self-aware and post-modern and ironic, but the basic product placement is always still there in some fashion.

This takes over while Frek is gone. He comes back like Jesus driving the moneychangers from the temple

Re. mind control, think of the example of music — I had these thoughts while having to listen to loud music I don't like. Think of music as mind control, the way it guides your thoughts in rhythms. My unfavorites include: country music, angry rap, commercial jingles, warbling pop. We might suppose that's the attack that Frek finds when he returns with Elixir.

The thing to keep in mind when doing the invasion of commercials is that, as David Foster Wallace discusses, the way T. V. makes an end-run around our post-modern cynicism and irony is to have its commercials be cynical and ironical, to have them seem to mock the very idea of a commercial. So the in-brain commercials won't be hard-sell huckster things as envisioned in Pohl and Kornbluth's classic *The Space Merchants*. That made sense in the 50s when they wrote the book, but it wouldn't make sense now. Instead the in-brain commercials will be meta, and ironical, and self-aware. Almost like being high. It'll be fun, like using the *Wetware* "stunglasses," to be receiving the brain ads.

Of course this, again, probably won't make sense fifty years from now, let alone in 3000, but, after all, SF is really about the present. It's always, "If This Goes On..."

The ultimate purpose of the uniformization of the biome and the upcoming universal internal uvvy (UIU) is to make the biome an adjunct to the computation of the Mindscape objects. Bumby will be very weary with this, they've seen it happen too many times before, it's a universal domination meme, an ugly point-attractor to be avoided at all costs.

Name for the internal uvvy? Maybe call it an ooie, ooey, ooey.

The ooey (internal uvvies) put up ad banners in your head, very postmodern,

distanced, jaded, like entertainment almost. When I came back to California after being gone four months and read one of the free weekly newspapers, it was just like that, I couldn't tell the news from the parodies, or the ads from the cartoons.

The Cities

It can't all just be like Middleville, that's boring and unrealistic. Earth will have dropped down to a carrying population of maybe three billion. Not everyone is going to be living in a house tree. People love their cities, they won't have given them up.

I imagine nanotech-built buildings. Things like crystals that grow themselves. Self-organizing 3D CAs.

And what about the ratty, pullulating populations of the towns? It can't all be suburban Louisville/Lynchburg. People will still have that technomothia, that attraction to the bright lights.

What's my mental model of the town? San Jose? San Francisco? Downtown Louisville? Manhattan? DC? I think like the downtown of a big city, yes. . Wouldn't be as sprawly as San Jose, I don't think, as I imagine they'd use angelwing and lift beetles instead of cars. Suppose Frek goes the wrong way down the river — of course he would.

Asteroid Colony

What should the Crufters' colony be called? New Eden is too religious. Paradise in Arabic or Sanskrit maybe. Samadhi, Satori. Sick Hindu would be good, like that graffiti.

The woman that Dad ran off with is Yessica Sunshine.

The Land and Weather

Maybe the land is harder than it used to be, because there's no longer much humus. The soil isn't alive anymore. It's not webbed together by all the roots and fungal hyphae. There's been huge run-off, with all the topsoil washing into the river and from there into the sea. It's a big issue, and NuBioCom keeps trying to solve it and not getting it right. The only fish left in the rivers are catfish and they eat...water hyacinths? But every plant they've kept is *for* something, so what could be a use of a water hyacinth? Or maybe its water lilies?

Or, again, maybe they did develop a bindmoss that holds the land together. So then the river is crystal clear and dead. I kind of like that better, it's less obvious. There are, let's suppose, trout in the river, quite a few of them, and mosquitoes that they feed on. Like that river I saw in Austria. It's clear and empty. A clean world with no diversity.

I wonder if I could put Middleville in the Central Valley so that Frek could end up in something like San Francisco. Stun City is maybe Sacramento? Well, I really do kind of like to keep it in the South/Midwest of so much of my life. Those cities that pop up by the Interstate, a bunch of buildings you use a *90 loop to drive past, Cleveland, Dayton, Cincinnati, Raleigh, Indianapolis, Louisville, their very genericity should be the point.

Rain isn't a problem anymore, they can control the weather now. They schedule the rain.

Religion

Wouldn't everyone be doing yoga?
Or mightn't there be a new fusion religion that was born in the dark times of, say, 2200, when the shit really came down, hit the fan, etc.

Science Fictional Technology

Guadalupe Rings

Frek and his Dad have two rings in a pair. They're called Guadalupe rings, because what you see is like the vision of the Virgin of Guadalupe, and image of your caller suspended in a spiky aura of light.

They work by EPR quantum entanglement, they're made of metal created by a plant, the metal of the two rings has to come from the same plant.

Twinring, EPR ring, Guadalupe rings.

Space Travel

Chirping

Within the Galactic Federation, the people fly any distance longer than a light-week in the form of a chirp. When you are traveling to new parts where there is no receiver, then you must perforce use conventional torch drive, going along at whatever gee force you can stand.

Squidnor 777 is pioneer world out on the fringe of the Galactic Federation. Bumby is on a Galactic Survey Ship that traveled at, say ten gee. He's planning to set up a receiver on Earth, I guess.

I'm thinking not to use starships exclusively, though. Maybe we'd have ships for within the solar system, for the "domestic flights," especially for freight. But for human travel over really long distances (and maybe within the solar system as well) we'd use either (a) my standard Saucer Wisdom/Freeware type *chirp* transmission of a body and mind as an encrypted signal or (b) a let's-call-it *Q-jump* technology which uses an Einstein-Podolsky-Rosen type remote coupling so as to Xerox your state function and reconstitute you "instantaneously" there instead of here. For (b) Somehow get you entangled with remote matter. Maybe you have to eat some special meals made of this entangled food. I could read up one more time on the cryptic, mind-numbing details of "quantum teleportation."

Even so, I want the look of an SF-book-cover spaceport, the big flat launch-pads. Well, let's say that when you do a chirp or a Q-jump, your body here goes up in a burst of pure energy, not unlike a small nuke though not so forceful. So you would supp-hose (old name for support panty-hose Sylvia used to wear when pregnant) that they might lead individuals out to the "jump stage" one by one and have them one by one go up in a small fireball of ionized gas, of plasma. You'd get an individual gate assignment, one gate for each person. Zillions of 'em.

I don't see them shipping matter over long distances. That's crazy. Like shipping air or water around on Earth. (We currently *do* ship, yes, bottled water, but it's crazy and not something that will keep being done.) We might supp-hose the tech of our book is at the point where they do have allas and can make anything into anything? Well, maybe

that's too much high-tech. Heinlein's ships are always hauling around minerals like thorium, and rare food stuffs, and drug plants, and jewels. Can we supph-hose that in my book they are simply shipping matter by chirp or Q-jump? One thing that's hanging me up here is that if you have this, it seems like you have, a fortiori, the alla. For can't you just set the Number of Copies selection to like 7 instead of 1? Isn't the chirp decrypter or Q-jump receiver able to just pump out more copies of any object you have the source code for? Or might it be for some reason impossible to record and replay an object's source code? Some kind of Heisenberg reason, say? If you could get hold of the full source and examine it at leisure it would indeed seem to violate Heisenberg. So you would need to destroy an object of type A every time you wanted to use the chirp decrypter or Q-jump receiver to make a new object of type A. This would be good. It would (a) prevent tiresome multiple copies of an individual, and (b) would keep up a necessity for a robust trade, for if you want a bud of Humboldt Wacky Weed on KlanAlphaneMoon # 7, then by God you are going to have to burn a bud of it out on jump stage 77 at the Miami Galactic Spaceport so that its state function can get transferred (either by quantum teleportation or by the long slog of radio signal).

Certainly you will need old-time starships to operate out of the frontier locations, presuming they are headed yet further out into the unknown. It takes a conventional ship to haul a chirp decrypter or a Q-jump receiver out to the next step.

Now let's decide between chirp and Q-jump. Since Q-jump is FTL (faster-than-light) there'll be some slop about synchronization, so you could perhaps return from a Q-jump trip before you left, and I don't think we want to work that one. With chirp, we run into the issue of coming back to Earth hundreds or thousands of years after you left. A downside of this is that it's hard to imagine humans having a bustling trade based of 500 year exchange cycles. Though perhaps this wouldn't bother the more patient and highly evolved alien races. On the whole, I'm inclined to go with chirp, because I believe it's more scientifically plausible than Q-jump. Really, getting chirp to work is just a matter of a few pesky implementation details. No breakthroughs needed, just engineering. (Huge exaggeration.)

In any case, it would be nice, and transreally very evocative, to have Frek get back to Earth hundreds of years after he left. Like Rip van Winkle, like Chrissie Hynde's song *My City Was Gone*: "A-O where did you go, Ohio?" I like that. Campbell calls this, I think, *Crossing the Return Threshold*. It's how it feels coming back to Grand Turk after 25 years, though the joke about Grand Turk is that absolutely nothing has changed, and "just last week" some big new development plan was proposed (once again). But when Frek gets back, Earth will have changed, it will have gotten even more Monocultured, and will need his Elixir all the more.

I was thinking about this some more, and I think, no, we really better have Q-jump. It might be implemented as a chirp as that's a technology I understand, but the chirp should travel through the subaether at a speed that's instantaneous relative to the preferred spacetime rest frame of the universe. If we stick to the one rest frame we don't have any issues of getting back before you left. You always move across on "horizontal" lines perpendicular to the net average world line of all matter in the universe. The reason I'm making this switch to FTL is that the book will be much more effective if Frek gets back only a month or so after he leaves. Then he can save his family, for instance, who have perhaps been imprisoned by the counselors. Save the "A-O where did you go,

Ohio?” thing for a short story sometime, or another book.

Yunching

Actually, if I am using Q-yump maybe try something different than subaether chirp. (Q-“yump” nicer than “jump”, eh? Reminds me of that random phrase popped into my head and I grokked and crooned over one time years ago, and in fact still relish, “yunching on the inside yunch,” maybe I could work that in, find a reason for someone to say that.) Maybe instead I could do a string-theory thing, that would be nice, that thing where they say there’s a duality between little and big, so you travel far by getting bigger than the universe, then twitching and then coming back a slightly different spot. Of course if you do this, then why do you have to do the thing I wanted of needing to go there “slow boat to China” style in a conventional craft? Wal, maybe you can yunch on the inside yunch down to a target spot unless there’s a beacon there, and the only way to get a beacon in place is to slow-boat it there. What they *can* do is to slow-boat out beacons with drones, and then yunch on the inside yunch to home in on them, bringing a slow-boat through that way through the yunch-hole, and then they pilot the slow boat to a local spot of interest. So the Anvil yunched its way to the Oort Cloud, then china-dogged it in from there. Nice zing about journal notes, I’m zinking, is zat I don’t need to stay on the EZ side of comprehensibility. That’s all, mischief-makers.

Maybe the cuttlefish is from a Galactic Survey pod that’s made its way the slow way to Earth (“Slow Boat to China”) and that now wants to set up trade. He has a chirp transmitter. Perhaps Frek forces his way into the transmitter and then ends up at a spaceport on another planet, a frontier spaceport equipped both with chirpers and with “conventional” ships — insofar as the cuttlefish’s cubic-Mandelbrot-set-shaped fits-under-your-bed ship is “conventional.” But maybe they really do have some conventional ships as well, Heinlein ships, and Frek gets shanghaied onto one of them.

I was talking to Nathaniel Hellerstein about chirping and he argued that it would be in some way deeply unpleasant. You’d feel weird and inauthentic afterwards. Nobody would normally want to chirp a second time, the first would be so nasty-feeling. He also pointed out that if you are going to do an FTL chirp, why chirp at all. As long as it’s FTL, just Q-jump your matter, as with the yunch.

We had this email exchange:

R: I thought some more of what you said, “If you need an FTL chirp, why chirp at all?” (Meaning, if you have FTL for radio waves you might as well assume you have FTL for mass). I may in fact use a different more corporeal FTL trick, one that would still require beacons to be slow=boated to favored target locations. I’m thinking of this thing in string theory where something (I forget what) is dual to size. In other words you get as big as the universe then shrink down slightly off from where you started. I call it, I think, who knows why, “yunching on the inside yunch.”

H: What a way to travel... what if there’s a collision?

R: The way I’m visualizing this I think you’d just nudge whatever was in your way aside. It’s not so much an abrupt materialization as a condensing. Alternately, you’d use your beacon to make sure you condensed in an empty region.

H: I guess you’re pretty thin when you’re big. If two people yunch at the same time, will they be overlapping through most of their fall from cosmic size? And will they

experience this overlap? Hmm...

Heinlein-Style Yunch

Thinking about it more, I'm seeing less point to enforcing the beacon thing. Why not have them able to yunch anywhere they want anytime. They don't need the two kinds of travel then, the spaceship + chirp. The only reason I split it that way before was so that I could have the cool spaceport + FTL. I was seeing FTL as not needing a spaceship because I was seeing it as like sending a radio wave. But if we combine both things into one, we have a spaceship that leaves the port under normal drive and then yunches. A la Heinlein! Duh! God it took me long enough to think of this.

I really want that spaceport. It might eventually be as rare a thing as a boat harbor, though.

I was just hung up for so long on having FTL be done via chirp. But instead we'll yunch, which is a nice fresh alternative to *Starman Jones* space warp. I need to reread that part in Brian Greene, *The Elegant Universe* (W.W. Norton, 1999), Chapter 10. Hauling it out now, p. 251, roughly transcribed, "When astronomers measure the size of the universe they do so by examining photons [light, unwound strings]. Astronomers using vastly different (and currently nonexistent) equipment, should be able to measure the extent of the heavens with heavy wound-string modes and find a result that is the reciprocal of this huge distance. ... It is in this sense that we can think of the universe as being either huge, or terribly minute. According to the light string modes, the universe is large and expanding; according to the heavy modes it is tiny and contracting."

So, obviously, you need only to turn the component strings of your body into wound strings, make them wind around, natch, the fourth dimensional circle of our "garden hose universe." And then you yunch upon the inside yunch and unwind in — hully-gee, is this KS or KY?

Size Scale

At a billion to one scale, the Earth is 1.3 cm, the Sun is 1.4 m, and the Earth is 150 m from the Sun. If Frek grows a billion fold, he's 2 meters tall at this scale.

Genomics vs. Nanotech

[From an email to Marc Laidlaw]

I'm writing about these creatures called Grulloos, they are just like the Bosch/Bruegel critters that the medievals called gryllos, they are a human head with two arm/legs. This is a genomics amok Y3K tale.

I've been hung-up for the last few days because it hit me that you *do* need the rest of the body for all the life support, e. g. stomach, heart, lungs, liver, kidneys. How to get around it? Well, I think I'll also have nanotech amok, it's always bothered me the two different routes to nano: viz. genomics or the nanotech of like crystals. The two routes are, in other words, the wet or the dry nano. The wet nano made the grullos, yes [originally I called them "grull" but then I did a typo here and wrote "grullo" and I think that's a better name! closer to gryllos. Later I made it grullo.] But for life support, the Grulloos have little like Palm pilots attached to them, dry nano life-support systems.

Iron lungs, as it were. Iron heart, kidney, liver, and stomach in there. Not iron,

though, and lord knows Silicon has been done to death, and I don't want diamonds like Stephenson...plastics? Well, I need a new material entirely, it *will* be 1000 years off. Just need to write out the specs for it and give it a funny name, that's the joy of scientification.

The Grulloos are acting like hobbits so far, I read the beginning of *The Hobbit* in the bookstore to see what a hobbit's house looks like, it felt so cozy, like hanging out with fat bearded computer hackers in one of their cozy hackish nooks, maybe a jay passing around. Some of the Grulloos are cannibals, tho. And they probably aren't, every one of them, all that nice.

I guess there has to be some tension between the genomics users and the nanotech users. Kind of a Mech/Shaper thing, the nanites being the mechs, I suppose. Call 'em the Wets and the Drys? Plan to lift Gibson's growing nanotech skyscrapers for sure, was working on a painting of them last week. (We're talking full-court press, here, bwah.)

The material of the life skyscrapers and the life support Palm pilots is, hmm, legonium? Nano sized Lego blocks that snap themselves together, something the average Joe can understand! Sounds like "legal," tho, and lord knows I hate the Law. brickite. nanolegos. nanoLego. nanoleg. picoleg. pickapeppa. And so on, long into the night...

Branecasting

With TV, we have telecasting, telecaster, broadcaster, television set, boob tube.

With BC, we have branecasting, branecaster, branecaster, flickerball, stalk three.

I think of the BC set as a ball like a crystal ball. Call it the brane box or brane ball, or I think better the flickerball, or perhaps colloquially, stalk three (they have two eyestalks, so the flickerball is a third eye, or stalk three.)

It's an internalized kind of thing, watching the branecast. The viewer does — what? Listens to what sounds to everyone else like a really annoying hum. But the noise is keyed to the viewer, it puts vibrations in.

It makes a flickering light and a buzzing sound. If you aren't tuned into it, these are just annoying, like the ubiquitous droning of electric motors in our world, like a pool pump or a leaf blower. Or like the washing-machine roar of unwatched TVs. A quintessential thing about TVs is that their light flickers. "Watch" is too weak a word for participating in the branecast that comes over a flickerball. Might as well use "esp," as in the old SFictional ESP for extra-sensory perception.

He was esping the flickerball. Can also speak of the medium in the mass as "brane." As in: Let's esp some brane. Turn on the flickerball and let's esp some brane.

I imagine the vision being like my description in *Spaceland* of using a 3D retina, looking down from the fourth dimension, unconstrained by any barriers.

It's up to the producer to direct what you see, you can choose your own things to watch, but hardly anyone does that, they prefer to be led.

We might suppose that the Unipuskers and Orpolese produce different kinds of shows. Unipuskers: cop shows, political news, House Beautiful, Business Investing.

If you esp an branecast of yourself, you get into an infinite regress. Gollywog!

When you esp brane you are essentially putting your head as an overlay onto the head of some other sentient being (head used metaphorically in case the being has none, otherwise, used literally). Fine.

You switch from channel to channel, that is, from race to race, and within a

channel, or race, you switch viewpoint, that is, from individual to individual.

Now what might be the role of a “producer”? I don’t see an intermediary, is the problem. The viewers are directly accessing the “cameras,” no? Unless the producer controls in some fashion what the race as a whole is doing?

And the tendency of the Orpolese would be to push a race towards chaos, towards extreme behaviors, towards collapse, to be wild and crazy like them, even though, to begin with, what they enjoy is seeing a very sensible orderly race.

And the tendency of the Unipuskers would be to push a race towards uniformity, stultification, mass-mind, McDondaldsization.

So how then do the producers push the races around? And why would the branecasters allow producer races so much power over the other races? And are the Orpolese and Unipuskers themselves subject to being branecast and pushed around by metaproducers? And what’s in it for the branecasters?

Last question first. If I understand what’s in it for the branecasters, then maybe I can see why they’d even have producers. Suppose to begin with that branecasters are like regular broadcasters. who like to have people watch them so that either (a) they charge them money (pay TV), or (b) they show them ads to make them buy things or do things, and they are paid to do this by the advertisers.

(a) Here the branecasters get the money from the viewers, not the producers. Suppose that to run a flickerball, to esp brane, requires putting some energy of some kind over to the Planck brane, and the branecasters feed on this. The energy might be literal energy or perhaps mental energy. Complex thoughts. In this case, you’d simply want a lot of people to watch. You’d want to distribute a lot of flickerballs. Maybe the role of the producers would be to distribute the flickerballs for you. Or in some way to make the shows more interesting to watch. But people will watch almost anything. So you’d basically want the producers to just distribute sets and find new channels/races to branecast. A producer here is more like a cable company.

(b) Here the branecasters get the money from the producers rather than from the customers. So there would be advertisers. Unipusker ads make sense. Orpolese? Who advertises chaos, and why? Would be too much trouble in terms of developing the book to have advertisers as well as producers, might be simpler to have advertisers=producers. Why would Unipuskers or Orpolese bother to want to influence subject races, though? Simply so they could esp the behavior they enjoy seeing? Or maybe to cause the races to make their planets suitable for occupation?

Suppose that only a few races are at the point of esping brane. It’s a very late, advanced stage of development for a race to get to this. Races that take it up become quite addicted to it. They like to take over a race. Each esper adopts one or two subjects and esps them almost exclusively. The subjects become like pieces in a game. The esping can be passive, but you do have the ability to reach in and affect the subject. Subject feels a compulsion to do something or hears a voice in his head. This “burns down” a race after awhile, so they need new ones to play with. The esper races like to get an exclusive contract on a subject race.

The “Producer” is the individual in the esper race that sets up the deal for the esper race to be esping the talent race.

I have this image of the Branecast somehow having a One or a Many setting, like a two-position selector knob on a stereo. Being branecast affects a race one way or the

other. I'll do this by having the race esping brane being able to affect the actors. And the Orpolese would push towards the Many, and the Unipuskers towards the One. (Other races could push in other directions, so "two-position knob" isn't really accurate.)

Weave back Frek's sense of having things in his mind watching and commenting, Renata has it too, everyone should be getting it ever since the branecast kicked in, all the way back when the Unipuskers found the asteroid? It will be cool to do this, and unifying. Everyone is having spooky waking dreams, it gives a "These are the End Times," feeling. Adds a doomed, scary vibe to the story. But I don't think I can overdo it near the start as there's already so much going on. I could build up the Sick Hindu disaster and point out that ever since then, people had been having strange feelings of being watched. Frek especially. Wonders if it's just self-consciousness.

And the awareness of being branecast adds another thing, besides the biome, that Frek has to fix. The pervasive "I'm being peeked by alien minds" sensation could be one reason Gov is so uptight about Bumby. But then Frek would already know they didn't want to be branecast. Still, he might figure it's better to get the elixir if they're being branecast anyway.

How will Bumby ever get free from being zerovibed? Chainey wants ransom to free them. Needs the ransom before they can wake them up and give the production deal to them. What would the branecasters want? How would you pay them? They can see every mind in the universe, so they have info. Maybe they like organic matter, physical objects. There's not much real stuff, in the Plane brane, it's all kenner. They like actual matter. They prod Frek and Gibby like turkeys. It's hard to give them stuff as its so expensive to force matter through the Planck brane. They eat something Gibby brought with him, let's say his knife. Yum. Frek's shirt is too light to be of much interest for them. They want 100 kg to get Bumby and Ulla out of zerovibe.

Imagine a scrolling esper view that's used sometimes where you can speed past all the minds in a civilization, dropping an info packet on each one. Like spam.

The Unipuskers freeze the talent race into homogeneity, uniformity, dullness, Unipusker-like.

The Orpolese goose the talent race into destructive chaotic frenzy.

The Radiolarians freeze each person just as they are to forever do the same little mime or story or emotion.

It's creepy somehow to be watched by the slime creatures of Zeta Reticuli. Frek does a trade off so the broadcast only shows Toons. Gets the Toons out of their hair a bit, too.

Kenner

Let's suppose that the solid force fields of the Orpolese and Unipuskers are made of "dark matter," whatever that is. I could say "dark energy," (which today's physicists natter on about, along with dark matter,) but dark energy sounds too Darth Vader. Call the stuff kenner, and call the things you make from it kennies.

We don't want these high-end civilizations to use anything like a machine. Humans now have dead ordinary matter tools (machines), they will have live ordinary matter tools (biotech), the aliens have live dark matter tools (kennies.) A kenny crafter

convinces a chunk of kenner to act a certain way.

Dead matter. (machines)

Force fields. (dark matter)

Live matter (biotech).

Live force fields. (embodied thoughts)

So I want to have dark matter, which is like a force field, but I want to have it kind of alive like an animal. I want, in particular, for the Unipuskers' flying saucers to be like this.

Dark matter is like wave function oscillations perpendicular to the space where the ordinary wave functions jounce.

What should I call these live dark matter entities, and what to call the live dark matter stuff they're made of?

The stuff might be kenner, flowall, flowage, subtleness, wilson, dar, craft. The entities might be walls and pockets, curved air. Let's call them kennies. One kenny, two kennies, and they're made of kenner.

Memory of Louisville, where guys would yell "Kenny Bone," to mean "Way out," or, if pronounced differently, "How stupid." I think it was a corruption of a cry from some rock song, "Skin and bone." We used to even say, "kenny" to mean "stupid, groovy." Pronounced, "kennah" actually. I shared this with my roommate Kenny Turan of course. But now, in *Frek*, kennies will be good.

Talking about this with Nick Herbert, he said, "Maybe dark matter is consciousness. And there's more of it in the universe than regular matter." In fact regular matter now is supposed to be only about 15% of what's there. Nick pointed out that kenner is the name of a toy company. That name's always kind of annoyed me like a bad place on my gum. Which means it's a good name to use.

How do you give some kenner a form to make it be a kenny? Like how does a Unipusker craftsman make a hundred kilograms (watts? joules? ergs?) of kenner become a kenny that you can use for a flying saucer?

You have to *convince* the kenner to act a certain way. Like a painter convinces some dried earth pigments and some oil to look like a 3D scene. It's not forcing so much as it is convincing. Talking into. A kenny crafter, or crafter for short. Would krafter be better? Naw, though I hate to pass up double K.

The Branelink

The branelink might as well look like an Einstein-Rosen bridge, that is, a sphere like a mirrored ball, but with a different world warped inside of it (rather than a reflection of ours). I well know how to describe this.

Suppose that the link is a kind of eddy floating in the air. Could have a 4D rotation churning the 3D ball over and over inside out. (Cf. a rubber ring lying on Flatland. By rotating the ring around its circular axis, like rolling a torus between your fingers, I turn inside to outside.) It floats, say, upon a jet of something like a ping-pong ball on a stream of air. The stuff it floats upon can be extracted from the liquid helium metal. Kenner gas.

Planck Temperature

I recently learned that there's something called the Planck temperature (named analogously to the Planck length of 10^{-35} meters at which space may become granular).

If you heat a region up to the Planck temperature, the geometry of spacetime melts!

The Ultimate Louvre

Maybe they visit a Unipusker museum which is, say a thousand times the size of the Louver. Imagine that you speed though it on a hoverdisk, and that you have time dilation while this happens, so that it seems to take a hundred years but is over in five minutes. The worst experience of Frek’s life.

Wham and Coherence

I’m seeing two separate qualities in the Planck brane, wham and coherence. Wham is what makes it more likely that you are still around after a renormalization storm, it is primarily a measure of your entanglement with other observers. Coherence is what makes you able to have more complex internal states.

Coherence	low (collapsed state, external entanglements)	high (mixed state, internal entanglements)
Wham		
low (small dim halo)	A couch potato, a media victim, no thoughts of their own, no family, a nobody who watches TV, a poll-answerer.	Nut, a ghostly exile, pinched off into own world.
high (big bright halo)	Politician who follows polls. Bush. Famous, but with no personality, no soul. Mariah Carey.	Successful artist. Known by all, true to self.

There are some subtleties. On the one hand being watched seems to decohere you, to drive you into collapsed states. On the other hand, being watched enhances your wham, but maybe only up to a point. Something can be watched yet forgettable, like an unsuccessful TV show. Being watched only helps your wham if you are “getting over” in the sense of causing the observers to “wave with you,” that is, to entangle with you and enter your own mixed state, as opposed to collapsing you.

I got a big inspiration from an article in the November, 2002, U. K. edition of Scientific American, “Rules for a Complex Quantum World,” by Michael Nielsen, this quote in particular, from p. 57, “...some physical systems might possess a type of natural noise tolerance. Those systems would in effect use quantum error correction without human intervention, and might show extraordinary inherent resilience against decoherence.” Instead of the unwieldy “quantum error correction,” I’m using “autopoiesis.”

Being coherent is independent of being lonely. You can be coherent and have a pal whose waving with you. You can be decoherent and just be a despised tool of the big boys, like a pathetic Republican voter.

I had a hard time thinking of the right word for wham. My sense of it is that it means that the Hilbert space is getting a new set of axes, and you have wham if you manage to end up being in an eigenstate for these new axes, most simply, it means you end up having a whole axis defined by yourself. You are, e.g. the most “Madonna-like” or most “Rucker-like” or “Kafkaesque” of individuals, as you happen to be Madonna, Rucker, or Kafka her/imself. Your coordinates are, in other words, those of a basis

vector, i. e. $\langle 0, \dots, 0, 1, 0, 0, 0, \dots \rangle$. Here are some of the words I tried out to express this.

Inertia, gravitas, wiredness, connectivity, volus, hypervee, spissitude, radius, degree, albedo, wattage, size, luster, hubbiness, clout, socialization, linkiness, nodality, turgidity, poomph, goog, fame, oomph, entanglement, eigenvalue, eigensize, orthonormality, whuffie, stability, robustness, swat, essence, pop, *wham*.

I'm still thinking about the relationship between wham and coherence.

Like, in the Luxemburg Gardens today I thought of Laura Bush, and felt diminished by it, and it seemed that in that instant Laura Bush was gaining wham at the cost of my coherence. A stupid celebrity who forces themselves into your consciousness makes you less yourself, less independent, and reduces your coherence. And they have more wham.

Another thought. The renormalization storms of the Planck brane are simply a sharpened up version of the cultural and social changes we undergo in our society. You may be adapted fine for the 60s, but come the 80s you may be unable to survive. If you have enough wham, then when things change (a) you will be able to change your surroundings enough to include a niche for you or (b) those who love / admire you will make sure there is food / shelter for you. Wham for us is money / status / employability / family.

This all seems so fresh and cool, I feel like at least lecturing on it to my Philosophy seminar at Leuven next week, and maybe even working it into an article / book *Surviving the Monoculture*. And then I can, however flip-flop to think it's all just a complicated way of saying, over and over, at boring old-man length, that I don't like TV. Like those New Yorker lead-off editorials that always start out with some far-fetched *recherché* thought, but then just turn out to be leading into saying "I hate Bush." Once again burning up coherence for the Pig's wham.

Another thought. Looking at a 150 million-year-old "siliconized" or fossilized piece of cypress wood in the Mineralogical Museum of the School of Mines in Paris today, December 7, 2002, I'm impressed this living thing's form has been around for such a very long time, and I wonder if this relates in anyway to the branch's coherence or wham.

Another thought. What of a computer program that passes the Turing test. Does it have wham? Coherence? Nick Herbert is right, though, computers and formal systems are bullshit, they have nothing whatsoever to do with being conscious. Looking at some smoke from a chimney, against the sky, not naming it, just seeing it, letting its motions move within my mind, I'm no different than a CAPOW screen of 2D CA with the touch mode cursor dragging across it. I am entangled with the smoke. I am coherent, but my coherence includes the smoke, I have joined the system, merged it into me. Like the old koan, Q: I see a flag is blowing in wind: is the flag moving or is the wind moving? A: My mind is moving. Finally I get it, a nice moment of *aha*.

Decoherence

Example: the subtle buffeting of the air molecules causes the mixed dead-alive state of Schrödinger's cat to collapse into one state. We say that the state decoheres, or that it experiences decoherence. It's basically the common-sense notion that for some reason QM horseshitters were blocking out all these years, viz., that any objects

interactions with the universe serve to “observe” the object and collapse its wave function.

There’s a catch that Leon told me about. What decoheres the universal wave function? That is, what collapses the ultimate reality into one time thread?

Searching for the word on the web, I noticed that the pompous Greg Egan used the concept in his latest deadly earnest “hard SF” book. So that makes me want to really drag decoherence into the gonzo freestyle mud.

Nick Herbert has mentioned that you have two mental states. (a) The continuous Wave Equation uncollapsed evolution; and this is the true seat of consciousness, the merge with the Cosmic One. (b) The collapsed consciousness, which is what you get when you have to come down and talk, or when the pollster taps your shoulder and importunes, or when there’s the knock on the door.

But note also that you decohere when you create a work of art. In fact I must distinguish between the “bad decoherence” imposed from without and the “good decoherence” created from within.

Good decoherence is the creative act. Indeed, you could say that creation = good decoherence. Imagining you’re a sensitive artist is coherent, you’re in a mixed state, too good to speak, but when you put yourself out and do something, you decohere in a good way.

Decohering is necessary for creation, as chaos isn’t really a mixture of a clean A + clean B. The statues aren’t really in the block of marble. They have to be created, collapsed out. Good or bad, decoherence is where the action is, at least our communicable understanding of “action.”

Return now to bad decoherence, and think about process (b) in a negative sense.. So if you are fully decohered, you have no sense of Self, no “inside” no identity, no soul. It’s like the state of walking in a Mall, only more so. The Mall is in every part of your being. In this state you’re completely open, by the way, to the Monoculture. In the positive sense of good coherence, when I write my novel, I am so into the novel that I am entirely in that known artificial world and not in my normal iffy ambiguous questionable mixed state.

The punishment that the branecasters mete out to Bumby/Ulla and that they threaten Frek’s posse with is decoherence. To become a thing, to be passively observed, with no mixed states, no ambiguity.

Here’s some relevant quotes from p. 51 of the “Rules for a Complex Quantum World” article I read on December 5, 2002, (full reference is in the “Wham and Coherence” section below.)

“... most systems lose their quantum nature as their size is increased ... because large quantum systems generally interact strongly with their environment, causing a process of decoherence, which destroys the system’s quantum properties.”

“... the key to seeing truly quantum behavior in a complex system is to isolate the system extremely well ... preventing decoherence and preserving fragile quantum states.”

“These phenomena [superconductivity, quantum Hall effect] demonstrate that the simple rules of quantum mechanics can give rise to emergent principles governing complex behaviors.” (à la Wolfram!)

The article talks about “entanglement qubits” as a conserved quantity. Suppose that decoherence means trading your internal entanglement off for external entanglement.

Losing your focus. Having someone talk to you while you're typing ideas into your computer!

Coherence is kind of a counterintuitive word for this concept, as it seems one might suppose coherent to have a meaning analogous to that intended when we say a laser is a coherent light source, in the sense that all the waves are in synch, all of a single frequency. But in the case of a coherent wave function, we are saying rather, that the system is *not* in a single collapsed state. On the other hand, I guess its coherent in the sense of being fully into whatever mixed state it's in.

I have been trying to think of a better word for coherence, but didn't yet come up with one I liked more. A difficulty is also that I want to have all four variations: coherent, decoherent, decohere, recohere. I considered these:

Idiosyncrasy, freedom, ambiguity, negative capability, self-activation, axis independence, richness, holism, integration, flicker, blend, patina, chiaroscuro, range, tonality, timbre, fractality, complexity, impasto, glaze, polyphony, individuality, polytonality, character, focus, gnarl.

Returning to the good decoherence, remember that it isn't after all, *only* the carking and swinking of external reality that collapses my mixed states. I do it to myself, e.g. by turning on my laptop and writing something. Writing one thing rather than another. I like doing it. But, in the end, when I'm done typing, I really have in fact put out some one specific string of symbols, accomplished my craft in one particular way of the many I might have chosen. So it is a kind of decoherence.

To create something is to decohere — up to a point. Yet, paradoxically, I feel most myself when I am creating, and I've been trying to argue here that being coherent is when I'm most myself. Well, if my creation is successful, then the work itself is somewhat mixed, it perhaps mirrors my coherent state, is coupled to me, and will be only collapsed in one sense or another by the reader's interpretation of it.

Words are in fact so slippery, so protean, so multivalued that I can write something that is in fact somewhat ambivalent. And isn't this a very essential kind of poetic fine writing, to capture many things within a word, phrase, scene, chapter, or book? Not that it isn't also particularly nice, at times, to completely and accurately nail a sensation or thought. But to really *nail* something is, in fact, to bring in exactly the mental overtones that the thing involves, thus in fact being multivalued.

What I disliked, recently, writing a review of Wm. Gibson's latest for *Wired*, was that the editrix had me rewrite the article five times, each time wanting it to conform more closely to her impression of what it was I was "saying." And this did carry with it very much a feeling of being decohered, of crushing my symphony of thought down to a single piccolo note. Good decoherence becomes bad decoherence as the record becomes less and less ambiguous.

[Right now I have to stop this as my thought train is being so continuously and systematically decohered by the blasting Xmas music through the floor from the apartment downstairs. Driven like a ripple tank with a vibrator in one side. Music is thought control. Especially Xmas music, which is the very *worst*.]

The Cosmic Wave Function

What if you just grew up to the size of the cosmos and stopped. Kind of bounced off the top just a bit, might grow back up, bounce, grow, be hanging out up there, like a

helium balloon against the ceiling, bobbling around.

So your wave function is overlapping the cosmic wave function, I'd suppose. You're coupled with everything.

I'd like a word for this. Waving out, merging, undulating, supercohering.

What decoheres the cosmic wave function, by the way? Or is it in a mixed state? I'd really rather not have it be mixed, as once you go to branching universes then nothing really matters. Some SF writer once said, "If everything is possible, then nothing is interesting."

I'm imagining there being some other beings up there; my initial sense of one of them is as a big friendly bear. (A great, shambling, Lincoln-Log of a man — not.)

Maybe the big thing the size of the universe is, duh, God. That might be nice. Not that I want to deal with Jehovah, Thor, or even Buddha. The One or the White Light, is more my speed. How about the God of AA? The Higher Power. The Do-Right Nexus.

Or, double duh, have them be *angels*. Like the angels in Pullman's *The Golden Compass* trilogy.

Maybe the big thing the size of the universe is in charge of the decohering. Let's backtrack a second. When a classical system like a Schrödinger Kat arises, it in fact decoheres into an eigenstate because of its interaction with some larger system S1. You might say, as Everett has, "Why can't I say that Kat + S1 is in a mixed state, instead of insisting that I end up in KatDead + S1 or KatLive + S1?" Well, then you might in turn say that S1 is part of a larger system S2, etc. And you regress up to the Sn = Kosmos. And the buck has to stop there. The Kosmos either collapses itself or it doesn't.

The Koinos Kosmos dies that we may live. It creates us! Like the novelist who decoheres him/erself to give life to his/er characters. The cosmos decoheres itself, but it's generous enough to contain recohering autopoietic systems such as me, to write a poem and kill a tree. "You think you're smarter than the Brothers, Bungler? Writin' about your antics with the Elks?"

What if the Kosmos doesn't decohere, what if it stays mixed? We don't necessarily have a branching universe then. We might simply have a fuzzy universe, no? It might be more fuzzy at certain spacetimes, more collapsed at others. Like my mind, no?

How about an image of lumps of mixed state connected by networks of collapsed state or, equivalently, a big lump of mixed state with hollowed-out network-filled regions. What if Frek hits a fuzzy patch? Consider here Bruce Sterling's pragmatist response to my images: "how about an image of rocks and suns floating in mostly empty space"?

Cosmos, is it self-decohering? Self-observing. John Archibald Wheeler's classic graphic of a big capital U with one end of it a Philip Guston eyeball staring at the other end.

"Remember me, Lord."

God Knows All.

Primordial ---> Chaos Fiat Lux (Quantum Collapse) ---> The World.

Creating the world every instant, is like the One/Many rhythm I talk about in *Infinity and the Mind*.

Selfish emotion = desire for external result = attachment = measurement =

decoherence.

Altruistic emotion = rapprochement with other systems = mixed state = coherence.

How about the angels as eigenstates of the One Mind.

Circular Scale Revisited

The eternal upward yunch is racing around and around the size scale, “it wraps just like the Planck brane, in a way,” I like that the best, I think, though when they got small before they fell into the Planck brane, so why doesn’t that happen again? Well, let’s say they’d have enough momentum to go past the spontaneous-tunneling-into-the-Planck-brane phase. They’d sense the nearness of the danger, but Frek’s mighty mind powers would hold them back, girdle in their wobbly guts, prevent the extradimensional squirt.

I know I wrote about circular scale in my first novel *Spacetime Donuts* I wrote like in 1976, that’s 26 years ago, by God, but hell, nobody read that and it’s been out of print for like twenty years. And even if it were to come back into print, it’s cool to reuse a really great idea.

But, you know, I think I’ve got enough ball in the air by now, and maybe better not ring in this new change. Instead consider the next option.

Jewels

A peapod containing pearls, diamonds, and/or other jewels. Present for Lora?

Turkle

At first I was thinking of a camera, then it seemed nicer to have something more like a digitizing pad connected to a paint program. A snapper? It’s not a machine not a camera, it’s — what? A thing like a leather-back turtle, it remembers all your drawings, and you can edit the colors, also drag shapes. You can talk to it, and scratch on it with a stylus or with a sharpened fingernail. Shows the images on its back.

Call it a turkle. I’ve always liked that word ever since “Mr. Turkle” in *One Flew Over the Cuckoo’s Nest*. It’ll just be a nice change to ring on turtle, with no portmanteau art meaning folded into the “k” that I can see.

Mention Deanna the toonsmith and Renata using a turkle. I want Renata to be very skilled at drawing, sketching on her turkle.

Shape Knitting

Little living donuts that link together like chain mail. They are microscopic, and sensitive to an uvvy beam. You think at them to make a sculpture.

Staving off Colonization.

A big issue is that, once we contact all these alien races, some of them, such as the Radiolarians, will want to come and directly colonize us. How are we to survive as a culture? There seem to be two options: hide or resist. I think the second option works better.

Hide.

In order for us to be hidden we’d need to arrange it so info is somehow filtered out of the branecast by the branecasters to protect their franchise. Every view of, e.g. the night sky is automatically wiped. Or any image of the galactic map. It would be like

how on TV interviews of abused wives, say, they have pixelized faces or appear in silhouette. Even with this precaution, the hiding option would also require doing something about the individual aliens who've been to Earth. These would include : (a) Hawb, Cawmb and Evawrt — we could have Whaler and Tusky kill them when they rescue Frek from the Unipuskers and the Radiolarians, (b) Ulla and Bumby, who seemingly have been killed off by the branecasters, and (c) Ulla and Bumby's children Vlans and Tagine who brought Renata, Yessica, and Woo back to Middleville.

Resist.

Hiding seems like a kludge, and isn't a final solution. Things never actually work this way. Once the navigators, traders, and whalers on Earth discovered a tropical island, they always kept coming back, even if they lost track of it for a few years. They knew roughly where it was, and they kept finding it again. The cultures that survived were hard-asses with great belief in themselves. Like the Chinese (remember that in the Chinese language, "human" means "Chinese person.") The monoculture continues storming China, but it never wins, look at Hong Kong for instance. Hong Kong exports their fighting movies, and one might even say that the monoculture unwittingly has many of their icons determined by the Hong Kong plastics jobbers, creating the disposable kitsch of U. S. culture.

Earth Resists the Aliens.

We'll make Earth powerful enough to keep its integrity. Let's suppose that nobody else has toons, Earth is the toonsmith for the cosmos. Like California being the movie and software capital. All though the Midwest, they were trying to be like Back East. But California successfully resisted the Back East model. Gave them some blowback.

Alien Cultures

Competing Forces

I think it would be good to have two (or more) competing groups of aliens. Some aspect of Earth's fate is very important to them. And what Frek and Renata do will affect how it plays out.

Initially it might be expected that one faction is all good and the other is all bad, as in *Lord of the Rings*. As in Axis vs. Allies. But maybe I'd rather not have it be so simplistic? My uncles were in the German army, and they weren't evil. George Bush both means well and is a tool for planetary destruction. Have them simply have different approaches, as in Sterling's Mechs and Shapers. What might the difference between them be? Would work nicely if it echoed with the Art/Biz split.

I need working names for the factions. Bumby is aligned with the good guys the Art guys, the freedom guys, the let-a-thousand-species-bloom guys, and the others are the Biz guys, the monoculturists. Better to have nonsense words that sound like this, though.

Names for the Good Guys

Art. Suns. Growers. Messies. Randomizers. Aleators. Tenders. Vriller. Goose Gossage. Tendrils. Fuzzies of the Fuzz. Slime. Goo. Magian. Subvortices. Bloom. Opener. Berals. Lilifzz. Nurture. PolyloP. Polypolists. The People. The Polypoly and the Polypolists. Polyall and Polyallers. Lorenzians. Prolegomena.

Peopoly. Polgron and Polgronites. Sowers. Oomp and the Oompies. Vrille and the Vrillers. Allfun and the Allfunners. Orphola and the Orpholics. Orpoly and the Orpols. Orpolesians. I like Orphol, but it sounds like “awful” in an *ugh* Cockney accent. Omphalos. Orpoly is good as it has OR + POLY. Is a member of this group: Orpol, Orpolean, Orpolic, Orpolesian, Orpolese, Orpoli.

Names for the Bad Guys

Biz. Bizzers. Linkers. Blessed Virgin Mary in Leather is the leader. Krull. Grombers. Ablative. Repuks. Cheneyspore. Agazi. Measure up. One way. Singletery. Singletons. Pinner. Starbucks. Purists. Monomony. Unipusk and the Unipuskers. Unnipusk and the Unnipuskers. Pusk and the Puskers. Puskon and the Puskonics.

The Upshot

So all right, Bumby is Orpolese, and when they’re yunching to Orpoly, the ship is crashed near Unipusk by the nasty Unipuskers.

Unipusk

What’s it like on Unipusk? I’ve got to build the whole damn world.

The Unipuskers are greedy pigs, they have oversized attack animals and they drive vehicles as oversized as SUVs and then some. It’s like Wonder Warthog’s home world. I’ll make them look like the Bandai toys model of Ultramonster #6 I’ve had sitting on my desk for the last year or so. They’re turd-colored, with an iridescent sheen. Turd creatures, but with big flat clamshell heads, appropriate as you find clams in mud anyway.

Think of some Amerikkkan Monokkkulture things to satirize. Traffic, chain stores, overconsumption, jingoism, sports, middlebrow values, nationalistic re-lie-gion, war over oil, anti-intellectualism, noise pollution, drugs, porno.

One plant, vreel, like the French “vrille” for tendril. Vreel is like Algerian ivy. It has a pulpy watery yellow fruit. You make rope of its vines.

No, better, the plant is like the horsetails I saw in Big Basin today. A central stalk with snap-on pieces sticking straight out. A little like bottlebrush. Like the SONY building in Hollywood, like a stack of record, like a rack. Rickrack.

One animal. You can eat it, use it for drayage, train it as a pet. Name like pig or like Phil Dick’s wonderful “wub.” Maybe I’ll just use wub. I love that name. I have to find his story, “The Taste of Wub,” (correct title?) and try and match the description. I know he mentions wubs in some other books or stories. But, really, I’d do better to make up my own name. Pig, dog, wub, vig. Call them vigs. They’re vigorous, noisy. “Vheenk, vheenk!”

Vigs and rickrack.

I’m seeing them as not all bad, also kind of pathetic, turning everything to ugly shit due to ignorance and overpopulation.

The reproduce by pinching off buds from their tails. Like the way moon jellies have a polyp that anchors on a rock and pinches off new moon jellies. Their tail is a series of baby Unipuskers layered on top of each other.

Although the process appears asexual, they do have some gene-mixing by a

process that we perhaps leave unspecified. I'd considered having them mush the pinched off loaf babies together, and say, "We blend loaves," but that's too revolting. They do some sex thing, which nobody cares to discuss in detail, thank goodness, but they cleanly pinch off the babies from the tail. Possibly there is some modesty about the tail, perhaps it is garbed.

Perhaps they have a drug for evoking the budding response, and force bud off Frek for Renata to take with her. When Frek gets back to earth, the Freklet has grown, but it is weak and sick and dies on its own without him having to face the thorny issue of whether to kill it.

I don't suppose they have machines. Machines are a temporary crude stage, akin to stone axes. Everyone moves on to biotech, nanotech, maybe femtotech. But I don't think I should use femtotech again in this book. Maybe have things made of dark matter instead.

The Unipuskers need a big influx of mass energy to keep their stuff running, if they don't feed the dark matter, it stops being smart and turns into like dust. Thus the transport tube to Yauche. The other transport tubes go to colonies, I suppose.

The planet is practically encrusted with stuff. Huge rickrack trees, with cell after cell snapping on to accommodate the pullulating new population. Each gets his flickerball and his live dark matter equipage.

The boring monocultured Unipuskers, what do they want? They want something new, that's what monoculture craves. But yet, it homogenizes and flattens each new thing immediately, co-opts it instantly into boring shit. How is it that something interesting gets flattened? Massive copying, with the details not quite right. They love to esp brane to find new stuff, each new thing is instantly a fad, instantly dull. A free plastic MacDonald's cup rotogravured to look like the Holy Grail. Sour disappointed face of a Unipusker looking at the cup.

The homogenization somehow washes back into the world they copy from. So there will be a deleterious effect on Earth. Perhaps they impose certain Guidelines. Safety Regulations. Voluntary Code.

Kenny crafters are desirable people, also flickerball guides.

Discussing reproduction. Turns out the Unipusker DNA is 2D. The Unipuskers are hermaphroditic, but they're a couple. All Unipuskers are "he." They reproduce something like how moon jellyfish do, they bud off scions from their tails. They do some sexual gene exchange as well, but that's too disgusting to talk about, at least for now. The tails are kept covered demurely.

Perhaps it turns out the Unipuskers plan to keep the humans like the bears in Bern in the Bärengraben (Bear Pit), as mascots. They would want to have, stands to reason, a cage of actual physical mascots of each of their branecast creatures. Maybe Hawb and Cawmb run a little zoo as a kind of side line. They have the lizards, maybe even a gout of lava, a cloud. Maybe this is too distracting to bring in. Or at most it should be kind of a throwaway. Or maybe Yessica finds out about this detail and it flips her allegiance.

They always talk in the imperative, every single sentence.

Orpoly

They're like salamanders that live in fire, in the Sun.

Re the talent races they're like kids who knock down sandcastles. Like

Hollywood producers who love to blow up their sets. Connards, imbeciles.

They do a kind of Neal Cassady jive-talk. A little like the Wackles in *Spaceland*. But also a bit professorial. Like the moldie Everooze in *Freeware*, too.

The Branecasters and the Planck Brane

I see this as like a toon world.

The branecasters should perhaps be of a more archetypal nature. Like Greed, Sloth, Avarice, Famine, Poverty, Panic, War, Pestilence.

They speak bureaucratese, gobbledygook, like Pentagon officials.

Sid. Heavy-lidded eyes and sarcastic, bullying mouth. He was bald, with orange highlights along his thick, twisting lips. Drops of spit flew from his mouth. e wore an old-fashioned black suit with a white shirt and a gray tie. He was sporting a massive gold watch.

Cecily (daughter of the Magic Pig). Coarse, piggish face, rich in pinks and purples. Sid's wife Cecily, dressed in a frilly white blouse and a gray cashmere suit. Chunky pink-jowled Cecily with her gravelly voice. She was wearing a gray suit as before, livened up by a heavy gold necklace. Her ears were in fact triangular flaps,

Batty. Twitchy and scrunched-up, asymmetric, with a lunatic's glittering eyes. But like the other two men, he wore a white shirt, a black suit and a gray necktie. Knobby, purplish hands.

Bitty (Batty's mate). Gollywog high-pitched voice, wild-eyed thin woman dressed in a rumpled red suit. She had a hot red spot on each cheek. Her mouth sparkled, for she had a gold tooth and a massive gold stud in her tongue.

Chainey (modeled on vice-President Dick Cheney). Bald and pudgy, with old-fashioned spectacles, a tight necktie and a tiny straight mouth like a slot, his golden aura tight and perfectly round. Cunning, humorless businessman with a bag of bills instead of a heart. His skin was all in shades of gray

Jayne (the "politician wife" of Chainey). Thin-lipped woman, strict and cold, her skin modeled as smoothly as plastic, peach-colored and glossy. Wears a powder blue suit, massive gold hoops in her ears.

The Radiolarians

"Radiolarian" is an H. P. Lovecraft word for the Great Old Ones, as in "At the Mountains of Madness." By this I mean a member of Phylum Echinodermata (spiny skins). Some of the classes are: Sea urchin, sea cucumber, starfish or seastars, brittle stars, feather stars.

They all have pentagonal symmetry. Satan! Tube feet. Endoskeleton of crystalline plates (ossicles), widely separated on sea cucumbers. Spines and pincers on outer surface. Sea cukes have ten elaborate sticky tentacles.

A sea feather is a sea lily. Their mouths face up, not down like the stars and brittle stars.

I can give them fractal stretchy legs, and multiple fans. I saw a really remarkable red and blue striped sea cucumber with Isabel in a Clement Street aquarium shop this week. With yellow fractal branches on it.

A nudibranch is also an interesting animal, but a nudibranch is a sea slug of the phylum Mollusca.

I'll give them Egyptian names in honor of the traveling British Museum show of

“Eternal Egypt” that Isabel and I saw in SF this week.

What do the Radiolarians want?

I think it would be dull to have them simply be branecast producers like the Unipuskers. They want to exploit humanity in some other kind of way. They want to wire tentacles physically to each person on earth, fix us up like lights on a Christmas tree.

They speak every sentence in the progressive:

Past progressive: we were walking

Past perfect progressive: we had been walking

Present progressive: we are walking

Present perfect progressive: we have been walking

Future progressive: we will be walking

Future perfect progressive: we will have been walking

Bobblies on Yauche

These are creatures that are actually weather patterns. Like the Great Red Spot. But they have intelligence and act in real time. This is a preparation for the revelation that the Orpolese are living vortex tubes; sunspots, in short.

The Orpolese are allied with the bobblies, which makes sense as they are “weather-based” creatures.

The Monomyth

Campbell’s Monomyth

Here are some notes on the different stages of the “Monomyth” as outlined in Joseph Campbell’s *The Hero with a Thousand Faces* (Bollingen Foundation, 1949.) I’ll also add notes on how I might use these elements in an SF novel.

Overall Arc

Hero goes to a special place, is transformed, gets something magical, brings it back.

Hero goes to the galactic core, encounters many aliens, comes back bringing freedom from space and time or knowledge of the dream state.

Departure

1. The Call to Adventure

Herald, sign. Goal is a higher world or a special spot in the universe

2. Refusal of the Call.

Let the hero’s companion or brother be the one to refuse.

3. The Helper.

The little dwarf or magic animal of fairy tales. Gives the hero a magic tool like a cloak or an amulet.

I keep seeing the helper being Neal Cassady as a cuttlefish.

4. Crossing the Threshold.

A spooky enemy. A peyote freak-out. A woman whose knees bend the wrong

way.

5. *The Belly of the Whale.*

Meet a woman in the whale who is the whale's soul.

Convert yourself into radiation to travel. The "belly" is the state of being in the chiming nospace notime.

Initiation

6. *The Road of Trials.*

A series of trials, in which you are aided by tips from your helper or helpers. I remember an SF story where a guy had to face his own fears become physical. A hydra-headed monster.

N-space? No, too dull, and we used that for the Whale. Think more in terms of a series of trials. The traditional fairy-tale number of trials is of course three.

7. *The Goddess [The Bridegroom]*

The Goddess: The nurturing mother, viewed at a higher plane than sexuality. I have the mental image of a mother I saw with her baby alone on the beach at Lover's Cover in Pacific Grove near Monterey. "Just Mommy and Me." Possibly goddess appears as an ugly woman whom you kiss to deliver and make beautiful. The two mother aspects are united, the nurturer and the sex partner. The Wife.

[For a heroine, this is the caring, but distant, father brought close. The ideal suitor.]

8. *The Temptress [The Tyrant]*

Coupled with or based on or evoking a disgust with the flesh. The punishing, ignoring, sexually active mother. The wife when you're tired of her and she's tired of you? The Millstone, the Termagant, the Virago, the Quagmire. Demanding, hysterical bitch.

Being around the Temptress and her bad scenes makes a fella want to transcend already, and be pure info.

[For a heroine, this is the Rapist or Pimp, the one who exploits sex against its natural purpose of love and procreation.]

9. *Atonement with the Father. [Atonement with the Mother.]*

May appear as a beggar. An ogre as in *Jack and the Beanstalk*. True success is peace with father, not his murder. You get power.

10. *Apotheosis.*

Eternity=time. Love and forgiveness, peace to all. God is present in everything. Bodhisattva=Mother + Father; Androgyny.

The Buddhist Bodhisattva Avalokiteshyara, "Om mane padme hum" means "The jewel is in the lotus." Jewel/lotus is analogous God/World or Word/Flesh, as in "The World was made Flesh." (I'm not crazy about the "jewel/lotus" analogy, as it seems like a materialistic grasping merchant-like attitude, really, to think of a mere dead mineral jewel as more valuable than a living lotus.)

Campbell say Bodhisattva look like this: "He wears a garland of eight thousand

rays, in which is seen fully reflected a state of perfect beauty. The color of his body is purple gold. His palms have the mixed color of five hundred lotuses, while each finger tip has 84,000 signet marks, and each mark 84,000 colors; each color has 84,000 rays which are soft and mild and shine over all things that exist. With these jewel hands he draws and embraces all beings. The halo surrounding his head is studded with five hundred Buddhas, miraculously transformed, each attended by 500 Bodhisattvas, who are attended in turn by numberless gods. And when he puts his feet down to the ground, the flowers of diamonds and jewels that are scattered cover everything in all directions. The color of his face is gold. While in his towering crown of gems stand a Buddha, two 250 miles high.”

God, this is good acid...

But, naw, I want to do this without drugs. Frek sees a sun that looks like the Bodhisattva. It's woven of vortex rings. It's when he peaks on his enlightenment. And then he goes into the mouth of the thing, and that's the link to the Planck brane.

What's up with the Mother = Father thing? Campbell says we have the good mother, and the father seems evil because he invades, the father is one's first enemy, the paradigm of all enemies to come. But in a happy family, the father has good content too, he's the nurturing motherly father. In enlightenment, we expand the nurturing father notion and drive out the enemy father idea. So that we want to nurture our enemies. Expand this notion of father. See Father as a fellow human. This becomes possible after the Meeting with the Goddess (a girl other than Mom) and the Atonement with the Father (Dad is your friend). You're ready to be a nurturing father.

A second thing Campbell stresses is getting rid of desire. Frek loses (at least for a time) the ambitious desire to save the world. He's *there*. Later he'll be back on the quest, but for now there's nothing beyond the now moment

Form is emptiness, emptiness is form. This is the secret of kenner. Matter is a mode of nothingness. Saying it's curved space doesn't go far enough, you have to see that the constituent curved space is itself nothing but thought. Thoughts thinking themselves. Eternity in the now moment.

After this apotheosis, Frek will choose to go on and save the world. A compassionate act.

The sound of bell is the sound of eternity throughout creation.

11. The Boon. [The Miraculous Birth.]

A trophy, a magic wand, magic spell, a souvenir. The theft of fire from the gods. Hero pushes further than the power granted by the Father in #9, and now there's trouble.

I'm thinking of some kind of key to roll back the forces of the Mall / Amerikkka, Inc. / Spam / Conglomerate. "Mentation."

Return

12a. Refusal of the Return.

Refusal: Hero might meet a guy who's stuck up in "heaven," like a lotus-eater, like Jeremy Threakman in my "Pockets" story with Shirley. Maybe it's Frek's father.

12b. The Flight.

Flight: Possibly with the help of the gods, but more commonly with them chasing

you. Jack from the Beanstalk.

13a. Rescue from Without.

The world comes to get you, to bring you back.

Perhaps the rescuer is some kind of commercial Mall-force sponsor, who's expecting to co-opt the hero.

13b. Crossing the Return Threshold.

At first it's hard to be back. Rip van Winkle. A man unable to get back down off his horse. A Square speaking of Flatland as "that dull, level wilderness."

Perhaps the hero is antimatter and can't touch anything, has to get his subdimensions flipped before he's able to touch things. Perhaps hundreds of years have passed.

The Mall is still winning when he (or she) returns.

14. Master of Two Worlds.

The Higher Kingdom is a hidden aspect of our world. Hero has ongoing lasting access to the Beyond. The two as one. The hero presents an elixir which heals and restores the world.

4D. Dreamscape. Fractal subdimensions. Parallel world. Psychic world.

The Hero frees humanity — for now...

15. Freedom to Live.

Perhaps the hero becomes an anonymous wanderer. His work continues. Life goes on. A glimmering of a whole new cycle to begin further on.

The Monomyth in my Novels

(This table still needs a lot of work, but for now I don't have the time.)

	White Light	Software	Sex Sphere	Master	Secret	Wetware	Hollow	Freeware	Saucer	Realware	Bruegel	Spaceland	Frek	
Call.	Pamphlet	2nd Cobb	Pimp	Little Harrys	Flying Wing	Yukawa	Trip to Town	Randy	Frank	Wowo	Bosch in Attic	Momo's Fingers		Call.
Refusal.	X	Mooney cop					X		R tries to back out.			X		Refus
Helper.	Franx	Ralph Numbers					Arf, Eddie					Wackle		Helpe
Threshold.	Graveyard						Ice Cap					3D/4D		Thres
Whale.	FTL Trip	Cobb between bodies					Bateau			Om		Kangy the Cuttlefish		Whale
Trials.	Climb, God Squad						Ballula, Fall							Trials
Goddess.	Kathy						Seela				Mayken	Empress?		Godd
Temptress.	Cantor's Wife Ellie						Virginia Clemm				Katje	Jena with Spazz		Whor
Father.	Cantor						King of the Umpteen Se			Kurt Gottner	Count Hoorne	Stool		Fathe
Heaven.	White Light						Tekelili					Drabk's Vine		Heave
Boon.	Bloogs						X					Patch to fix Space.		Boon.
Stay?	Franx						Otha					X		Stay?
Flight.	X						Saucer					Trip thru Flatland		Flight
Rescue.	April on Halloween						Ship			Yoke Recorporate		SHOULD ADD ONE!		Rescu
Threshold.	Comin' Down						Black/White							Thres
2 Worlds.	Possession by Kathy						2 Eddies					Jail talk with Empre		2 Wor
Life.	Go to Los Alamos!						Go to California!					Sedona		Life.
#Heroes/P.O.V.	1 / 1st	3 / 3rd	2 / 3rd	1 / 1st	1 / 3rd	5 / 3rd	1 / 1st	5 / 3rd	2 / 1st	4 / 3rd	2 / 3rd	1 / 1st		#Hero P.O.V.

	White Light	Software	Sex Sphere	Master	Secret	Wetware	Hollow	Freeware	Saucer	Realware	Bruegel	Spaceland	Monomyth
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Choosing the Monomyth Hero

A Boy

Should I use a boy like in Heinlein's *Starman Jones*. Or a somewhat burnt-out adult like in Fellini's *8 1/2*. Or a young man like in *On the Road*.

Maybe the boy has the best demographics sales-wise? And I've never done a real boy book. I've been working on a short story called "Freddy's Fractal," about a boy with a messy room, and he finds a fractal under his bed, a three-dimensional Mandelbrot set, and I think it's gonna be a UFO. Maybe I could use that material as a start. "Freddy" as in the Freddy the Pig novels I loved as a boy. One problem here is that I don't quite see a boy as being capable of all the stages of the Campbellian Monomyth in full richness, e.g. the Goddess and the Temptress. Atonement with the Father is okay. (For an adult, by the way, the true problem one has with one's Father arises after the old man is dead and you in fact have to seek him out in the Underworld. Hi, Pop!)

I remember a book I read in Louisville about a boy whose dog dies and he goes on an adventure to I think Sirius the dog star to find his dog. It was an amazing book. There were some bad guys in there who wanted to play a "pornograph" and I asked Mom what that might be and she was like "What *is* this book?" I think the book had a bittersweet ending.

Thinking of how richly John Shirley portrayed the boy's experience in our "Pockets" story, well, maybe I could do a boy. On the other hand, think of *Panda Ray*, a nice enough SF book by a smart guy about a kid, and I don't think it sold too well. But that's true for every type of book, some do well, some don't.

I think I am going to go for a boy, I've never really written a 12-year-old before, though I do feel a bit lame to be writing a children's book at my age. Shouldn't I more properly be writing about geezers? Well, I can do that another time.

A Man

The burnt-out writer trying to think of a new book idea — that would be the *8 1/2* route. (Oh yes, Ru, you're so burnt out and tough and ravaged.) Except its Y3K, so he's not exactly a writer in the old sense. I see an Empty Nester, use him as the hero? But is there any market for SF about old people? I kind of doubt it.

In the meta sense, certainly the quest I'm on is to find a successful commercial novel. Write about a journalist?

On the down side, a Man is normally stuck with a Wife. And I don't feeling like writing about a Wife again, I just did that in *Spaceland*. Maybe my Man could be a widow? Or a divorcee.

A Youth

The vibrant youth of *On the Road* seems good, though I've written about this age a fair amount already, e.g. Felix in *White Light* and Stahn in *Software*.

Could I make him a teenager, say 17? I think that was Mason's age in *Hollow Earth*? Maybe I can start with a 12-year-old and have him be 17 later on. Either do a jump-cut or age him in like the thorium mines.

A Woman

And, hey, what about the Monomyth for a heroine? Campbell doesn't really work this out. Certainly the two myths overlap, but you would at least have to change the "Nursery Triangle" stages from these:

Goddess

Temptress

Atonement with the Father

to something like these:

Divine Bridegroom (Prince Charming)

Seducer Shows True Colors: Bully, Abuser, Bluebeard

Atonement with the Mother

And maybe there are other changes. To figure it out, one would have to look carefully at a bunch of myths about heroines. Persephone comes to mind, with her task of separating millet from sand and the ants who help her. Women and ants just go together, somehow. Maybe a spider helps Persephone as well.

And what about Virgin Mary, I've always wanted to do something about how the Virgin of Guadalupe is depicted as having a yellow fractal around here, practically a Mandelbrot Set. In the story of the Virgin Mary, the big deal is having that divine son. Is there anything like that in the Myth of the Hero? Maybe equate the Divine Son with the Ultimate Boon?

One gain in having a Woman instead of a Man is that then I definitely don't have a Wife. Though maybe I do end up with a Husband, and then the Married Couple, which, again, I don't want to do this time. Well, as I said about the Man, we could have a Woman who is a widow or, a divorcee.

A Couple

The Monomyth seems *not* to be a love story. It's about one individual. As such, maybe this is a bit childish, a bit stunted. Maybe a more mature kind of story structure would be about a couple. But can you really ever talk about two people's feelings? In *Realware* I tried to do this by interleaving Phil's Monomyth with Yoke's Monomyth. The book is selling bupkus, so maybe this isn't a route worth trying right away again. I just don't want to write about a couple, I live that every day, and I'd like my book to be an escape for me.

Email from Friends

Why Branecast?, Email from Nathaniel Hellerstein, May 30, 2002

[This is quoted from his email, we were discussing having aliens watch us via branecast.]

I was wondering what interest we would have for the slime lobsters of Zeta Reticuli, even as entertainment, so I went and asked them myself. They told me that they value our alien perspective, our quaint weird local way of thinking of things. For instance, the lobsters only recently learned about the wheel, from us. All this time the wheel had simply never occurred to them. They had to invent femtotech antigravity before they had a decent cart; and now those antigravity carts have been made obsolete by the wheelbarrow!

But we humans shouldn't be smug; for we too missed a few obvious ones. The lobsters told me that they missed the wheel, but they did get the flikkit. And what's a flikkit? Apparently some mechanical principle as basic as the lever or the inclined plane ... or the wheel. I pressed the lobsters for details, and they told me that you can use a flikkit to pick stuff off the floor without bending over. (I suspect that this was a translation into human terms of the uses of the flikkit. Lobsters are already on the floor.) They also claim that they took to heart "the obvious political metaphor implicit in the flikkit" and thus created a planetary society without war or tyranny.

This all seemed very unclear to me, but the lobsters assured me that if I took just one look at just one flikkit, then I'd understand right away.

They also assured me that missing the obvious (while seeing the unobvious) is characteristic of rule-30 species such as ourselves.

Marc Laidlaw email March 10, 2003, criticizing an early draft of Chapter 1.

Wren's first comment when I stopped was, "There's not much talking in it, is there?"

I have come to realize that dialog is crucial in a lot of kids' books--anyway, it is for Wren. It's partly amplified when it's read aloud--conversations are just really fun to read and help break up purely descriptive writing. Dialog really helps the kids "get" the characters. Rowan and I have been reading an old English novel, *THE LITTLE WHITE HORSE*, which she's convinced has a lot of dialog even though what I mainly remember are the beautifully written descriptive passages. I think even though there's not a lot of dialog in the English novel in the opening, much of the main character's thoughts are given to us so naturally that they feel/sound like speech...her mental speech. But Rowan's right, there is a fair bit of exchange between the girl and her governess in the opening couple pages.

Also, there is a huge amount of backstory dumped into the first few pages--all the stuff about Frek's father, coming before we know or care anything about Frek himself. 13 pages in, we know far more about an offstage character than we do about our protagonist. What went really well in the reading last night was the stuff where Frek's sisters were talking back to their mother, making funny voices, all that. I think having engaging characters talking to each other would help ground kids in your weird distant future by immediately imparting the flavor of the kids who live there. I can tell Wren and Rowan are already identifying with Frek's sisters, so that's another reason they picked up on that part.

They like the suckapillar--that's just exactly the stuff they love. They put up with the bizarre slang, I think, in hopes of getting more concrete living weird critters...the tree house and the bioengineered life, all that stuff is going to be really cool for them.

You might take a look at Carl Hiaasen's *HOOT* which came out recently. Hiaasen is a comical crime writer who just did his first book for kids. It has all his hallmarks, but the main characters are mostly young teenagers. He does just the right amount of backstory in the first chapter--the kid is dislocated, moves around all the time, is being bullied on the bus--and quickly introduces the strange new thing that starts the boy's adventure in the very first scene. The girls certainly relate to being told to clean their rooms, but I think they're still waiting for the one-liner that tells them what sort of adventure Frek is going to have. I would put that in the first sentence, if you could.

So, if you're looking at revisions, making your opening more immediately accessible would have a pretty high pay-off. I can see Wren putting this down after a couple pages if I weren't reading it to her, and never getting into the real story. I'd say shift some of the runaway Dad stuff--keep the essence, but save the details for later. And layer in more actual dialog to break it up. Actually having Frek argue with his sisters over who controls the wallskin would be more entertaining than having him think about the whole power struggle. Right now there's a lot more exposition through thinking and telling, than through showing.

One more thought about expository lumps/showing v. telling.

All the toonsmith stuff feels like you're working it out on paper for the first time, preparatory to actually using it in the novel. This feels really unnecessary in the first scene--a whiff of what the toons are would be more than enough. I can tell that we're going to get lots and lots of hands-on experience with toons, through Frek, once he gets to his friend's house, and gets going on his adventure. That'll be fine. I'd cut a lot of the non-interactive stuff. Cleaning up the leaves is ok, but the whole history/explanation of toons and Mavvy Paul and all that...work it in later, when he's actually dealing with them more directly.

Another s. f. series that Wren loved was Mark Crilley's books about this girl named Akiko. You should browse through them next time you're in the kid section of a bookstore. There are five or six of them by now. Crilley is a cartoonist who turned his graphic novels into actual novels...they're full of weird creatures and spunky kids, really appealing.

Marc Laidlaw later emails, praising the book.

After all that advice on Chapter One, I asked Mark to lighten up, and he started sending some really nice praise.

[March 17, 2003] We're farther into FREK. Rowan dropped out; it's a bit over her head (7). Wren still likes it, and there's a lot more dialog, and it's much weirder now. I really respect the way you have made it completely weird and not compromised your vision of the future to make it "more accessible." It's very Lewis Carroll...the freaky stuff is just taken for granted. This will be quite the kid's book when it's published.

[April 20, 2003. From a note he wrote for the Readercon con book]

And, a treat in store for all of you, his forthcoming "children's" novel, *Frek and the Elixir*, which I am currently reading aloud to my oldest daughter, in a state of unfolding astonishment. From my daughter's point of view, it's like being a 10 year old having *Alice in Wonderland* read to you from the original manuscript by one of Lewis Carroll's friends...how do you wrap your mind around that? Do you critically suspect that you are one of the first witnesses of a significant and possibly future-classic from a freakish fabulist? No.... You wisely fall in love with the Grullo Jeroon and the mortarboard wearing cuttlefish Professor Bumby, even though a large number of things in the story couldn't possibly make any sense to you just yet. You laugh and gasp and enjoy the ride.

[May 1, 2003. Response to an emailed copy of my journal note "*April 30, 2003. More Kvetching, But I Sell to Tor*"]

Susan Protter's probably right about Tor in the sense that, well, bird in the hand,

right? Just get it out there. The book is like a hallucination for kids. It's wonderfully subversive. I can't believe the stuff you've got crammed in here...we're only around the quarter mark and it just keeps coming. I envy the kid who encounters this book and has the top of his skull blown off by it.

[May 20, 2003. After reading the first third]

It's truly spectacular and cosmic.

[June 16, 2003.]

We read more Frek tonight, by the way, and had a hilarious time reading the list of things Frek and Renata talked about while they were on the way to Unipusk. I loved that bit. I love all the stuff with the Unipuskers so far...the way they talk and bitch at each other. I love all the insights into alien relationships in the book; it's a constant thread, parents and their offspring. I think that's really unusual and important and helps make the book great.

Cory Doctorow email, May 19, 2003. Blurb and Suggestions.

[Around May 15, 2003, I sent Cory a copy of the book and asked for a blurb and suggestions. He got right on it.]

Rudy, this is an astonishingly good and fun book. I am agog. I'm delighted to ship you a blurb:

"Rucker turns the vanguard of extreme physics into a kids' story that is at once gripping, hallucinogenic and convulsively funny. He bends language into a Dr. Seuss jungle-gym, then scampers over its corkscrews, pranking and leering like a mad saint. FREK is a fable for cyborg children."

—Cory Doctorow, Author of *DOWN AND OUT IN THE MAGIC KINGDOM*

I love the power-law Whuffie distribution of Wham!

Here are some revision suggestions to follow or not:

(1) Opening sequence: The room-picking-up is fascinating and beautifully written, but s-l-o-w. If he had some *problem* with picking up his room, some ticking clock or other source of pressure or something else to solve, it would be less obvious that the pick-up is a device for infodumping a bunch about the world.

(2) > Fine," said Frek, who'd grown used to Gibby's acquisitiveness.

I'd like to have seen more of Gibby's acquisitiveness upstream, between the Earthside scenes and the rest.

(3) The ending is missing some of the tension it needs to be a fitting climax to a book as long, weird and fun as this. In Chapter 14, Frek needs to experience a *lot* more disapprobation than he gets -- what Stoo and Salla give him, but in spades. More internality for Frek, too -- he should be really, really grossed out by the Orpoles Earth. We should completely despair for Earth by the time the Shuggoths appear, and be ready to write it off. Could the Shuggoths be any worse than a humanity enslaved?

(4) In Chapter 15, Frek should confront actual danger in the planckbrane. He should face genuine, physical and spiritual mortal peril before he emerges victorious -- maybe he should even be injured.

Journal and Email

December 15, 2000. Tucson, Worried about a Talk, reading On the Road.

I'm in Tucson in a motel, here to give a talk based on *Saucer Wisdom* to a genomics conference.

I keep thinking about *On the Road*, which I'm rereading this week. I got a copy at City Lights in SF last week. Oh, by the way, I finished writing a story called "A Use for the Ellipse the Catalog the Meter & the Vibrating Plan" yesterday, it was the first time I've just written for fun in such a long time. As opposed to grinding it out for the latest novel. Writing this story in an experimental, screwing-around, Sunday painter kind of vein. (Title is based, of course, on a line from *Howl*.) I sent it to this pro-bono charity-ball kind of anthology John Shirley's involved with, I guess I mentioned it before, it's called *Desperation Street*, the proceeds are to go to crack mothers. Anyway, the North Beach outing got me back into the Beats again, I guess. Thinking of Jack and Neal here alone in Tucson. This is a road trip modern style: you fly somewhere and rent a car. Not that you see all the good back road stuff, which is the real joy of a road trip.

Another thing that got me back to *On the Road* was having reread my own *Secret of Life* last week in a newly typed up version for an e-book from electricstory.com. I'd always fondly thought of *Secret* as my *Road*, though now, seeing them so contiguously, I really have to admit I don't hold a candle to Jack. I did what I did, that's enough, I don't need to go and pretend I did more. My routine of comparing the cyberpunks to the Beats — what a crock. Not that I disdain *Secret*, it has some great SF transreal twist to it. (Although the constant drinking did start to grate this time around.) But the main thing I'm thinking is that *Secret* has nothing like the complexity of characterization in *Road*. As I write I'm more inner-directed, more self-centered, less generous and less lyrical than Jack. The way he describes the weather and the sky and the sunsets! And, most specifically, I don't have any character like Dean Moriarty that I delve into in such richness, and with whom "my" character has such a complex relationship.

So naturally my clever simian mind turns to thinking about how I might better ape the Master. Could I put a Dean Moriarty into *Spaceland*? Probably too late for that, though maybe something can be done with Wackle. A better move might be to really thicken and complicate Tulip. As a lifelong transrealist, I have this kind of blind spot about how to invent characters. It's painfully slow, like growing a body in a vat or something. So much more work than simply collaging in a real person. And I tend to not feel confident that I can invent enough tics and tricks to match the texture of reality. But I need to remember that it really doesn't take all that many actual words.

It's like in a painting, if someone just draws a red line across the top of a green meadow patch, the eye reads it as a lovely scattering of poppies in bloom (I recently saw this particular trick in a somewhat cheeser gallery in Los Gatos). A beginning painter might think, "God, I can never paint all those individual flowers in that meadow, I can't paint a blooming meadow at all." But then a skilled and crafty cheeser just wipes some stripes and dabs some dabs and the eye is satisfied. By the same token, I tend to be afraid to try and create characters out of whole cloth because of the staggering complexity of growing the fully convoluted brain in the jar, but in fact all I need is like fifty (at most) catch phrases and tropes to make the person seem fully rounded. Dean's "mad bony face." His "Yes" and "yas." Of course Dean was in fact collaged in, but one could, after

all, invent such a character.

Oh, one last thought about *Road*. What if I did an SF novel that set out from the start to be an homage to *Road*? That might be fun. It could be a picaresque galaxy-hopping kind of thing. One thing that makes *Road* so rich is the truly tragic quality of Dean, the fact that he really is losing his mind over the course of the book. The kind of desperate downward spiral. The itchy fascination, too, of matching the characters to the transreal biographical individuals — that’s one gimmick I picked up on for sure. But if I did my homage called, say, *Galactic Kicks*, this one would actually not be transreal, it would be a pure fabrication. A way to do a space opera thing, like I’ve never yet tried. “Oh the thinks that we thunk...”

Though, again, reading another page of *Road*, I see again how illusory is the idea of matching it.

Jack’s describing sleeping in a cheap all-night movie theater in Detroit. “The people who were in that all-night movie were the end.” I love that use of “the end.” And then he talks about getting this repeated double bill deep into the mind from seeing it or sleeping through it N times, and says, “All my actions since then have been dictated automatically to my subconscious by this horrible osmotic experience.”

But, speaking of trying to match, here he is talking about the pianist “God” Shearing coming onstage and playing part of a set, “and everybody listened in awe and fright ... and the boys said ‘There ain’t nothin left after that.’”

“But the slender leader frowned. ‘Let’s blow anyway.’”

“Something would come of it yet. There’s always more, a little further — it never ends. They sought to find new phrases after Shearing’s explorations; they tried hard. They writhed and twisted and blew. Every now and then a clear harmonic cry gave new suggestions of a tune that would someday be the only tune in the world and would raise men’s souls to joy.”

One of the good things about being alienated and alone in an anonymous hotel is that then I write in my journal. But that’s enuff for tonite.

Feb 14, 2001. Email to Paul DiFilippo about my Book Plans

Yes, I’ve seen the *Transrealist Fiction* book by Damien Broderick (Greenwood Press, 2000) he sent me a copy. It’s 2nd to last chapter is on P. K. Dick and the last is on me. I’m viewed as interesting but not as fully successful as P. K. Dick. A little annoying, but the sales figures would seem to bear this opinion out, at least by one definition of success. (How to make yourself miserable technique # 739: constantly evaluate your worth by comparing your accomplishments to those of great men.) I do think if I had the luxury of having been dead for some 20 years Damien would treat me with a bit more respect and humility. Well, that’ll take care of itself eventually... Anyway, what am I bitching about, it’s a book about a genre name I made up.

Meanwhile I hope to just keep writing more and more SF. I’m getting the inkling for an idea of what I think I’d like to do after *SPACELAND*: a pastiche of *ON THE ROAD* called *GALACTIC KICKS*. I reread *ROAD* a couple of months back and was bowled over by the generosity of spirit in the thing. The richness of the nature writing. No mere addict, our Jack, saint of the addicts though he may be. I might even copy the *ROAD* structure for *GALACTIC KICKS*. Two gone wigged cats roistering across the Galaxy, year 3000.

Another element that's attracting me is the idea of the hobo. It was almost reputable to be a hobo in the 30s, like being a hippie in the 60s rather than like being homeless in the 00s. I've tuned in on this vibe from listening to "Big Rock Candy Mountain" over and over on the O BROTHER WHERE ART THOU soundtrack. I had a recording of that particular song when I was a little boy. My mother had gotten me a subscription to some kind of "American Music" series and every once in awhile they'd mail us a record with various kinds of folk songs for me to hear on my little record player.

March 7, 2001. Email To Family, Laidlaw. Researching Cuttlefish.

Well, I mailed off SPACELAND and now I'm having fun finding out more about cuttlefish, as I happened to mention some of them as Denizens of Hyperspace (a couple, named Kangy and Stool, and, yes, my hero Joe Cube makes fun of Stool's name). I tried to paint one but failed, maybe I'll try again soon.

Here's a great link with the best pictures I've seen, I've only browsed their cuttlefish, but, Isabel, there are squids aplenty to boot.

<http://is.dal.ca/~ceph/TCP/index.html>

Marc Laidlaw can confirm that the traditional face of the Lovecraftian horror creature Cthulhu is that of a cuttlefish. 8 tentacles and two arm tendrils in place of a mouth. Or you can call it, as some writers do, 8 arms and 2 tentacles. Their pupils are shaped like W. Octopi have a horizontal line pupil, but cuttlefish has a W. So weird. They communicate by patterns of their skin, changing more rapidly and complexly than any other cephalopod. Second only to the octopus in intelligence, and she is considered the Primate of the Sea.

By the way, I find that the world Cuttlefish Capital is Whyalla Australia, down on the southern part of Australia a town in the middle of nowhere by a flat beach and the Australian Giant Cuttlefish (up to ten pounds) come there in incalculable numbers to mate for about 100 days from June to August every year.

I'm having thoughts of an ON THE ROAD style novel next, only SF and set in the year 3,000, and set off planet Earth, except have our hero's road pal Neal Cassady be a human-sized alien cuttlefish, call it GALACTIC KICKS.

One other cute link is this by a lady who, with her family, found themselves able to "talk" with cuttlefish in a giant aquarium near Singapore with cuttlefish in it (perhaps relatives of the one that you ate on the airplane when the Chinese lady gave it to you, Isabel). To "talk" they held their fingers up by their mouths like tentacles and leaned up to the glass!

<http://www.heptune.com/cuttlefish.html>

April 20, 2001. The Hero with a Thousand Faces: The Monomyth.

This day was the end of my first week of not smoking.

I didn't turn my computer on, as a way of rewarding myself. [I'm actually typing this in on April 25, at Asilomar, about which anon.] The last few days before April 20, I'd been reading Joseph Campbell, *The Hero With a Thousand Faces*, about the Monomyth. I'd like to use it to help design my next novel.

The Monomyth cycle is viewed as a circle, which in fact one goes around over and over. Indeed each day is in some degree a circle around the Monomyth, I've started thinking, perhaps even each hour or each breath. The cycle has four stages that might be

labeled: Call | Tests, Flight | Elixir, with the “|” indicating passage across the Threshold.

Campbell has 17 stages in the Monomyth that he breaks into three acts: Departure, Initiation, and Return. I list them below, although for my book, I think I’ll combine some of the stages, so I’ll number them my own way here, combining some into, like Na and Nb.

Diagram of The Eternal Loop(↓)

- Departure*
- 1. Call to Adventure.**
- 2. Refusal of the Call.**
- 3. The Helper (Supernatural Aid).**
- 4. Crossing the First Threshold.**
- 5. The Belly of the Whale.**
- Initiation*
- 6. The Road of Trials.**
- 7a. Meeting with the Goddess.**
- 7b. Woman as Temptress.**
- 8. Atonement with the Father.**
- 9. Apotheosis.**
- 10. The Ultimate Boon.**
- Return*
- 11a. Refusal of the Return.**
- 11b. The Magic Flight.**
- 12. Rescue from Without.**
- 13. Crossing the Return Threshold.**
- 14. Master of Two Worlds.**
- 15. Freedom to Live.**

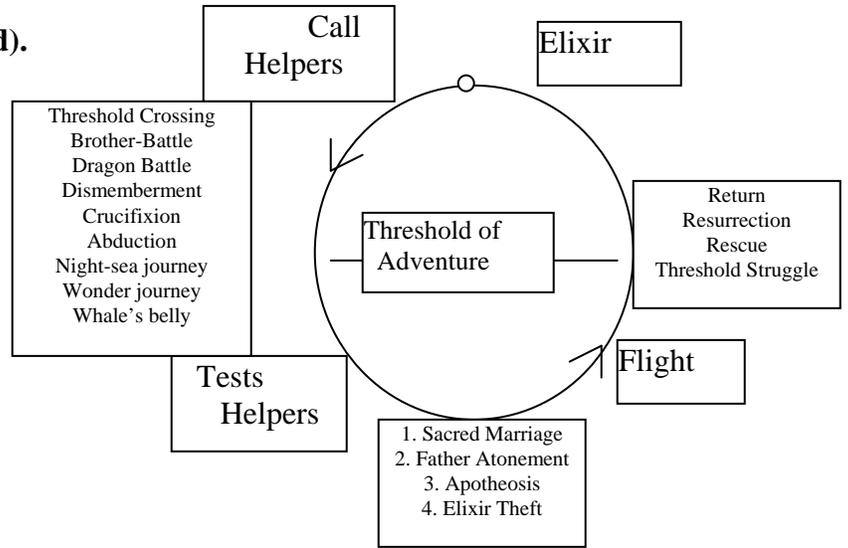


Diagram of The Eternal Loop (↑)

As another reward for not smoking, I’d meant to ride to Santa Cruz and go biking, but it was raining too hard, and I stopped at the Summit of the S.C. Mountains on Rt. 17. I went into a road-stop pizza-restaurant I never have been in. It was rustic and cozy. Oakslab table top, rocky walls, pot-belly stove, five Mexicans off work for the day playing pool. With Campbell in mind, they take on a mythological status. The Nibelungen (Wagner’s gnomes.) The Chinese innkeeper and his wife are mythic as well, not quite friendly, the same kind of innkeepers found in tales from earliest times.

I sit there taking it in, hand-writing the notes on Campbell that I typed out above. I recall a guy tripping at one of Faustin’s afternoon parties saying, “Let’s be mythic.” How lovely and trippy it indeed is to see the world as the working of the Monomyth. My Boon just now is a Styrofoam cup of coffee I got from the Goddess and Father, i.e. the innkeeper and his wife. The policeman who seemed to question me as I made my turnaround in the car was a Guardian. Was maybe checking me out to see if I’m high (i.e. unworthy).

Susan Protter. was kind of discouraging about making my “Freddy’s Fractal” story-start into a children’s book. I could maybe blend it into the other story I wanted to

write all this time, “The Men in the Back Room at the Country Club.” Even a short story can of course embody the Monomyth. The “Pockets” story I recently wrote with John Shirley is a perfect example of a Monomyth tale, complete with a stint in the Belly of the Whale.

Funny how often the Whale thing really does come up. It seems odd and arbitrary at first, but in fact it isn’t at all, it’s an archetype that I myself use in so many of my books. Stahn inside the moldie in Freeware, Willy inside Om in Realware, Joe inside Kangy the hypercuttlefish in Spaceland.

I would like to do a whole Monomyth novel, I can start to see it.

May 1, 2001. Monomyth 3000. Let’s do it!

I’m thinking now that I really would like to write a novel that is explicitly a seventeen-chapter Campbell Monomyth. And set it in the year 3000. At this point the Monomyth aspect is more important to me than the *On the Road* aspect I’ve also been thinking about, though *Road* could very well serve as a guide to the style.

The Helper is a cuttlefish. “Demure” just like Kerouac always calls Dean Moriarity. I saw some cuttlefish at the Monterey aquarium the other day, and they did indeed look demure, their bunched tentacles pointing tidily down, their hula-skirt a wavering about their middle. Neal Cassady as a cuttlefish, yas.

The 3000 in the title would be catchy, it’s an interesting date for us here at the 2000 mark. And there’s a bit of a resonance with Mondo 2000 in the name. *Monomyth 3000*. Perfect.

And it’ll be nice to see that the Monomyth is still in place in 3000.

May 11, 2001. Book plans.

I was talking to Susan Protter today and she was telling me for the Nth time that I should write some ill-defined popular science book like *Infinity and the Mind* and *The Fourth Dimension*. And this time, for once, instead of getting this hangdog, “Gosh, I gotta do that,” feeling, I was thinking to myself, “No, I want to write novels. That’s the pay-off for having my day job as a professor at SJSU. I can write what I like.”

Recently I’d been *trying* to think of a science book, and then the computer stuff always pops up, and I’d been thinking of writing a Stations of the Cross book about videogame developers (when I say “Stations of the Cross,” I mean one of those books where the journalist, and his attitude, go and visit various biggies in some field, there were a ton of books like this about chaos and complexity). But, hey, right now I want to write a novel.

And, of course, I *am* writing a computer book, the textbook I finally got my deal with Addison Wesley to publish my endlessly reworked CS 160 text, now called: *Software Engineering and Computer Games*. It’s not the general popular book I’d always thought I might write on the subject, but it’s a book. After about ten rounds of negotiating with various editors, I am finally closing a deal with a Keith Mansfield at Pearson Education U.K. Pearson is the company that owns Addison-Wesley, and the book will be an AW title. I’ve always wanted to write an Addison-Wesley textbook, they published the Joseph Shoenfield text *Mathematical Logic* that I loved in grad school, and they now publish some of the best CS textbooks I use. And maybe later I’ll still do that popular computer book. But now for the novel.

I’ve been feeling lately like I have too much to do. Partly that’s because I was

busy for a couple of days judging a science fair. Here's the list of what's on deck.

(1) Do another rewrite of the script treatment for the IMAX movie *The Search for Infinity*. (2) Revise *Bruegel*. (3) Story consulting on the *Tron* videogame for Disney. (4) Finish the (now 3D) Critter Framework software for *Software Engineering and Computer Games*. (5) Finish rewriting *Software Engineering and Computer Games*. (6) Start on *Monomyth 3000*.

Obviously *Monomyth 3000* is pretty far down the priority list. But of course that makes it all the more fun to think about, all the more of a forbidden fruit.

May 23, 2001. Under The Bed, "Freddy's Fractal," and Shrek.

School's out for the summer! Yes. I feel so nice and relaxed. I still have things to take care of: (1) revising the IMAX script, (2) finishing the Pop framework port to OpenGL (2) writing up the final version of *Software Engineering and Computer Games* (3) revising *Bruegel* (4) starting *Monomyth 3000*. But even the cancerous, heroin-like, obsessive, all-consuming task (2) isn't so horrifying when I don't have the classes to take care of. And I got "fired" from the Disney project, that is, they had a funding cut and laid me off before properly hiring me.

Yesterday I didn't hack at all, which was really nice. I started a new oil painting called *Under The Bed*. It's a perspective picture of the view under our big sleigh bed, seen from floor level, the bed frame filling the left and top like the curtain and proscenium of a stage. It's a wide canvas, 30" by 20". I actually prefer 30" by 24", but they didn't have that size at the art store, at least not in the heavy-duty Monet canvas style that I prefer. So seeing the long shape I decided right in the store to paint the view of looking under a bed and seeing something odd under there.

This came to mind because of the tale "Freddy's Fractal" that I started writing about a month ago. I'm leaning into making this into a novel now but not slant it as a kids' book *per se*. Better to work on being science-fiction novelist. What, after all, could be a nobler calling.

Regarding "Freddy," one use for the story might be to get John Shirley to help me finish it up into "The Men In The Back Room At The Country Club." Alternately or additionally I might use it as part of the start of *Monomyth 3000*. Of course, as it stands now, "Freddy" is about a young boy and I'd like an older character for *Monomyth*, also "Freddy" is firmly set in 1984, and not in 3003. If I was going to try and grow it into *Monomyth* I might need to have the book feature, say, a boy and his father. That might be fun. *Software* had some of that. But in *Monomyth*, the boy would be only 12, and the father could be, say, 38.

Drawing the perspective view of the underside of a bed was so hard that finally I took a storm window and set it in front of the scene and drew the outlines on it with a marker and then measured those outlines and transferred them to the big canvas. Projection! Just like Albrecht Dürer. To make it really easy, I'd like to get a sheet of Plexiglas and rule off, say, a grid of 15 by 15 that I could use to make the transferring either. Use 15 by 12 of them for my regular canvas size or 15 by 10 for a shape like I'm using now. I painted the bed frame in yesterday and it came out looking really nice. I used Burnt Sienna, Cadmium Yellow, Alizarin Crimson, and touches of Titanium White and Ivory Black for the bed frame. Did some kind of dabbing to get a wood-like texture.

What goes under the bed? I've been working so long on getting this "stage"

ready I hadn't thought very hard yet about it. Certainly there must be a 3D Mandelbrot set, as expected from "Freddy's Fractal." But perhaps a little flying saucer would be in order as well. And a small robot. And I really would like to draw a cuttlefish. I'd wanted to put one into my *Spaceland* painting recently but wasn't able to get it to look right and ended up rubbing it out. But recently I was in Monterey and got a good look at some cuttlefish and I feel more confident about painting them now.

Come to think of it, painting what's under the bed is a good way to find my way further into *Monomyth 3000*. For I feel pretty strongly now that the thing under the bed will indeed be the "Herald" that gets my hero started on his trip. In fact I think I'll call the painting *The Herald*.

Speaking of *Monomyth*, last Friday, Sylvia and I saw the movie *Shrek*, which had a lot of *Monomyth* elements. There was the call of all the other creatures showing up in Shrek's swamp, and Shrek's helper was the donkey, and the threshold was either the parking lot at Disneyland or the bridge over the lava, and he met the anima woman, and he killed the Father (the King). But it was more than just the raw *Monomyth*, there was the love thing that he didn't right away get the woman, there was the boy-meets-girl, boy-loses-girl, boy-gets-girl thing. And there was a twist about her being half Ogress and getting magically kissed into being — *all* Ogress. And the movie didn't go and call itself *Monomyth*.

The lessons are twofold. (a) Don't call your book *Monomyth 3000*, Rudy, that's just the trick that you are using to help craft it, and nobody wants to hear about the technical craft except other writers, also people who haven't read Campbell would just feel excluded and one-upped upon. (b) Don't be limited by the monomyth; you have to go beyond it. It's not enough to just slavishly step through each of the monomyth's seventeen or whatever stages as you'd been saying. You need a story on top of it, like the way the Shrek fused in the meet/lose/get love thing and the mistaken identity thing.

June 12, 2001. I Start my New Novel.

The last week I was involved with this raging email exchange with Bruce Sterling about a story we're working on. Or not working on. It's called "Junk DNA" and I had it up to 9,000 words and he cut 3,000 of them and then didn't add anything new at all and I was really mad. So I was rantin' and ravin' and he of course was coming back with every bit as good as he got. It reminded me of when you see these real testosterone-laden guys playing tennis with each other on the weekend and they're slamming the ball so hard that they grunt when they hit it, total aggro going into those volleys, that's how our emails were. Finally he said he'd add a little more eventually. And maybe I'll restore some of the really good stuff he took out. So that's on the back burner again.

I was pushing him to do something on the story because I want to be writing fiction again, so now I realize the less stressful way is to go ahead and dive back into a new novel. Something nice to think about.

I've been computer-hacking like you wouldn't believe of late, still on the port of my Pop Computer Game Framework from the Windows MFC API to the OpenGL rendering library. Not just a graphics port, but also a "lift" from 2D to 3D. The last two weeks I was implementing a technique called "billboarding" to produce transparent-background bitmaps as texture maps with alpha filtering. Writing classes to manage it, also re-doing the Windows version of the same thing that I've worked out, getting the

whole thing clean. It's like this hack is never going to end.

Meanwhile I am hearing from this nice British editor Keith Mansfield who's buying my textbook about this for Pearson Educational, which is Addison Wesley in the U.S. The book will be called *Software Engineering and Computer Games*. In the past I've called it so many other things. Real Programming, The Joy of Hacking, Object Oriented Software Engineering with Windows MFC, Videogame Projects with Windows MFC, The Software Game. I've been working on it for God knows how long. Nearly ten years. When I work on it or think about it these days, my heart sometimes starts pounding so hard it feels like it's going to jump out of my chest. I don't know why exactly. Partly I'm anxious about getting the port done and then getting the final rewrite done. I promised to do the 3D OpenGL port to finally convince Keith to buy it.

But the port is really moving along — the catch is that it's infinite, fractally complex, and will never ever be done even if I work on it for a thousand years. But pretty soon I do need to pinch it off and get into the writing, which is, really, the more important task. The catch is that I will end up pasting a lot of the code into the text, and I want to stabilize the code before I do this. When I get off the port there's also some upgrades I to the code I want to do as well. This would be a lot easier if Microsoft had their stupid OLE working for Visual C++ files, but they don't. That is, it would be nice if my book could just have links to the actual source code so that when I changed the source code the book would change automatically.

Anyway I really need something to think about besides the port, the upgrades, and the CS book. I feel sorry for myself sometimes, sitting there all day hacking, driving myself, driving, driving, driving. Like a pitiful shut-in, and outside the sunny summer is going by. Thank God for Sylvia to get me to do stuff. I've even been having a cigarette now and then again, sigh, about five of them all told so far, but even those five have the desire for them just raging inside me again.

So, okay, what I decided to do for the novel was to (a) take the opening chapter for a kid's book *Freddy's Fractal* and "port" it to like 4004 AD, on a world (Earth?) where it's totally biotech. (b) The evil force will be what I'm thinking of as Monoculture these days. The Mall homogenization Biz thing. It'll be a really extreme kind of Monoculture, both biological and memetic. Icon: a gasoline generator that runs all night long on a beach at a campout (there was one when S and I went to a large group's campout last weekend.) (c) I'll have a chapter for each of (or most of) the stages of the Campbell Monomyth and will use Monomyth-related names for the chapters. A little private joke here about Monomyth/Monoculture. (d) I won't *call* the book Monomyth or even mention it in the book, I don't think. Those hip to it can pick it up from the chapter titles. Today I think I'll call the book *The One and the Many*. I've always loved that phrase, it's from Plato and Socrates, I even wrote a paper once called something like "The One and the Many in Set Theory." I used to think of the One as the Good thing, of course. As God. But now, for this book, I'll be reversing it, so that the One is the Bad thing, the Monoculture, while the Many is the Good thing, the diversity. A young man is a Monist, but an old man is a Pluralist. (e) I'm a little concerned about being stuck with a 12-year-old main character, like how do we then have any romance? Possibly I'll have the chapters be rather long and epic, and let, say, five or six years go by over the course of the first couple of chaps. I think Mason Reynolds was 15? (f) I think I'll break the chapters into sub-sections, and rhythm the book that way. (g) I finished my painting of

The Herald. He's a slightly anxious cuttlefish under a sleigh bed, with a saucer with a glowing furnace-mouth door behind him. A stiff and somewhat ghastly hand is hanging down off the edge of the bed and the cuttlefish alien is staring up at the hand. Is the hand reaching for him? Is the hand dead? Maybe it's the hero's mother and she died? It would be so cool to do a painting for each chapter, say there's 15 or 16 or 17 of them. Though that would mean the whole thing would really take a long time.

I started the port of the Freddy chapter today, just now, in the evening, so today's the day the novel really begins.

June 15, 2001. Email pre-proposal to Tor Books.

Sent this as part of a note to Dave Hartwell and his assistant Moshe Feder:

I'm also starting to think about my next novel. I'm leaning towards something set in 4004. Earth is completely bioengineered, but in a good way (a la *Saucer Wisdom*, with house-trees and live accessory wings). And then the spoilers arrive, machine-oriented humanoid aliens, the militaristic envoys of a Galactic hegemony, in a pear-shaped starship. Our young male hero Frek Huggins goes on a quest to the Galactic core to find the elixir to restore Earth from the depredations of the Galactic Monoculture. And I imagine he finds a wife there as well. I've recently read Joseph Campbell's *Hero with a Thousand Faces* (for the first time! (I was a math major after all)), and I have in mind to model my story line fairly closely on his 17-stage Monomyth. (Seems fun to use the Monomyth to write a book against Monoculture.) Another inspiration is Heinlein's *Starman Jones*, a beloved text of my youth. (I think I'll have the invading humanoids be in a ship just like the *Asgard* that Max Jones ended up captaining.) The tone will be light-hearted in my usual way, though, as usual, not silly or parodistic. I do feel that the Big Box Marketing Monoculture is a serious threat to society and would like to dramatize this in an engaging way. And I'm very stoked about using the Monomyth as a framework; after reading Campbell's book I made up a chart of the plots of my 12 other novels, and found I've been using the Monomyth all along! But this time the awareness will give me an extra level of artistic control. I don't quite have a title for the book yet. Maybe *The One and the Many*.

June 23-25, 2001. Riffing on Heinlein's Young Adult Novels.

Yesterday I saw a skinny little kid, maybe 11 or 12, with his skateboard and his hair dyed leopard style: buzz cut and dyed blonde with spots left dark with reddish centers. Suppose the kids in Big Box (today's title for the novel) have Belousov-Zhabotinsky hair.

I read *Starman Jones* last week and now I'm reading *Citizen of the Galaxy*. I got *Tunnel in the Sky* as well. I remember reading these when I was maybe in the eighth grade. And I think *Space Cadet*, too, funny how that became a slang expression for a nut. I once had a mentally ill student whom the others called Space Cadet.

I definitely can learn from the Master. He sprinkles in some cool futuristic (albeit the future of 1950, which is no longer our future, what with the pruning off of branches of the multiverse that's happened in the intervening half century). But his society itself is a copy of an existing society. Something like Olde Englande in *Starman Jones*, and something like Graeco-Roman times or perhaps the days of Tall Ships in *Citizen of the Galaxy*. Nobles, guilds, slaves. The spaceships are akin to the Navy ships that Heinlein must have known. The tech is really just calculus and a smattering of relativity. The

stories *drive*. Each chapter you are rooting for the boy to make good.

I definitely want a Spaceport in my book. Riding the bus to the Miami International Airport on my way to Grand Turk after a one-night layover at the Don Shula How Bogus Hotel, I was struck by the spaceport aspect of this airport. Huge and sprawling, with its oddly shaped out-buildings. Spaceports are cool.

Certainly the crowd in MIA is diverse and colorful enough to be like aliens. As those S. A. women. No unswinging Asian-style hip-motions for these Latina chiquitas. The macaw caw of Spanish all around me. I start to feel so dully monoglotic.

[Long discussion of chirping vs. FTL for interstellar travel was moved to the Space Travel topic.]

Suppose Frek thinks the cuttlefish is out to destroy Earth.

Frek could meet the “helper” at the spaceport. That could be chapter 2. Let’s supp-hose that Planet Earth is genomically Wal-Marted in 3003, and Frek’s going to bring back a cure for this fix from Out There. There’s only one kind of Dog, for instance, and Sao has a dog like Wow, except hers is a more expensive model and he has human-appearing genitals, which he licks all the time, as dogs do, but no, Ru, this is a children’s book.

Maybe Frek’s Wow can’t talk, but Sao’s can.

Sao’s son is Stoo.

June 29, 2001. First Chapter Getting Strong.

I’ve got the first chapter sort of happening now, I did a rewrite to bring in more of the collapsed biome notion which is in counterpoint to the genomic wonders of cleaner worm, house tree, wing. I suppose the uvvy should be biological as well, perhaps based on an electric eel. Let’s say they are planning to internalize it, but this hasn’t happened yet, and we might even supp-hose that the internalizing of the uvvy might be the capstone big threat that’s bound to totally homogenize even the Mindscape. The diversity lost in the biome is now in the Mindscape, but that’s gonna go unless Frek brings back the Elixir from Squidnor 777.

I think I’m finding the tone as well, something like a children’s book. I’m wondering whether to maybe go ahead and drop in some silly meta-jokes at the expense of the material, as would Douglas Adams. Maybe even be a bit parodistic here. The title I now like is kind of in that vein: *Frek and the Space Squid*. *Frek and the Alien Cuttlefish* doesn’t sound so well. I guess the thing might as well be a squid, after all, nobody hardly knows what a cuttlefish is, but everyone knows about a squid.

July 29, 2001. Dream of Me as a Boy.

Last night I dreamed about what I was like as a boy. Clumsy and forgetful. Knocking things over and knowing how I did it. Talking with Embry in my dream, talking about my boyhood and then about this novel. The tone should be funny and sad, I said, plus some third thing. Surprises? Science? I had, in the dream, this feeling of how worried a boy is over little things, similar to the boy in *Henry Huggins*. There was some element of Frek’s situation that I dreamed he would worry about, now what was it? Whether to tell about the thing under his bed?

August 16, 2001. End of Summer.

Well, the summer’s nearly gone. I go back to teaching in 11 days. Most of July I

was on a road trip to the Northwest with Sylvia, and this first part of August I've been working to get the latest version of my CS textbook ready to be copied for my classes this fall. *Software Engineering and Computer Games*, has indeed come to seem like the nicest, clearest, most reasonable title yet. I just printed it up today, it has a certain amount of new material, but I cut some older stuff out, so I think maybe the word length is shorter than it was last year. I still have to write up the 3D and OpenGL stuff a bit, but that can wait till later this fall. Supposedly Pearson Educational, the multinational company which owns Addison-Wesley, is buying it through this British editor Keith Mansfield there. I'm still waiting for the contracts, but Keith assures me everything's okay. I think the delivery date will be something like November 15, which gives me a fair amount of time. So now I have a week left and I want to pound a bit on my new SF novel, working title *Human Com*. Nice to have something other than work to think about in the coming months.

September 14, 2001. "What Comes Next? Finding Your Story."

I'm going to give a talk on writing to a writers' group in Santa Cruz on Monday evening, September 17, 2001. My announced topic is "What Comes Next? Finding Your Story." What are some ways in which I figure out what comes next? I'm writing this document up, it's helpful to me to do this.

The day of the talk, I went down early to Four Mile Beach, and I was thinking about the 9/11 bombing.

While I was there I remembered that the last time I'd been there, about six weeks before, I'd written something on the sand, "EADEM MUTATA RESURGO", which is Latin for "The Same, Yet Changed, I Re-arise." The mathematician James Bernoulli (1655-1705) had this inscribed on his tombstone in Basel along with a picture of the logarithmic spiral. I rewrote the phrase with my finger in the sand, thinking of my cuttlefish from the UFO under the boy's bed in my novel in progress, the one set in 3003. The cuttlefish gets cut up and burned, but a scrap of him gets away and goes into the ground, and at the end of maybe the next long chapter, he'll be back, maybe looking different, and he'll say, "Eadem mutata resurgo," and the boy'll go "What?" and the alien will say, "That's Latin for, 'I return, different and the same,'" and the boy says, "What's Latin?"

I was happy with this line of thought, but the tragedy was still in the back of my mind, like always this week. The air autumnal, tinged with sorrow, with a sense of the fragility of things. And then I was walking back down the beach the way I came, looking at the bubbles in the foam winking out, like lives. A big patch of bubbles winked out in NYC. The wind was blowing the sand and I thought of Shelley's poem "Ozymandias," about a shattered statue in the desert being all that remains of a great king. I thought of all the plans and schemes I make for all my projects, and realized that, in time, all will be blown away like dust, erased from the face of the Earth as surely as my body and my name. Even America will blow away, in time. "Nothing beside remains. Round the decay / Of that colossal wreck, boundless and bare / The lone and level sands stretch far away."

Riding in the car back towards Santa Cruz, I heard a nice song on the radio, sounded like an old Dylan song, a song I'd never heard before, it might not have been Dylan, and the singer and the band were hitting these nice harmonies. I was thinking

how the sound of a harmony is our way of showing unity to the ear, our way of sensually representing the Oneness of the Cosmos, our way of trying to make manifest the divine immutable Reality behind the fleeting appearances of things. It made me think of the “Aum” we say in Yoga class, the divine syllable that supposedly brought the world into being, but not in the past tense, Aum brings the world into being in the present tense. Here and now the universe is being engendered around us, all of it once, all the time. It soothes me to think that way.

When I park in front of the Jahva House the song is still going on. I turn off the radio; the sound stops in the middle. But yet it goes on. Eadem Mutata Resurgo.

September 19, 2001. Visit Roger Brent at Molecular Sciences Institute.

I’ve been doing more school-work than I’d like, not enough time to write. Last night I thought of a different title from *3003* when I woke up to pee, and immediately thought of the word “nanospace,” and a title for my novel, *The Genomics of Nanospace*, which I then changed to *Frek Huggins and the Genomic Quest*, and then to *Frek Huggins and the Genomic Elixir*, and then went back to sleep.

Reading Dorion Sagan and Lynn Margulis, *Microcosmos* (1974) last night, I came across a remark that the really radical evolutionary changes involved symbiosis. I think it’s Margulis’s ideas mostly, with Sagan helping her popularize them. A remarkable book, works its way up from bacteria to humans. Margulis talks a lot about bacteria-style sex, where they simply swap genes with each other, and how cells probably got their internal structures by symbiotically assimilating bacteria: the nucleus from a bacterium, the cilia from wriggly spirochetes, etc. She says we’re more like mold-grexes crawling about to spread the microcosm, she stresses that we don’t master crops and farm animals, we are a symbiosis with them, the plants use us to get themselves grown, the animals as well, and we’re all being used by the cells. She speaks contemptuously of sex, of how we could, she claims, get just as much genetic diversity by fancy auto-cloning (with internal gene shuffles), stresses that sex and reproduction are not necessarily linked, it just happens to be that way for us. She stresses, again, that the big leaps come from new symbiosis. Typically a new organism appears, does well, kicks butt, but then it either dies out from overdoing it, or moves on with symbiosis.

So I’m thinking it would be cool for the third act of my novel to involve a symbiosis. Originally I’d thought of the Elixir as restoring Earth to its Edenic pre-NuBioCom state. And probably this what Frek will expect it to do. But in fact it will do something different. The aliens, after all, have their own ends. It will force us into a new symbiosis, perhaps with each other, perhaps with other species, perhaps with the aliens. Can still end in an upbeat way with acceptance and even rejoicing over the new order of things. The planetary mind, like that.

At Molecular Sciences Institute at 2168 Shattuck St., Berkeley by the BART station, I got there a few minutes before Roger Brent, the director, sat in the conference room looking at copies of *Cell* and *Journal of Molecular Biology*. Talked to Richard Yu, a nice young Berkeley grad who works there, he showed me some of his equipment. Then Roger showed up and we had lunch. I asked him questions about some of the tech issues in *Frek and the Elixir*, also about “Junk DNA.”

Q: What might be a good vector for the NuBioCom knockout bug, and how would the bug work?

A: Nematodes are good, they're everywhere. The familiar earthworms, the annelids, are one kind of nematode, but there's lots of others. We might suppose that the knockout bug is a virus which attacks both plants and animals, gets into the zygotes and prevents them from producing gametes, thus rendering them sterile. By the way, the cells that make the zygotes are stem cells, all self-reproducing cells have that name, we also have them in the skin, the large intestine, the brain, etc. The knockout bug will break some protein involved in meiosis. I see it as being a virus, a pseudotyped virus that disguises itself as something acceptable to the organisms. A viral particle is a virion. Prions? Well, don't know much about them. They change proteins.

Q: I'm thinking about having the Elixir promote some radical discontinuity in evolution, something as powerful as the symbioses that brought the mitochondria, the chloroplasts, and the cilia into our cells. Maybe they become symbiotic with the aliens or with some unseen beings?

A: Well, I don't have a direct suggestion, let me just free-associate. There's two kinds of symbiosis, the kind you mention, where another organism is wholly subsumed, and then there's the less radical kind where an organism lives entirely inside another. A good example is a bacterium that lives in the gut of the aphid, helping it digest cellulose. An aphid can't live without these bacteria, they live nowhere else, and they have no competitors in this environment. They have the crummiest genomes of any known organism, their DNA is full of holes and errors. Here we see symbiosis leading to degeneracy. Like the Eloi in *The Time Machine*.

Q: What about Junk DNA?

A: Did you know the hero of Bruce Sterling's *Distraction* has pure DNA with no junk, no introns? DNA in and of itself wouldn't make a good Pumpiti. It's fibrous, like lint, like dry snot, like a flake of dandruff. Would need to cloak itself in something. The human body has 10^{-11} grams of DNA per cell, 10 picograms, and there's maybe a trillion cells in the body, so your whole body has about 10 g of DNA. So if a Pumpiti is half a pound, like 250 g of DNA, it has 25 or maybe 100 times as much as a person. You might suppose that it can test out recombinations faster, and may thus be able to carry out more difficult tasks. Perhaps it reassembles bits of junk to get ape men. The Great Old Ones. Maybe the original alien picnickers from whose debris the Earth's biome evolved. (Cf. Strugatsky, *Roadside Picnic*.)

You can think of the junk DNA as the papyrus of the palimpsest upon which our own code is written. The early drafts, half-erased, are the junk DNA. "Junk" is of course a broad category: there's stuff you want to pitch, stuff you kind of like, stuff you couldn't bear to part with.

Then he showed me his lab. Molecular biology is a kind of microscope, in that you can look at the DNA of things. They used to come up with completely wrong counts for the kinds of microorganisms in various environments, because they'd take a culture and count them, but only the ones who liked living in Petri dishes or on slides would be counted. Now they get a sample, pulverize it, and do a census on the DNA.

There's a wand-like device called a Virtis Sonicator that you stick into a liquid sample and it lyses [that's a fancy word for ruptures] everything in it. I saw things like fume hoods, called laminar flow hoods, they let you reach in, but have an air curtain so non-sterile air doesn't come in. He grows mammal cells like mouse kidney cells in a monolayer in a dish, "These are 2-9-3 cells." The test tube of microbiologists is the

Eppendorf tube holding a ml or so, a little pointed plastic thing the size of a finger-joint with a little plastic cap you can snap shut. Special centrifuges for it. There's a Bio-Robot which is like a miniature ceiling crane, you program it to pipette droplets among little racks of multiple Eppendorf tubes. There's a Clay Adams Brand Nutator, which is a rotator, continually rocking a rack of Eppendorf tubes in the walk-in cool room. There's an Applied Biosystems oligosynthesis machine, it does DNA oligonucleotide synthesis, it has little bottles labeled G, C, A, for the genetic code molecules, they feed into the machine, you hear it steadily clicking as servo valves open and close. It's called just a synthesizer for short. The other side of the coin is an ABI Prism 377 DNA Sequencer, it figures out the codes.

October 4, 2001. Plans for Chapter Four. Haven't Written Lately.

I haven't had time to write for nine days. First I had to grade homework projects from my Software Engineering classes, then I had to debug and retool the Pop computer game software framework I use in those classes, and then I had to prepare a talk to give at the Xtreme Game Developers Conference about the Pop framework and 3D graphics. And I'm working on the accompanying *Software Engineering and Computer Games* textbook. I may in fact work on it tomorrow as well.

I tend to have a sense that I'm wasting my life when I go so long without writing fiction. So tonight, lying on the couch, at least I pick up these notes. A couple of weeks when I was going good on Chapter Three, I'd lie on the couch like this and be writing the next action in the next scene, also revising. And lately I'm too scraped from the hacking to write and try to read books. It's so much more fun to be writing the book that I'm reading. Really nothing else satisfies.

Besides being busy with the CS stuff, I've been away from *Frek and the Elixir* because I don't have a good ongoing chapter to slip into *in medias res* just for a short writing break. Need some startup work to get the new chapter on the rails.

So what should happen in Chapter Four? What are some of the eyeball kicks to viz?

At supper Sylvia was talking about the kids' word "tweakers" for the speed-freak street-people around where they live. And I'm thinking it would be nice to have tweakers in Stun City. What they are tweaking is their genomes. Like maybe there's a fawning one who likes Frek's hair and plucks one and gets the hair gene outta there and tweaks in into himself and has the same hair. Maybe even the same face? Like the Aug Dogs from *Saucer Wisdom*, too. I guess I shouldn't reuse that name, though. Just tweaker would be good, it's real slang but not well-known.

I read a book by Art Spiegelman about *Plastic Man* this week, thinking there might be something there I could use. A Plastic Man tweaker maybe. The book really made a big thing out of the artist having shot himself. You suicide and forever everyone hangs your whole career on that sorry-ass peg already. Good reason to hang tough and live out your span.

This month every time I go to my classroom the I-beam frame of the new library next to it is another story higher. Just like Gibson's nanotech buildings.

At the XGDC I was talking to a nice kid who went to UCLA and majored in math. He'd read some of my books. His goal in life is to write a videogame that uses cellular automata, which is very worthy. I forgot his name, I hope he emails me

sometime. He was talking about Stephenson's nanotech book, *The Diamond Age*, about how the heroine does a thing of visiting a bunch of different, like, worlds. And one of them had, like, a Turing machine in it. So maybe I really should look at the book, just saw it mentioned in *Scientific American's* survey article about, of all things, nanotech in science fiction. I started to read it when it came out, but was put off by the Victorian thing, it seemed so lame and English-major, me also having a resentment towards Victorianism as Gibson and Sterling had just gotten such a big score off *The Difference Engine* with my nearly contemporaneous *The Hollow Earth*, equally steam-punk, having, as usual, gotten some raves and then, as it were, closed after three weeks of playing to half-empty houses. And then there's the matter of Stephenson going on and on about using some text-interface Unix crap like vi or emacs instead of Word, that annoys me a lot. But I could learn from him, yeah.

But, of course, I'd much rather be reading my book than his.

Oddly enough, a couple of weeks ago I was looking at SF books in Borders hoping to see what the competition has done with nanotech and genomics. And Gardner Dozois has edited a book of Nanotech stories and in the intro to one by Paul DiFilippo, he says something like, "With the possible exception of Rudy Rucker, Paul DiFilippo has written more about nanotechnology than anyone..." Yet I feel like I never really have written about nano. Was Dozois confused? Some might regard *Wetware* as biotech, I guess. I mean, it is. Only I didn't know what I was talking about, I was winging it totally. Not of course unusual for us visionary SF types, come to think of it. Bruce Sterling once said he most liked listening to me when I didn't know what I was talking about. Or maybe Dozois was thinking about the femtotech in *Realware* and *Saucer Wisdom*. My femtotech really does a lot of what people have used nano for, maybe it's just my different name for the same thing, that is, the magic wand.

Today in the paper, a woman bus-passenger was quoted describing a bus hijacking in Tennessee. "He just walked up to the driver and, like, slit his throat." I love the "like" there. Memories of my Pop inveighing against the use of "like."

I was reading in the paper about Afghanistan and the texture of the names of people in that part of the world is so bizarre. Made me think of some Gilbert Shelton Wonder Warthog cartoon with the Hog of Steel on, like, Jupiter and some critters are yelling at him with, like, squiggles coming out of their mouths, not even letters, just odd little shapes. Qayoont was one of the names, I think.

Sunday at the last Sofa Street Fair of San Jose the old West Coast punk band X was playing. They were big in, like, 1980. Not really big, cause they aren't that good, the vocals are always this boring wailing blending of voices, they don't rock in other words, but the critics always liked them. Anyway, I was thinking that they were, like, the first people to really hammer on the letter "X" which has since become such an ubiquitous cliché. As in Xtreme Game Developers Conference, X Games, X Files, X Windows, and of course Gen X. It used to be just X rated movies, that's where it really started. But X the band, they really were about the first to latch onto that letter for something other than porno.

The big letter in the 20s and 30s was K. It was considered really funny to say, e.g., "oll korrekt" for okay. Kozy Kritters, the Koffee Kup, like that.

So now the deal for my book is that there should be a fad letter in 3003. Which letter? I was thinking about this the other day and hit on a letter, but now I can't

remember which one. M? Well, that's pretty soft. K and X are kind of hard. Phil used D in *Scanner Darkly*, well, his tweakers didn't actually start using D words a lot more, but they should have, that would have been krunky. Oh, I remember, it should be G.

The hipster tweakers of Stun City very into G. Goggy, Glen, it's goo to googoo you who. Glim me a guzzle, gurgle my genes. Genomically green, know what I'm gettin' to mean, Gene? Gum brumble glum bam blimmer and a gracious goodness, Gillian. Gloss me some grog, gollywog!

Now I'll go read the dictionary and howl at the moon.

October 20, 2001. Biotech Ideas I Heard At the Conference in Rimini.

I went to a conference in Rimini, Italy, on the theme "The Fire in the Crystal: The mystery of life in the recurrent geometric patterns of the universe." They gave me a medal! I had, I think, more interesting conversations than ever before at a conference.

Richard Dawkins. There are different kinds of replicators, that is, entities which seem to reproduce themselves. Gaia, ecosystem, species, group, individual organism ... and the gene. The gene is different as that's the guy that *really* reproduces. The DNA in a germ cell is potentially immortal. He used a made-up word for the thing that gets optimized, I think it was *optimon*. The gene, not the organism, is the optimon.

The genes don't conspire to make the organism successful. It only looks that way. They only care about themselves. The organism is a vehicle that the genes move in. Of course it does happens that the collaborative genes do better.

The genes wander around inside the gene pool of their species. (*Genes from different species only recently, with gene-doping, have gotten a chance to mingle.*) The gene pool as a whole is sculpted like a sand dune.

The extended phenotype is more than your body, it's something you make. Like a caddis house, that is, the shell a caddis larva glues around itself using twigs, leaves, sand, etc. Or a bowerbird's bower. Or a beaver's dam. Seems less "live" than the body the genes help grow (like a seashell), but is "made" by the genes nonetheless.

A parasite helps a host if and only if the parasite's mode of reproduction is the same as the host's. A hookworm doesn't care about the host, its eggs go out in the host's shit. A mitochondrion or a chloroplast is part of the cell and only does well if the cell does well.

Later I told Dawkins I'm working on an SF novel about aliens, and was wondering if there could be alternatives to the 1D-ladder of DNA. He said he'd asked chemist friends about this, but they hadn't been helpful. He said the DNA could be 2D, I mentioned Penrose tiles, and he said Penrose would be a good person to ask, in fact, as he did some early work with his father on self-replicators. Maybe I could email him. He said it could be 3D as well, the 3D gene could be like a miniature 3D scan of the finished creature. Maybe like a ZIP-ed model with like "10000[someprotein] in place of ten thousand of someprotein in a row. It's easier to Xerox a 2D object, it seems to me, but he didn't seem worried about (or hadn't thought about) this difficulty.

The last day I had breakfast with Dawkins and asked him if he had any thoughts about what alien species might be like. Here's what he said.

It would be interesting to look for features that have evolved over and over and which are therefore very much to be expected, e.g. the eye, which has evolved nine times on Earth.

Regarding the genome, which seems almost inevitable, the following: One needs very high-fidelity replication, which suggests that digital representation is best.

Genetics is simple, only embryology is complex. At one time people thought genetics was complex because they thought “genes” were subtle mixtures of proteins, catalysts, hormones, that interact in a complicated way. When in fact genes are rather simple “bit-strings”.

It’s important to have a genetic code that can say a huge number of different things. Prions seem to have only a crude inexpressive code.

I discussed my notion of a race of vortex tubes in sunspots with him. He stressed that you need a very large population for a long time to have evolution, so we’d better do this in a giant star. He wondered if the “genome” of the space curve is sufficiently expressive. I have more thoughts on this that I’ll put in a different topic.

Niles Eldredge. Dawkins is into gene-centered evolutionary biology. But why do species remain stable for millions of years? Why does adaptive change seem to occur in rapid bursts? Are there any regularities and repeated patterns in the interplay between stability and change?

Eldredge suggests that the environment drives it, that is, “Nothing happens of any consequence in evolutionary history unless ecosystems are disrupted and lots of unrelated species are forced into extinction.”

So the extinction of the Great Collapse is a golden opportunity for speciation. A mass extinction resets the evolutionary clock. Evolution kicks in and tends to replace the lost species with equivalent species, possibly from different germ lines, but with similar behavior as regards occupying a niche.

A mid-range extinction is less than a global mass-extinction. It’s when a geographically related group drops out. Like it gets colder and the warm-loving creatures die out or move away as in “habitat tracking.” “Turnover pulse,” it affects all creatures in a region. Regional extinction provokes an evolutionary response of speciation. *Habit tracking doesn’t provoke speciation the way that regional extinction does.* This guy is thinking about the Burgess shale, he co-wrote a book with Stephen Jay Gould about punctuated equilibria.

Moral: the genes alone don’t run the evolutionary show. Extinction has a big effect as well.

George Dyson. We had a couple of meals together, talked a lot. An impressive guy, son of Freeman, sister of Esther. He gave me a cool book called *Darwin Among The Machines*, apparently it was something of a best-seller, for a science book.

He mentioned that being able to save your genome on a disk and reproduce it later changes the reproduction game, it gets you out of time constraints. On disk, of course, you could combine more than two “parents” as well.

He suggested that maybe in a thousand years, the descendants of some lab worm would rule the Earth. How? It becomes the standard “lab rat” for genomicists, they get its code into digital form and start fiddling with it. Set it into an alife evolution mode. It does millennia of evolution in a few years. “The Worm Turns.”

He said dolphin and whale sound communication might be like telepathy. Rather than coding down into symbols and back, maybe they paint 3D sound pictures with their chirps.

He said that he’s interested in alife in the “wild,” that is, not in a game or a

research experiment, but happening in the digital world. The thing with the evolving lab worm genome, it doesn't even happen as a *deliberate* alife experiment.

The key to make alife in the wild happen faster, he says, is to switch from numerical addressing to template addressing. Instead of looking for a specific pointer, e.g., you simply look for a structure of a certain type. Instead of looking for a specific website, I use Googol to look for a site of a certain type. A hormone doesn't look for such and such a molecule to act upon, it looks for a molecule of a certain type. This makes biology robust. Garbage collection would help with this, in a program. The way I handle, e.g., cTexture objects in the cGraphicsOpenGL class is kind of like this. When you need a cTexture, you look for a resource whose name matches the name you need, as opposed to looking for a specific pointer.

Von Neumann was maybe an alien who landed here to start digital life.

Talked about a nut named Nils Aall Barricelli who in 1953 carried out the first alife experiments, trying to evolve numerical life similar to Tom Ray's Tierra on the Eniac. Evolution is a kind of intelligence in that the race as a whole solves problems.

Evelyn Fox Keller. There is no point in trying to make a computer simulation of an egg, or a cell, if the simulation is huge and unwieldy and isn't based on any insightful first principles, if, that is, it doesn't represent any better understanding. We can see inside an egg now, and even tweak it a bit. If you want to restart your simulation, just get a new egg. Get her book, *The Century of the Gene*.

DNA isn't 1D in the cell, it's rolled up in a certain careful way, rolls of rolls.

March 30, 2002. Five Month Hiatus. On Philip Pullman.

I haven't worked on Frek since October 30, 2001, five months ago. In the meantime I've done copy-edits and page-proofs for *Spaceland*, revisions of *As Above So Below*, finished writing and did revisions on *Software Engineering and Computer Games*, also worked on the Pop framework software.

Starting to look at the book again, I hardly remember it. First thoughts are: I should do more wheenk, and maybe it's a hillbilly-dumb idea to simply adopt the 17-stage Monomyth structure in a wholesale Procrustean fashion, and it would be nice to really figure out an intricate filigree-type plot in advance.

I just read the first two volumes of Philip Pullman's *His Dark Materials*, and I must say it kinda puts a fella in the shade.

Regarding practicalities of being a "young readers" book, I noticed Pullman was able to do as much violence as he liked (when the bear beats his rival he eats the rival's heart, a boy loses his fingers and they bleed for fifty pages, a head is carried around). But there's no sex or excrement whatsoever, sigh.

But that's minor, the main deal is simply how rich Pullman's work is. He has a nice D & D kind of thing of accumulating magic tools: the alethiometer and the subtle knife and, presumably, the amber spyglass. Frek should get some kind of magic tools.

Also Pullman does a very nice job on the finding a mate thing, very gently bringing a girl and boy together as friends that grow closer and presumably will become the new Adam and Eve, which is archetypal perfection. I think I'll lift that, and have Frek bring him home a bride.

Pullman has the God/Tempter figure as her father Lord whatever. And there's also a Temptress figure as Mrs. Coulter. A lovely Atonement with the Father between

Will and “Grumman.” And it’s all just happening in this organic way, not like my number-skulled notion of “if this is Chapter number N, then it must be time for such and such.”

Not that I don’t think I could get my number-skulled notion to work. It’s an interesting constraint, after all. But it’s *only* a constraint, and I need to do the deep work of figuring out the action and having that pretty much set from the beginning.

So I need to figure out the deal with Frek’s father, for one thing. And I need to have in mind an Eve for him to meet. A Goddess. And I need to figure out who is the Temptress.

Pullman’s use of parallel worlds is nice, the subtle knife door-cutting is just wonderful. The knife has a 4D barb on its tip, you wave.

But I will say that he really seems to be losing control of his material in Volume III. Too many places, too many characters, and he has no sense of geography, not even a sense of place. Like at the end of Volume II when Lord Azriel walks across into the other universe right in front of Lyra you totally miss it. And in Volume III he has some guys steam up a river from Siberia to the Himalayas, which doesn’t make sense in our world, as there’s no such river, and even in an alternate world it would take a lot longer than he indicates. Not for Pullman is Tolkein’s geographic integrity: when a Tolkein character has to travel even sixty miles, you’ll by God hear about every one of the miles along the way.

April 4, 2002. “Casa de 17”

The other day, Saturday, March 30, I was starting to have doubts about my 17-chapter plan. We were down in Santa Cruz and I was fretting over how to get the Goddess/Temptress chapters into a children’s book. I was thinking that maybe this cockamamie Monomyth notion had only *seemed* like a good idea because of my particular mood that day. Maybe it was just self-deluding bull.

But then, driving home on Route 17, I passed the road-stop pizza-restaurant where I had the vision of life as Monomyth on April 20, 2001, about a year ago. And, lo and behold, the name of the inn is: *Casa de 17*. Seventeen, get it, I settled upon the seventeen stages of the Monomyth in the “house of seventeen,” I never thought of that before. How perfect, how synchronistic. It’s like the universe is reaching out and tapping me, elbowing me, smiling at me. I try and explain my excitement to Sylvia, how figuring out a book is non-logical, so far out at the limits of what I can do that there’s no hope of my having a short and manageable simulation of the process by which to figure out what I’m doing, it’s computationally irreducible, and that when you get into this zone, out on the very surface of your brain, you become sensitive to the tiniest chaotic emanations of the world outside, and that the world, feeling your sensitivity, gladly dances back. Dosie-do. Casa de 17. Yaaar. I’m high alright, but not on false drugs.

So, yes, I’ll figure out a way to make the Goddess/Temptress work. It can be a girl with pigtails, a girl like my first crush ever, Renate Schwarzwälder at the school I attended in Königsfeld in the Black Forest in 1958 and I was — aha! — twelve. Though I don’t necessarily have to literally give her pigtails, as I think readers might not take seriously a girl with pigtails these days.

April 15, 2002. Finished Rewrite of Chaps 1 - 4, Starting Chap 5.

The last couple of weeks I’ve been going over the first four chapters and

correcting them, by way of getting the novel back into full swing. Now I'm done with that and *gulp* I've gotta write something new.

While doing this I've been on the road for a lecture in Torino, Italy, the last five days. I've been feeling very tired and jet-lagged and the revisions felt kind of like grinding work. On the other hand, they were the funnest thing I had to do during my lonely solitary meals and the many hours of early AM wakefulness.

I'm about to get onto a ten hour flight from Amsterdam to San Francisco. In principle I could write a good start to chapter five there but right now, sitting in the Business Class lounge in Amsterdam, the jet-lag and travel-weariness is dragging me down. I feel uninspired. At the same time I feel like flogging myself onward as there's an electrical outlet here and I can in fact type as much as I like without depleting the precious reserves the battery I'll use in flight. But, I'm sorry, right now I need a break. Power off.

April 20, 2002. More Synchronicities.

The other day I mentioned the synchronicity about the place where I got the idea for using Campbell's 17 stages of the Monomyth, about how it turned out to be called Casa de 17.

In Torino there was a second synchronicity. I'd been thinking of having the squid/cuttlefish named Professor Bumby dig his way out from underground in Chapter 5 and say, "eadem mutata resurgo." And in Torino there was this big plate of paella in front of me, and sticking up out of the saffron rice was the back of a large squid, with the triangle or rather diamond flap of its tail like wings on the tapering barrel of its body. "Hi there. Eadem mutata resurgo."

And now third, yesterday in Santa Cruz I saw propped in the window of a used book store *Henry and the Clubhouse* by Beverly Cleary © 1962. This is about Henry Huggins, the namesake of my character Frek Huggins. I don't know if I've ever seen this book so I buy it for \$3 and take it home and read it tonight and, lo and behold, there's a scene where a man on television is talking directly to one of his viewers (to Ramona Quimby in fact), just like the way the toons have been talking to Frek.

Sheriff Bud was holding the usual handful of letters, but this time he was pointing straight ahead at someone in the television audience. "Ramona Geraldine Quimby, I see you out there," he said. "I see you out in T. V. land."

Henry and Beezus dropped their checkers. Mrs. Quimby stepped out of the kitchen. Ramona clasped her hands together and her eyes grew round. 'He sees me,' she said in awe.

Sheriff Bud sounded as if he and Ramona were alone. "Ramona ... stop pestering ... Henry Huggins on his paper route. Do you promise?"

"Yes," Ramona barely whispered.

May 10, 2002. Moving Along

I was going pretty good on Frek recently, made a lot of progress, but now I've been working on the copy edits of *Software Engineering and Computer Games* for about a week. But tonight I'm back doing my favorite thing, lying on my back on the couch writing *Frek*. Progress is a bit slow also because I'm just ending Act I and getting into

Act II and I'm still figuring out the action of the act. I've been kind of hesitating, and revising a few pages over and over at the leading edge of where I am. One thing that happens is that all of a sudden these things I vaguely thought I might get around to handling eventually are right here on deck as what I have to handle now, and I'm never quite ready for them, or quite feel up to them, but have to do them anyway, in real time, as best I can.

June 4, 2002. Another Gap.

So after that last note, the rest of the copy edits for SE&CG came, also I had to do screen shots for the book, and fix the documentation to match the new Microsoft compiler, ugh. Then came the copy edits for *As Above, So Below*. And the men rebuilding our house's front steps. Also Rudy Jr. and I are working on an SF story together, which is cool, it's "Jenna and Me," a transreal thing inspired by Rudy's running his www.firsttwins.com site. But now I think I can work on *Frek* again. I had a really good talk about the story with Nathaniel Hellerstein when he was visiting last week. In talking to him, the element of the toons loomed larger, and I came up with the notion that what the Orpolese and Unipuskers *want* from the human race is to make a kind of TV show out of us, a "branecast." I read a bunch of cosmology articles in the last week, and they use that word a lot for parallel universes. Branes. There's even one called the "Planck brane" in Lisa Randall, "Extra Dimensions and Warped Geometries," *Science* Vol 296, 24 May, 2002, 1422-1426, which is one among several very cool articles on spacetime in that issue.

June 19, 2002. Tinkering with the Chapter Count.

I'm still moving along very slowly. I've about finished Chapter Six, the Road of Trials, and need to start Chapter 7. I think it would be nicer to have three five-chapter acts, also I don't want to drag out the middle part as I'd like to get back to Earth. So I decided to combine Goddess/Temptress chapters into one, and maybe turn the Refusal of Return/Magic Flight chapters into one as well. By this expedient, I can get my "Days to Finish" count back under a year, but that's no good reason to change something.

[By early July, I found that the Goddess stuff, with related transitions, filled a whole chapter, so went back to having separate Temptress chapter for, thus, a count of sixteen chapters arranged in 5 + 6 + 5 acts. May even end up with seventeen after all in a 5 + 6 + 6.]

I'd been planning to have the Unipuskers be bumps or gouts of metallic hydrogen on the surface of a planet like Jupiter, resembling, say an Yves Tanguy landscape. But how the hell do you write a chapter of that, let alone two chapters?

So now I decided to have them be on a Europa-like moon of a gas giant. And then I can have them be more or less humanoid, or, rather, pig-like, like Wonder Warthog's relatives. Big snouts, sharp teeth, the drive SUVs and have oversized attack pets. A straight satire of greedy, Malled-out, McDonalds-ized, Amerikkka.

Also I can give them a nice Heinlein-style spaceport.

Rereading these notes to get Chapter Seven going, I noticed that "become an anonymous wanderer," notion at the end of the Monomyth. Sounds romantic, particularly if you're an alkie looking for a good chance to drink as much as you can, with no distractions. But in fact, being an anonymous wanderer isn't much fun, what I've seen of it, as in Torino this spring, walking through the crowd of people waiting for

church to begin, all of them knowing each other, and not a one of them so much as glancing at me.

July 12, 2002. Enthusiastic. Sketching Chapter Eight

I'm quite enthused about the book these days, it's so rich, each chapter is such a feast. Chapter Seven came out fine. I really feel like I am hitting some of the same vibe as my inspiration for this task, *The Lord of the Rings*. The fecundity of character and event. The richness of the visual imagination. Speaking of Mater Tolkein, it would be nice to have a character as great as Treebeard, who reminds me so much of my poet friend Anselm Hollo. Maybe there can be a "guy" like Treebeard among the Radiolarians, a third alien race I'm on the point of introducing.

I'm working on getting Chapter Eight sketched now. I want some kind of complicated double or triple-cross in it involving Carb, Yessica Sunshine and the Unipuskers.

July 15, 2002, Underpinnings.

I'm working on Chapter 8 now, and I need to work out more stuff about how the deal with the branecasters/producers/humans is supposed to be arranged. It's like to grow the arch of the story out further I need to go back and strengthen the foundation. To make your arch bigger, you need to buttress the base more. To cantilever a deck further out over the void you have to fatten it up nearer the wall, add more support beams to it. A principle to mention in my guide to writing.

I'm a little worried the branecasting thing is becoming a tail wagging the dog, and that it'll overshadow the theme of the genomic elixir and the internal uvvy, which were initially more important to me. But being branecast is a stronger form of being internally uvvied. The Earthlings can view it as a "Let that be a lesson to us," kind of thing and thus see the error of their ways.

The details of the double-cross in Chapter 8 aren't coming to me yet. Something about Yessica getting Carb to put Renata's welfare ahead of Frek's. To betray his own son.

July 18, 2002. Visit with Walker.

My old engineer pal John Walker complained the energy budget can't work for an angelwing to lift a person. So I need to have a futuristic use of dark matter (call it Walker matter maybe) so there is a biological cycle that can use dark matter for much higher energy, dark matter has a bio force to it, it's a kind of conscious matter, so only something living can digest it.

He also said it would take a lot of energy to move your center of mass across the galaxy even if you'd yunched up big. Mentioned a "vacuum propeller" that can push against quantum foam.

He discussed how analog tubes don't clip as sharply as digital amp chips. Said the max clipping value is called the "supply rail voltage."

August 26, 2002. Lost Month, Visit to Nick Herbert, Quantum Tantra.

So ever since I got back from Switzerland, August 2, I've been busy doing page proofs and a certain amount of rewrite. First *As Above, So Below: A Novel of Peter Bruegel*, then *Software Engineering and Computer Games*, then *The Hacker and the*

Ants, Release 2.0. But now that's all cleared away and I can get back to *Frek and the Elixir*. Funny how alien and distant one's work in progress can come to feel in just over three weeks.

And hard to get started up again. That's the thing I don't like about teaching, the having always to stop and start. But today, oh joy, is the first day of class at SJSU and me — I'm in the Los Gatos Coffee Roasting working on my novel. Yaaar.

Hopefully I can stay on the novel for awhile. Impending distractions are a possible rewrite of my story with Rudy, Jr., "Jenna and Me," and, more demanding, the seminar on Philosophy of Computer Science I'm to run at the University of Leuven this fall (I leave in three weeks!), the papers I might write with the philosophers there, and the review of Wolfram's *A New Kind of Science* I'm to write for the *American Mathematical Monthly*.

Sylvia and I went to visit Nick Herbert yesterday. His wife of 35 years Betsy died of cancer a week ago. Nick seemed quite distraught, he was full of talk about Betsy, about how wonderful she'd been, about her final agonies, about how the funeral arrangements they'd made. He and some of Betsy's midwife friends took her, in an open coffin Nick had made, to West Cliff Drive in Santa Cruz and propped her up so she could "see" the ocean one last time, then attached the lid with pegs (no nails). Later that day they took the coffin to a crematorium in Santa Cruz. I later said to Sylvia, "I wouldn't want to be the one to close your coffin," and she's like, "Thanks a lot!" But I meant it would be too heart-breaking. Poor Nick.

Other than Betsy, we talked about a partly-baked science notion of his that he calls Quantum Tantra. I read about it in his essay, "Holistic Physics — or — An Introduction to Quantum Tantra," online at <http://www.southerncrossreview.org/16/herbert.essay.htm>

Nick feels that the brain has a quantum system within it, and this system is the locus of our consciousness. Quantum systems can evolve in two fashions: (I) in a series of discrete Newtonian-style wave-collapses brought on by repeated observations or (II) in a smooth many-universes-style evolution of state according to Schrödinger's Wave Equation. The communicable, standard conscious content is all of type I, and this is the kind of thing we try and mimic with our neural nets that hopefully can be trained or evolved to display emergent intelligence. But Nick points out that type II is closer to how much of our inner mental experience feels. That is, upon introspection, one's consciousness feels smooth and analog, like the evolution of wave upon a drumhead or a lake, let us say.

Nick says that it will require a "new physics" (or perhaps it would be better to say "new psychology") to specify the details of the correspondence between mental phenomena and quantum states.

As a confirmed hylozoist (believer in the thesis that objects are alive), Nick also proposes that the type II consciousness can be found in every physical system, insofar as every system in fact has its own wave state.

He also proposes that one should be able to couple one's own state to the state of another person (or even to the state of another object), and thus attain a unique relationship that he terms "rapprochement." A caveat here is that the link between the two systems should not be of a kind that can leave memory traces, otherwise the link is functioning as an observation that collapses the quantum states of the systems, reducing

the consciousness to type I. He speaks of a non-collapsing connection as an “oblivious link.”

If you don’t remember anything about your rapprochement with someone or something, can it be said to have affected you at all? Oh yes. Your wave state will indeed have changed from the interaction, and when you later go and “observe” your mental state (e.g. by asking yourself questions about what you believe), you will obtain a different probability spectrum of outputs than you would have before the rapprochement.

(Nick revels in the fact that cannabis reduces one’s short-term memory to the point where, indeed, a stoned conversation could, at least figuratively, be thought of as an oblivious link. But I’d prefer to try and develop his notion without having to pollute the discourse with the emotions and prejudices stirred up by the mention of psychoactive drugs.)

I really love this whole idea, so much so that I’m imagining (a) writing a third Silicon Valley novel (following on the heels of *Spaceland* and *The Hacker and the Ants*) with working title *Quantum Tantra* about some Indian computer guys (Tantra is in fact a Hindu word meaning perhaps weaving or sex) who actually develop just such a system and/or (b) using the notion in *Frek*. Given that I’m about half-way done with *Frek*, I kind of like to start having a next book in mind.

October 14, 2002. In Brussels.

I’ve been over here for a month now. I finished Chapter Ten today, about twelve thousand words, I think I started it on the plane over. I’d kind of thought I might be writing faster on *Frek* here, as I don’t have my normal life to “interfere.”

But turns out I’ve been putting about as much energy into two other writing projects: (a) my fairly compulsive journal notes and (b) my embryonic tome about the meaning of computers.

I’ve written, I’m almost ashamed to say, twenty thousand words in the journal, emailing most of it to the family and a few friends a chunk at a time. It’s my way of having “someone” to talk to during all these long lonely hours here. I physically am only with another person for a couple of hours a week, the philosophy guys I’m doing research with.

And I’ve done thirteen thousand words on the tome *per se* plus, Jeez, five thousand words of notes on Wolfram’s mammoth *A New Kind of Science* that I’m reading for the tome project, so that’s eighteen thousand words in all.

Thirty-eight thousand non-*Frek* words.

But, hey, it’s all good, right?

I like *Frek* the most. But in point of fact I don’t think I could really have directed *all* those other words into *Frek*. It’s not like the words are just gas from a pump that I can put into whatever car I feel like.

Recently I was a little annoyed, however, at the tome, I had the sudden feeling that working on it felt too much like work. But I am enjoying doing the Wolfram notes, at least today I was.

And, as for journalizing, I’m cutting back on that a shade, too. (Though, heh, this is journalizing right here, but at least it’s “*Frek Notes*” journalizing. *Was tust du für den Front? Was tust du für den Sieg?* [WWII German War posters quoted in *Gravity’s Rainbow*]) Like yesterday, instead of spending two or three hours working my pocket-

paper notes on the Bosch paintings I saw in Rotterdam, I *gasp* tossed the folded paper squares into a manila folder to work on some other time, or never. I refuse to take on a Bosch novel right now.

October 19, 2002. Using Bosch.

Yesterday I'd been studying the excellent workshop copy of Bosch's *Temptation of Saint Anthony* in Brussels, so today I was trying to list all the things that you typically see in these Bosch and Bruegel hell-paintings. (A few lesser lights like Peter Huys got into making them too.) Here's a list in no particular order.

Bagpipes, harps, roast fowl, hollow crystal spheres, pennants, fish with legs, fish with wings, eggs, helmets, shit, burning cities, spoons, swords, pikes, rigging, fat-bodied demons, spoonbilled birds, bowls, ruined towers, dead trees, apes, pools of water, creatures with fanged mouths like cats, heavy things dangling from chains, meat on spits, cages, dancers, Grulloos, pigs, priests, nuns, round tables, drapery, fruit, stoves, seed pods, nose rings, jugs, insect wings, mussel shells, fish scales, barns, knives, ears, and more bagpipes. Hell is all about listening to bagpipes! Sqwoonk!

[I managed to work all of these into Chapter 12 except for: shit, spoons, bowls, cages, Grulloos, priests, nuns, round tables, drapery, stoves, nose rings.]

I'm interested in making a list like this as I'm thinking of chain-saw-carving a Bosch scene into the current chapter of my SF novel in progress. My character Frek and his gang are in a Fifties-style cartoon world right now and, at the end of the chapter, things will turn ugly when Frek is "running away from the giant with the gold," as it were. It might work nicely to have the scene morph into a Bosch Hell. All hell breaks loose. The Klein Bottle Bagpipe From Subdimension Z.

Bosch has been aped before by SF writers, but what the hey, I can do a Peter Huys. I'll just, *guh-hoink*, put ever'thang on that list in! Like a bumpkin making the Venus de Milo from a log.

Come to think of it, I wrote a Bosch scene once before, in *The Sex Sphere*. But this one would be a little different. I wouldn't have a giant ass in it, for one thing, *Frek and the Elixir* being a kids' book and all.

On the top of the paper of one of his own drawings, the incomparable Master Bosch wrote, in seeming self-mockery, "*Miserrimi quippe est ingenii semper uti inventis et numquam inveniendis*," which means, "It is characteristic of the most dismal of minds always to use clichés and never their own inventions!" The thing is to be confident enough to say this.

[The Bosch drawing in question, by the way, shows a field with eyes in it by a woods with ears on the tree trunks, the image is thought to represent both (a) a common proverb and (b) a rebus for his town name: 's-Hertogenbosch = Oor-ogen-bos = Ear-eye-wood. (That town name is, Michael Beeson tells me (and the guidebook confirms), too much trouble for even the Dutch to spell, and they all just call the place "Den Bosch." I'm gonna wait till Sylvia gets here to go there.)]

There was a beggar in Antwerp with his head completely covered by *ugh* scar tissue, and a depression in the top. Bosch and Bruegel didn't look away from guys like this, they studied them, maybe even hung out with them. I think if I were to start looking at them more, I'd also need to start giving alms, and talking to them and being nice. But I didn't do any of that today.

Back to the Bosch world, it might be interesting to use contemporary kinds of objects in the Hell world — like garbage cans, pizza slices and cars instead of armor, roast pigs and fish. The ubiquitous car replaces the ubiquitous fish. (Hard to resist keeping the bagpipe, though :)). One worry here is that this could get into Stephen King territory, which is not, IMHO, at all a cool or interesting place to be. Or it might just seem gauche and lame to do Bosch with garbage cans and pizza slices. Well, I'll just have to try a little of it out and see. [In the end I went mainly with the old-style Bosch.]

Initially I'd planned to make that toon world start in the Good Old Days, like a bandstand, men with pushcarts, pies on window sills. But that's facile nostalgic horseshit. I think I'm being nostalgic for my youth when I start a rap like that, but I don't truly remember any Good Old Days like that, it's an implanted memory, implanted by culture. Much better to start in a Real These Days toon world, and people it with things I actually see in Brussels, say. My intended readers, the twelve-year-old boys, will much better be able to relate to Real These Days.

The way I'm seeing it now is to have a good transreal use of being in Brussels. The Planck brane starts out as Brussels and turns into Bosch's hell. One slight worry that this might not be the best mental exercise to put myself through, in terms of having a good state of psychological health.

I'd have to be damn sure to have my local spirits Bosch and Bruegel behind me on this one. My brahs. I wish.

"What is that you think I look like?" said the spirit in a cold tone. "You 'see' — is it with photons? And with everything projected into a flat three-dimensional space? It's rather hard to — visualize."

That line of Pynchon's, "the sick realization that the spirits weren't nearly as friendly as they seemed."

Realize you've been talking to a mask covering up something you can't begin to imagine.

Kafka's last journal entry.

Creep me *out*.

As it happened, after writing this note and falling asleep I had a nightmare of being in a cave with a boy guiding me, he knew the ropes, but wasn't entirely friendly. The daemon, the animus, the spirit of the underworld. Sylvia, my better half, my anima was with me, but not yet coming into the cave. The cave held an immersive VR game, incredibly complex, and I was scared of playing it, I knew at any time it could shift into a Bosch hell world and drive me crazy. The feeling that there really are some sights so terrifying as to permanently destroy my mind. I kept trying to wake up out of the dream, and maybe I'd think I was out of the game, and then I'd realize I was still inside it.

Nice light fare for the kiddies!

October 23, 2002. "Let it Fly!"

Today I decided to mention an imaginary movie, *The Brussels Illuminations*, which the Y2K aspect of the branecasters' city Node G is modeled on. I might even work in the Atomium. And the Magic Pig is in as of last week. (Senior year at Swarthmore, when I'd put vertical cardboard tubes all over my room with Greg to make it a funner place to get high in, we were (or at least I was) telling people I was "The Magic Pig in the Enchanted Forest.") I'm really satisfied and happy to be writing the

Magic Pig.

This book is gonna have so much in it.

Today I saw some inspiring remarks by the Angels' oldest player, Tim Salmon, who just had a really good game in the World Series against the Giants. "Just make the most of it. Be loose. Let it fly. Don't go home thinking you held anything back."

November 18, 2002. CCMIX = The Exaplex Projection Room.

At the studio off CCMIX, Sinan Bokevov is playing for me his electronic composition. He made it with Stochos, the software I'm consulting about. And it flashes on me it's one of those times reality is only dt away from art. I was just writing about the scene in the projection room, Frek and the boys in there, the windowless room with the mind worm lampreys on the ceiling, all so weird and strange. And here I am next to Sinan in the windowless electronic music studio, with a pile of big fat mind worm type black cables behind me, each of them wrapping up about a dozen lines with jacks, just perfect for plugging all down my spine. And he's playing his piece. First there's the dilated sound of a hammer pounding, stretched out in time, sinister, then a single voice that's been expanded into a choir, like an acid trip where things shatter into droplets of sound, its all in the brain processing, isn't it. Gerard Pape is off in the office like absent Zed, somewhat menacing today, although bascially he's a good guy and my friend and very inspiring. Today he's having trouble with his secretary, and it's complicated for be to get reimbursed for my train tickets. But, being here with Sinan I realize that of course this isn't about making money, it's about getting input for the projection room scene in *Frek and the Elixir*. I ask Sinan why the electronic music sounds so sinister, he says its because its sounds we're not used to hearing and anything strange is a possible menace. Also the sounds are deep, like big things. Also dissonant, like unpredictable disorganized things. Also seeming to come from every side, like things you can't get away from. "Polyphony is a creation not by god, Satanic."

December 4, 2002. Pushin' on.

I keep feeling like the book isn't going fast enough; I'd had this feeling that maybe I'd work a lot faster while on sabbatical here, but it's still pretty much just a chapter a month. Of course if I was teaching at SJSU it might be a lot less.

I'm into the Bosch world, with Rundy the Magic Pig peeping out, small and meek and pink, from his burrow under the hill upon which the demons are massed to get Frek. It's been real fun writing Bosch, not, in the event, mentally disturbing at all, ha-ha-ha, meanwhile I'm cutting the manuscript up into paper dolls and fingerpainting the wall with my own shit, just kidding. But I think I did mänge to make the scene in the Exaplex theater pretty scary, enough perhaps to put some of my young readers' hair on end.

A few weeks ago I was talking to Leon Horsten about trying to imagine that everything I saw was an ongoing computation, and he was like, "Aren't you worried that thinking that way could drive you crazy?" And I was like, "I used to have that kind of worry, but I've been doing thought experiments of this nature for years, and I've found that my sanity is rather robust." Like trying to see the fourth dimension, imagining invisible aliens are all around me, thinking the world was a set, etc. It always seems scarier in advance than it is when I actually do it.

December 29, 2002. Endgame.

I'm gearing up for the endgame, the last four chapters, 13 - 16.

What I need to remember to do is to cash in on all the stuff I've set up. Don't be like Pullman who, in the *Golden Compasses* trilogy, sets up all this great stuff and then never calls it in, a point that Marc Laidlaw pointed out to me.

Some of the things to cash in on might include the following.

Show the effects of people being "run" by the espers. In particular, let the Orpolese nudge the Earth towards chaos, then let the Unipuskers get control and push it towards uniformity.

Have Frek take advantage of his role as "talent race representative," and renegotiate the deal with the branecasters.

Have the clients (first Orpolese, then Unipuskers) help Frek.

Get Wow to do something.

Have a fight and reconciliation with Renata.

January 8, 2003. More about the Endgame

Still figuring out Part III. I have a lot of issues to wrap up. I feel a little anxious about it, there's so much to bring together. I've been revising the list in this entry for the last couple of weeks, and may revise it again after today, but I'll leave it as a January 8 entry anyway.

I decided to fuse two stages; "Rescue from Without" and "Crossing the Return Threshold," cutting the book to 15 chapters instead of 16. Reasons: I wasn't getting a whole chapter's worth of action from the "Rescue"; also I'm getting eager to wrap up this draft and start the smoothing rewrite.

Chap 13: Rescue from Without and Crossing the Return Threshold

- (1) Meet Q'lem, get back to Earth.
- (2) Renata has an ooey in her head, she steals the elixir, calls in the counselors.
- (3) Saved by Tagine and Vlan, who now activate the humanity channel controllers.
- (4) Smash Gov's power with the help of the Orpolese controllers, also with the direct help of Tagine and Vlan.

(5) Remove Renata's ooey and bond with her.

Chap 14: Master of Two Worlds

- (1) Working together, Frek and Renata (Adam and Eve) remove the knockout virus.
- (2) Reseed the biosphere.
- (3) The Orpolese cuttlefish problem.
- (4) To keep cuttlefish from growing, Frek cuts a deal with the Unipuskers. have some trouble then with Tagine and Vlan.

Chap 15: Freedom to Live

- (1) But now the Unipuskers are starting to bring back a crushing monoculture, so Frek needs to get rid of them.
- (2) Hook up with the Magic Pig and free Dad.
- (3) Get rid of the branecast. Send the toons. Get help from Q'lem?
- (4) Use the toons and perhaps Q'lem as guardian angel to resist further invasion.

January 13, 2003. Worrying about Marketing

Today I printed out two copies of the book, 142,343 words, up through the first third of Chapter Thirteen. I'd really like to get out of the dreary vicious circle of low advance, no publicity, low sales.

But maybe I'm kidding myself.

The worst case is always that I've completely lost it, that I'm in effect fingerpainting with shit, typing "All work and no play makes Jack a dull boy," that I can't see that what I'm writing is unreadable fatuous gibberish, and that the book will never be published. In the back of my mind, I always see this as a real possibility. If it were really true, I wouldn't be able to tell, right?

One step up from that is I sell it for a very small advance, the publishers dump it on the market with no promotion, I get a few good reviews, a few lukewarm reviews, the book sells like five or ten thousand copies, and I'm back to square one, wondering what the *hell* I can do to finally write a novel that makes some money.

The dream case would be that I get a good advance for *Frek*, good publicity, good sales, and I write a sequel. Heck, I could do three of them, just like *Lord of the Rings*, though just now I'm so eager to finish the thing off cleanly, I definitely don't want to get into speculation about what might constitute the plot of a sequel. Certainly I've set up a commodious world here with lots to explore.

If the Bruegel book *As Above, So Below* did well, of course, I could write another painter book, either Bosch or Magritte. Maybe Magritte would be possible. I notice that someone got away with writing a novel of Frida Kahlo's life, so it can be done, even for a person about whom a lot is known (as opposed to Bruegel, about whom I was free to invent a great deal.)

Or if *Spaceland* were a hit, I could work a sequel of that pretty easily, too. That would be a snap.

Worrying about the next novel as usual, the next stepping-stone into the Void. Probably it'll be none of above.

Ah, but wouldn't it be nice if *Frek* did well.

January 15, 2003. Gibby is Doomed.

I think Gibby just doomed himself by almost getting home and then setting out again. So he gets killed, and then, if there's a Volume II, his son Bili could take his place.

As the end approaches, I'm trying to imagine life without this Great Work. I'll miss it. I can almost see making it a trilogy, like *Lord of the Rings*. That would shut them up, "them" being the voices in my head that say Rudy only writes short punky books.

January 29, 2003. Chapter Thirteen Done. Worrying about Marketing II.

Something's gotta change. My books are going nowhere, even though I'm at the peak of my form. *Spaceland* got *one* (1) newspaper review, the Bruegel book got *none* (0). My masterpieces, utterly ignored. I can't stand the notion of *Frek* getting nowhere. why do I even bother? Pearls before swine — not even pearls, my books are simply invisible. Beneath notice. The sci-fi readers think I'm weird and difficult, while the literary readers think I write low-brow sci-fi.

I'm especially bitter about *Bruegel* not getting reviewed by the Times. Susan Protter says Dave Hartwell at Tor is asking what I've got for the coming season, he wants to see it. So that's good, that means I'm at least still publishable. I'm wheenking because I'm having parturition anxiety. Fear of delivery. I finished Chapter 13 today, another fucking gem. I can't believe how high a level I'm working at. Just two more chaps to go. Still a number of issues to work out in the final chapters, which is another reason I'm querulous and anxious today. One thing I liked doing in my Bruegel novel was showing how much of an artist's energy goes into worrying about marketing. Usually the energy is very wasted and misdirected, by the way, the average artist/writer not being what you'd call a public relations expert.

February 10, 2003. Chapter Fourteen Underway.

A good day today, I wrote two thousand words. Thursday I printed out a fresh copy and mailed it to Hartwell, who'd been asking to see it. It would be nice if he'd make a good offer and print the book in a reasonable-sized font with proper margins. He said he'll take a couple of weeks to read it, I think his assistant Moshe will read it too.

I didn't get a chance to write since last week, and had been feeling at loose ends. How slowly time passes when I'm not writing. How little of interest there is to think about when I'm not entangled with my latest "Great Work."

While not writing on the book, I had, however, been reworking the outline, and the new material is coming out nice and smooth. It's amazing how much you can do with a few words; sometimes it feels like actually implementing a feature can take fewer words than it took to describe it.

This morning I reread my Lynchburg story "Bringing in the Sheaves" about Jerry Falwell's giant leech, who'll serve as a model for my shuggoths. That story was a chapter from my never-completed 1982 Lynchburg novel *Twinks*; seeing it made me kind of want to go back and finish that book. It was so punk; it would be fun to recreate that feel. Still, there would be some problems in going back into that book's reality, as that was a screwed-up unhappy time in my life. Maybe not worth it.

February 24, 2003. Starting the Final Chapter.

Day before yesterday, Saturday, I read a few pages of Chapter 14 at the small Potlatch 12 SF con in SF. I'd meant to read from "Jenna and Me," but I forgot to bring my print-out, which was probably subconsciously deliberate as I didn't feel good about reading it without Rudy Jr. present to share.

I'd been a little stalled at the end of Chapter 14, and reading it got me going again. I'd felt the last few pages I did on it weren't very good. I was anxious about a possible failure of the imagination. A drying up of the cornucopia just as the last chapter rolls around. Rushing the action instead of elaborating a rich enough brocade of detail. It doesn't help that I had a fever for two weeks, and a lot of papers to grade. But reading a bit of it to those friendly, encouraging faces on Saturday was a help.

So I finished Chapter 14 yesterday and today. It's a thousand words shorter than Chapters 1 and 2, previously the shortest chapters, but I think that's okay. Certainly a lot happens in it. And maybe once I'm done I'll feel like coming back and embroidering upon it a bit.

But now I'm desperate to write the last chapter and resolve my anxiety over

whether or not I can successfully wrap things up. Go git 'em, Rudy. You can do it. Nail it. You don't have to punt. Run for the touchdown on fourth down. <More uplifting sports metaphors to be inserted here, proving once and for all that Rudy's really just a regular guy and not some un-American beatnik poetaster.>

Still hesitating at the door-sill, I just scanned over my book journal notes here. Amazing how the chapters slowly do accumulate. As slowly yet ineluctably as a tree pushing forth from the ground, complete with frosts and winters.

March 2, 2003. Finished First Draft.

Okay, I finished the last chapter last night. I went out to an AA meeting, Sylvia was asleep when I came back, I sat up writing and nailed the last scene. I'm really happy with it. What a journey it's been. I can't believe I did it. One step at a time, it adds up. Like a coral reef. Polishing the ending a little more today.

"It's together," said Frek. "My quest is done."

Beautiful.

Actually, not so beautiful. I don't like that last line. Frek wouldn't say "quest." I immediately changed it to the following (and may change it again):

"It's all together," said Frek, thinking back over the long quest. "We're done."

Not that Frek mightn't start a new quest one of these days, should there be popular demand. I don't really like to add a last line that holds out a beggar's tin cup to request an encore.

But, still, I could leave it a little open.

"Done?" said Renata, squeezing Frek's hand. "We're just beginning."

A pleasant problem, to be down to worrying about the last line...

I feel like *Frek and the Elixir* could be my most commercially successful book so far. But, hey, I thought that about my poor neglected Bruegel novel and even, I think, about *Saucer Wisdom*. In any case, I think I chose a good theme, a good design, and I feel I executed it excellently.

Coming back to that Kerouac quote from the start of these Frek-writing journal notes: "There ain't nothin left after that."

March 3, 2003. Now what?

Sitting in the Los Gatos Coffee Roasting Company, putting in some final corrections to the last chapter, and now those are done, and, oh my God, now what? I'm going to have to find something new to do with my life. It's a shock finishing a novel, like stepping off a cliff. The other day a young woman was interviewing me for a profile in the SJSU Daily Spartan, the student paper, and I said, "Finishing a novel is like having a baby. But it's also like being born. You have to leave this special world you've been living in."

Waaah!

March 5, 2003. Relief. A Break from Kneading.

Yesterday I started feeling a real sense of liberation and relief. Out from under it. I made a nice compact print-out yesterday, one-and-a-half line spacing, printed on both sides, which made 411 pages (really 206 as they're duplex), and I punched 3 holes in 'em and put 'em in a nice 3-ring binder. Also I made double-space copies of the last two chapters and sent them to David Hartwell and Susan Protter.

So now I'm leafing through the tome, though really I should read it in an organized fashion. In any case I'm making notes and where I see larger things to fix I'm adding those to the "To Do" section at the head of these Notes. I think I'll stay away from actually editing the novel document itself until I fully finish rereading what I have. Also it's just as well to wait till I get some editorial suggestions before making any more changes. So for the next month or two I won't be doing that endless kneading, the several-times-a-day process of:

- a) Edit the novel in Word.
- b) Save edited file, and copy file to desktop computer, to laptop, and to backup disk.
- c) Print the newly edited section.
- d) Mark up the new printout with a pen.
- e) Return to step (a), that is input the markup edits and use momentum gained thereby to write something more.

March 11, 2003. "Something Asymmetrical Without Its Shell"

Today I had some good email with Bill Gibson. As I have nothing else to do, I'd been working on a new publicity campaign for *As Above, So Below*, and I finally got him to write a blurb for it. While we were at it, we had this exchange.

Me:

"I just finished writing this long somewhat fantastic novel I've been working on for nearly two years, and I have this desperate loose-ends feeling I get when I finish a book. It's as much like being born (out of the cozy womb) than it is like having a baby. I'm relieving my jones by writing a horror/SF story I always wanted to do set at the Lynchburg, VA, country club where I was a proud member from 1982-1986. Those were the days."

Gibson:

"I know what you mean about emerging from a book. I'm sort of like something asymmetrical scuttling around without its accustomed shell."

Me:

"That's rich, I love it. I also think of a magpie without a nest to stick things in. Makes me realize I'm lucky to be a writer."

March 25, 2003. Done First Read-Through.

I've been rereading the book, and now I've made it all the way through, marking it up, more marks in the second half than in the first, which figures, as that half's been reread less often. I found lots of rough spots and plot weaknesses, the book no longer seems quite the impeccable masterpiece that I'd imagined it to be while writing the last few chapters. It could use a bit more wheenk-wheenk-wheenk of characterization, also more conversations.

I feel very uneasy. Maybe it's no good. I saw so many holes on my recent read-through. And Laidlaw's remarks on the first chapter (I sent him an early draft) were a little discouraging, suggesting lots more work to do.

April 25, 2003. An Offer from Tor.

So David Hartwell gave us an offer for the book. He says they could slot it into their schedule for next spring, which would be nice.

The amount he offered was good, more than for *Spaceland* or for *As Above, So*

Below, but less than the amount I'd mentally pegged as the minimum I would take. So I wondered where else I could try.

Susan Protter started reasoning with me. Scholastic "Harry Potter" Books already told her they probably wouldn't pay me more than Tor, and would take months to decide. Susan called my old Ace editor Susan Allison, and she said she didn't imagine they'd pay more either. Susan's feeling was I oughtta stay with Tor.

I had an issue about the font-size and white-space in my Bruegel novel, which is really very cramped. And since *Frek* is even longer, if they try and shoe-horn it into a small-sized book it would look terrible. But Susan says David agrees to do his best to make sure they use a bigger book size and, hopefully, a larger font. I wish it could look as nice as the Harry Potter books.

It's kind of nice to know it will indeed come out.

Today I finished typing in the revisions I'd marked on the first read-through, and I resolved most of the little problems I'd found, especially with the motivations of the Magic Pig. And I think I got it fixed. It's a nice book. I might do another read-through, maybe this time starting with the last chapter and working my way forward, as it's the last chapters that haven't been as extensively reworked. I'd really like this one to be impeccable.

April 29, 2003. Worries About Book Format

Re. the book size, yesterday David backed off to saying he "will try his best, but can't guarantee anything" about the production. It's twice as long as *Spaceland*, and half again as long as my *As Above, So Below*. "Nobody knew you'd write such a long book," says Susan.

Now in the bookstore I noticed a bunch of big fat Tor fantasy books, mostly by a guy called Jordan. And I'm saying to Susan, why can't I have a big fat book? And she's like, David says if they print your book in a big font, it'll be 700 pages and cost \$30. So what's wrong with that? Well, apparently the bookstores might not want to stock it then, as I'm categorized as a mid-list writer rather than a best-seller.

I can't stop thinking about the font. Would another publisher guarantee a bigger book size?

April 30, 2003. I Sell to Tor

David says maybe if the *Spaceland* sales are holding good when they go into production I'll get the larger-size book.

Susan Protter keeps saying not to try another publisher because: I won't do better, nobody else wants me, I'm lucky to get this deal, I might as well get *Frek* out as quickly as possible, Scholastic would take eight months just to look at it, Ace says they wouldn't want a troublesome author who leaves his prior publisher over a thing like *fonts*, Avon's rejected my last three books, Roc is even stingier than Tor, Ballantine only wants fantasy, the book's done and ready go, why waste time shopping it around with no guarantee of a better deal, if I make Tor wait and then come back their offer might get worse as by then the *Spaceland* returns will be coming in, by now I've clamored so much by now that maybe Tor will use a better font anyway, if I leave Tor now I may be "burning down" my last best publishing connection, and there's always a next time to hope for a better treatment, I have to earn the good treatment in the marketplace. That last argument gets my goat of course. How many next times do I have left?

But Susan could be right. At some level, the publishers don't really look at the book *per se*, they look at your "numbers" on your previous book. Susan claims I'm still haunted by the bad sales of *Saucer Wisdom*. It would be kind of nice to just say yes to Tor and let the book come out. Dave Hartwell says he already had a sketch of the cover painted and can put it in next spring's list. I have to decide today. I think I'll say yes.

Yesterday I had kind of a sign that suggests I should go with Tor. When I came home there was a package from brother Embry. And in it was *As Above, So Below*, handsomely bound in leather (which Sylvia later pointed out was elephant leather from one of Embry's safaris!). The book felt so nice in my hand that I read a chapter or two. The font wasn't actually that hard to read, I forgot about font size and just read. Here's this lovely leather-bound book that my brother admires, and why am I kicking. Anyway, maybe the reason the font looks small is that I'm almost sixty.

Come on, Ru, a decent advance and a rush to publication is bad news? Don't be a sulker.

Reading Bruegel, I hit on the paragraph at the end of Chapter 15. "The things he'd painted, he'd painted right. It might be that his stomach was going to kill him before long, and half his life's work might be out of sight in storage, but he knew he'd painted things that mattered. He'd painted what he saw, and more than that, he'd painted what he couldn't see, the God that fills the world, as above so below." I can really relate to that, not that my stomach is killing me. "Out of sight in storage" matches "out of print."

Susan just phoned and twisted my ear to the point where I said, "OK."

Susan's voice got hard then, tired of my waffling, "You just sold a book, be happy!"

All right already.

June 11, 2003. Waiting for Edits.

Now I'm waiting for Hartwell to make some editorial suggestions. He did request the larger (physical) page size, so that may work out well. They're doing the cover in-house. I'm guessing I won't have editorial suggestions book till mid-July. Cory Doctorow made some good suggestions and I'll work on those at the same time.

I sent the book to Cory and to Marc Laidlaw for blurbs for the site I'm making. They wrote nice blurbs.

July 19, 2003. After Readercon.

I read Chapter One out loud at Readercon, and it felt slow. I need beat it down the length, and jack up the action. Maybe Linz Martinez should walk in and give Frek the Merry Mollusk urlbud. Maybe Stoo should uvvy Frek and urge him to hurry up. Some interruptions, some breaks. Maybe Wow should come inside. Maybe Goob Doll Judy should talk to Frek.

Had dinner with David Hartwell, he's had some health problems, is running a little behind. The sooner the edits come the better, as I really want to have time to go through the book carefully again. Hell, I better start work on it now instead of waiting for the edits. That'll have to be an extra run-through.

July 25, 2003. Fixed Chapter One.

When I read Chapter One out loud at Readercon, it felt too long. I've cut out a thousand words now, interesting stuff, but just too much of an infodump. I added a bit of action to break things up while Frek cleans his room, had Judy appear on the wall. I finally feel good about this chapter.

Still no editing suggestions from Tor. Oh well. I know what I have to do. On to Chapter Two.

July 30, 2003. Revised Through Chapter Seven.

I'm plowing along. Heard from DH, he says he's reading it, and so far has no corrections. Meanwhile I've shed about 2800 words in the course of revising seven chaps.

I get so anxious when I'm revising, I start seeing so many broken things, but then as I fix them I get calm. But then I read the next chapter and it's back to worrying. I'll be glad when I'm done.

Still hanging over my head are Cory Doctorow's remarks that the last two chapters need fixes.

August 10, 2003. Done Draft Three.

Down to 162,400, a drop of about three thousand words from draft two. Less is more, I guess. The cuts were mostly just a matter of not explaining the same thing over and over, as I sometimes tend to do when I'm still feeling my way and figuring it out. The cuts would look like more, but I added some of the stuff Cory was asking for.

I smoothed a lot of choppy paragraphs. Sylvia noticed that a lot, she read it for me. She said maybe some sections are choppy because when I'm composing them, I think of something and write it, then think of something else and write that, and end up with an accumulation of declarative sentences. This happens especially when I'm describing new scenes. So now I kneaded them into compound sentences.

I'm going to print and reread the last two chapters one more time; there's always a tendency not to revise the ending parts as much as the opening. The old syndrome of having Volume A of your encyclopedia be longer and more polished than Volume W-Z.

I ended up revising the last chap three times in all, trying to get it really nice. I got excited reading it, thinking it was really good. And then I emailed it to Hartwell.

August 21, 2003. David Hartwell's Change Requests

Today I had lunch with Dave in NYC. He finished the book over the last ten days, and now has lots of suggestions, so I have to do another revision. I read through the comments and it's going to be a job to make the fixes. I'll be making some of the fixes using search-and-replace techniques, which means they may not be smoothly integrated, so I'll have to work extra hard to smooth the book out in copy-edits.

I got a sample cover as well, came out quite nice, Photoshop art, a yellow-orange solar-flare-like lava-lamp photo with a flying saucer and an Earth disk. Dave's intern mentioned that some of them had wanted to make the image look a whole lot more like a lava lamp. Rucker = old hippie = lava lamp? Please no.

David's biggest issue is with the Carb character, he doesn't like him, thinks he's inconsistent, unlikable, no fun, he wants Carb to be dead when Frek goes back to save him. He can't believe that Frek would ever let his Dad back into his heart, after the

Dad's many betrayals. Maybe there's something to this.

In imagining Carb I mixed together the image of Blank Reg from the *Max Headroom* pilot movie, plus a very irresponsible Sta-Hi type guy, plus my father who left my mother and his family plus — and here's where it gets contradictory — my own self with my basically good relationship with my son. But in fact I'm not a guy who left his family and all but set up his son to get killed by Unipuskers, so my tender feelings towards Rudy, Jr., aren't necessarily a good fit for Carb. Yet I know that my father did have those same tender feelings for me even though he did leave my mother. He didn't set me up to be a murder victim of course, but he did, I used to feel, betray me in the sense of being more loyal to his new woman-friend than to me. So I can in fact visualize a ne'er-do-well father who loves his son. Ah, but why didn't Carb ever get in touch with Frek and his family? Maybe Carb should have been trying to get in touch with the kiddies, but Yessica has been blocking it? But what about Carb warning Gov to arrest Frek? And crashing Frek's yunch trip. It doesn't actually work to visualize Carb as being like me or my Dad, so I do need to rethink his characterization. Could I maybe make him a little delusional, kind of a self-deceiving windbag? A person so deeply insincere that they don't even know when they're lying.

Dave Hartwell's specific oral suggestions were four in number.

(1) Renata needs more to do. Needs more of an agenda. Make relationship with Yessica more edgy and crackling. She has enough of a bond to Yessica to feel she must stick with her on trip back to Sol system. Have her bond strongly with Ida or Geneva. Make her 14 instead of 12, as she converses in a more sophisticated way than Frek.

(2) Call Frek's father "Carb" not "Dad" whenever Frek is mad at him. Have Carb die in the Planck brane. The atonement with Frek goes off too easily. Carb's irony is repellent to kids.

(3) Need to make clear that the Revolution kills off all the Gov worms at the same time.

(4) Use some kind of high-tech explanation for Zed, like a DNA computer or a quantum computer. And what is the Magic Pig anyway? Explore some super advanced tech for him. (I answered that the Magic Pig is *me*, my Alfred Hitchcock walk-on, but he didn't think that was funny — even though, at some level, it's true)

And there's lots more changes on the pages he wrote on.

August 25, 2003. Done Hartwell's Changes: Draft Four

Okay, I worked on it two days and now I think I made all the changes David wanted. I think the book's better now, though I'm getting really tired of working on it, tired of re-entering that frenzy and anxiety. I won't mail it off for four or five days, I'll mull it all over a bit more, in between going back to teaching **uuugh** tomorrow.

Here's the cover letter I sent Dave with Draft Four.

Sept 1, 2003 (Letter dated to match the date I put on Version 4.)

Hi David,

Here's Frek, Version 4, with your changes worked in. I think this makes it a noticeably better book, so thanks.

As well as taking care of your changes, I added a glossary as you suggested. This

took a couple of thousand words, but it is, I think, entertaining.

A few remarks on the changes. Where I reference pages, I'll refer to the old page numbers that appeared in the marked Version 3 pages you gave me.

(1) Renata. I made Renata's age be 14 to Frek's 12. I also made her fight with her mother a bit more, and made her eager to go back to Earth rather than to push on with Frek to Orpoly. She wants to get a hoped-for career as a toonsmith in motion.

I let her have the big idea about how to drain the branecasters' wham. I made her conversation snappier and sharper throughout the second half.

(2) Dad/Carb. A main thing was to go over Frek's father pretty thoroughly. I justified his derelictions a bit more — Gov was about to give him the Three R's, and Yessica prevented him from sending messages, also Yessica had him a bit hypnotized. I also built up Frek's anger at him in their scenes together. I kept a (heavily revised) version of the atonement scene at the Taz Bar on Unipusk (old p. 310). I think the atonement is crucial — there's not a fatherless kid out there who wouldn't love to reach peace with his Dad.

Regarding when to call the father "Dad" or "Carb," I now use "Carb" when Frek is mad at him and "Dad" when he's not. Thus for most of the first part of the book including Unipusk it's mostly "Carb." After the Taz Bar atonement, it's mostly "Dad" all through the trip to Orpoly and the Planck brane. But then when Frek in the time pool learns yet another betrayal by his father it goes back to "Carb." (This is when Frek finds about his father helping the Unipuskers warn Gov about the Anvil coming for Frek.) From this point on, Frek keeps more distance, from this point on it's more or less impossible to believe in his father any more.

But, I keep Dad's last words to Frek as being about flare-surfing with Frek being the best day of his life (old p. 442), but now I qualify this with Frek's at-this-point abiding distrust.

And then, when Frek comes back to the Planck brane, I do have Dad dead (or at least not there) as you suggested. He dies for his sins. This meant I had to rewrite parts of the last chapter, also the very last scene.

(3) I made it clear in the Revolution chapter that all the other Govs are getting killed as well.

(4) Zed and the Magic Pig. Zed is now an organic part of the Elixir, which is living being. In the last chapter, the floating island is meat, not stone. The Magic Pig is now a bit like P. K. Dick's "Golden Man," a creature able to see into the branching parallel universes and always pick the best option.

I totally rewrote the vision of the Pig's study to show the Pig growing the Exaplex from a "bean" that he coughs out.

(5) There were a few small change suggestions I couldn't use; I enumerate and justify these spots below.

Old p. 46. I kept the name "Nubbie" and didn't change it to "Nubie" as you suggested. The latter goes off into Nubian and newbie, which aren't good associations, I particularly dislike newbie. And I like the sound of Nubbie better. Colloquial speech is oriented towards sound, not spelling, and there's no reason people mightn't round off NuBioCom-users as Nubbie. Also I like that "Nubbie" is a bit like "yuppie," which is a correct association.

Old p. 120. The dogs do still mate, they aren't "fixed" in the sense of being

neutered. They're just infertile. I now weave this in earlier on, and explain a bit more on this page too.

Old p. 372. I think it's reasonable the people in the future might refer to our era as the Y2K era. It's what we ourselves call it (or should be calling it), and is broader and less unwieldy than Twentieth-and-Twenty-First Century. I see it as being a standard term like the way we now use Dark Ages or Middle Ages. It's not really so likely that Frek would peg old-looking stuff as any one specific century, more likely he'd use a broad term like Y2K, encompassing two or three centuries. I make the usage clear.

I close with a merry *Wheenk, wheenk, wheenk!!!*

Yr. obdt. srvt.,

Rudy

November 1, 2003. Copy Edits Done.

I got the copy-edited manuscript for *Frek and the Elixir* eight days ago, and just finished reading through the book, checking the edits, and making a fair number of new changes. I felt a lot of satisfaction rereading the book, I think it came out really well. So many amazing scenes! Such prodigal novelty and such high emotion. What can I say, it's Bruegelian.

It was a good copy-editor, a pleasure this time around.

There were a number of last-minute changes I'd made for Dave Hartwell, and this was a good chance to reread for continuity. The thing that needed the most attention was Frek's relationship to his father. I think now I finally got it working. The Magic Pig's motives and essential nature are still a bit fuzzy. But if I ever do a sequel, I can straighten that out, have Frek spend more time with the Magic Pig.

Whether I do a sequel depends, primarily, on how well the book does. Though I certainly wouldn't mind going back into Frek's world. I figure I'd begin it only a few months or at most a year after the end of this one, so as to keep more or less the same audience. It would be great if a lot of kids read this book. Maybe this will finally be a novel of mine that catches on in a big way.

I get a kick out of the way my aliens talk. The Orpolese sound like crazed beatniks, like the Wackles in *Spaceland*, it's fun for me to see all that word play. Hopefully others will think it's fun, too. There's so many little references that I dig on. Most people wouldn't be aware of the references, but I think the fact that many phrases are in fact collaged in gives the Orpolese speech a special glittery texture. And the Unipuskers are just great.

January 22, 2004. Done with Notes.

So that's it. I'm gonna close out these notes, edit them down a bit, and convert the edited form into a *.PDF to post it on my Frek website. The book's scheduled as a Tor hardcover in April, 2004. And in the page proofs it looks as if Tor used a nice big page size and a good font. Yee haw.