

Notes for SAUCER WISDOM

by Rudy Rucker

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Outline

(1)**First Contact.** I met him when I talked on "The Hollow Earth" at the Anomalies Conference, San Rafael, February 15, 1992. Then he got in touch with me when I published my review of John E. Mack, Abduction: Human Encounters With Aliens, *The Washington Post*, April 17, 1994.

(2) **Three Dimensional Time.** I meet Frank in San Lorenzo, June 2, 1994, he tells me he sees aliens, he talks about three dimensional time.

(3) **Frank's Alien Catcher.** June 2, 1994, I go to his house he turns on the linked TVs and goes off with the aliens.

(4) **Future Media.** Lifebox, dragonfly, piezoplastic, radiotelepathy.

- (5) **Jahva House.** Visit with Frank at Jahva House, June 10, 1994. Meet Peggy Sung on beach.
- (6) **Alien** notes.
- (7) **Biotech** notes.
- (8) I take Frank to the **Mondo party**, he breaks into my house.
- (9) Frank disappears for two years of **missing time**, then he calls me, I go see him in South Dakota.
- (10) How Frank got to South Dakota, and the **Superphysics** notes
- (11) **Transhumanity** notes.
- (12) **The End?** I dream I see the aliens; Frank disappears.

Timeline

Timeline for my interactions with Frank

- Saturday, February 15, 1992. I meet Frank Shook in San Rafael.
- Sunday, April 17, 1994, my review of Mack's Abduction in the *Post*.
- Wednesday, April 27, talk at UC Davis.
- Tuesday, May 24, first day of vacation
- Saturday, May 28 - Tuesday, May 31. Go to Eugene to visit Izzy.
- Tuesday, May 31, 1994, Frank Shook's messages on my phone.
- Wednesday, June 1, SJSU pick up check, see SJ Museum show.
- Thursday, June 2, 1994, I go meet Frank at Adelita's. We got to his house, Frank is abducted, gets Future Communication notes.
- Thursday, June 9, I read Hacker And The Ants at Computer Literacy.
- Wednesday, June 8, 1994, Frank is abducted. Gets Alien Notes.
- Thursday, June 9, 1994, Jahva House meeting with Frank Shook. We encounter Peggy Sung.
- Friday, June 10 – Tuesday June 21, 1994. I write up the notes on Future Media and Aliens.
- Wednesday, June 22, 1994, Frank abducted. Gets biotech notes.
- Thursday, June 23, 1994. Lunch with Frank at Adelita's. He gives me biotech notes.
- Tuesday, June 28, 1994. I finish writing up the biotech notes.
- Wednesday, June 29, 1994. Talk to Frank on the phone. Invite him to party.
- Thursday, June 30, 1994 Mondo party in Tilden park. Frank breaks into my house and steals my computer.
- Friday, July 1, cops go out to Frank's house with me. I see Mary. Frank is hiding at Peggy Sung's though I don't know it. In the evening he's abducted.
- Saturday, July 2, I go see Peggy Sung, she gives me back my computer.
- Thursday, June 7, Sylvia and I go to see Mary, but she's gone.
- Aug 1, 1994, Pop dies.
- Fall, 1994, I start writing Freeware.
- February, 1996, I finish writing Freeware.
- Thursday, June 27, 1996, Frank arrives at Mount Rushmore.
- Wednesday, April 2, 1997, Frank abducted for Transhumanity notes.
- May, 1997, Freeware appears in the bookstores.
- End of May, 1997, I get a call from Mary Shook.

Friday, June 13, 1997, I fly to Rapid City and meet Frank. We drive to Devil's Tower.

Saturday, June 14, 1997. Walk Red Beds Trail with Frank, talk about Femtotechnology notes.

Sunday, June 15, 1997. Walk Tower Trail with Frank, talk about Transhumanity notes

Monday, June 16, 1997, early AM, I dream I'm with the aliens.

Timeline For The Future History As Outlined in Frank Shook's Notes

- 2030 Piezoplastic.
- 2040 Lifeboxes.
- 2050 Limpware Engineering.
- 2060 Dragonflies.
- 2070 Sluggie processors. Soft TVs. Smart furniture.
- 2080 Radiotelepathy. The uvvy.
- 2090 The S-cube. Recording dreams. Superanimation.
- 2102 Glork energy currency. First attempts at personality encryption.
- 2110 Commercial genetic engineering. Big Tongue. ShushBees.
- 2115 Knifepplants. Devilberries. Casas Gordas.
- 2120 Phido pet construction kit. Pet dinosaurs.
- 2125 Grown Homes. The Bosch House. Sea Homes from kelp.
- 2280 Aug dog people alter their bodies.
- 2290 Achipelago people with disconnected hands. Mermen and mermaids.
- 2350 Programming clones with lifebox files.
- 2550 Programming ohmie clones with prion infection.
- 3001 The alla matter transmuter.
- 3002 People begin using allas to live in asteroids.
- 3003 Strange matter used for 3ox copying of objects and of living beings.
- 3150 Uvvies become internal organs.
- 3400 People like Ang Ou get hundreds of bodies. Spacebug people.
- 3666 Teleportation.
- 4004 People become saucerians, teleporting across the universe.
- 4050? People free to move in the astral plane.

Writing

Word Count

Feb 23, 97	600
Feb 27, 97	1,700
Mar 5, 97	3,235
Mar 8, 97	5,372
Mar 10, 97	6,432
April 14, 97	19,229
May 7, 97	24,000
June 25, 97	56,000

July 2, 97	66,000
July 11, 97	67,400
July 15, 97	70,663
July 18, 97	73,094
July 22, 97	73,974
July 24, 97	74,473
August 22, 97	74,473
Sept 5, 97	77,901
Sept 8, 97	78,952
Sept 15, 97	84,611

As of July 11, 1997, the projected length is 88,000 words. By Comparison, *Freeware* is 97,000 and *The Hacker And The Ants* is 92,000.

As of September 5, 1997, the projected length is 84,500.

What Should The Title Be?

My original title was SAUCER WISDOM: NEW IDEAS FOR THE COMING MILLENIUM. Hollis like this, but Mark Frauenfelder said:

"Peter thinks the title Saucer Wisdom won't work, and that it sounds too new age, too confusing, and that it won't reach the right audience. He likes the name FRANK or FRANK SHOOK for the book. Hollis and I like those too."

I see the point about "SAUCER WISDOM," though I do like it. But it's a kind of sarcastic title. Or new age. "FRANK SHOOK" has a good ring to it. We can wait and see how it develops before nailing the title down. If I call it FRANK SHOOK then it becomes more and more of a book about what started as the "frametale." That may be what should happen, though if it doesn't, then FRANK SHOOK might not be the best title. I don't think just "FRANK" for a title, though, that's the title of a Jim Woodring comic. If it had to be just *one* of his names, I think "SHOOK" would be better.

FRANK SHOOK is nice, has the odd thing that it is a meaningful sentence. Frank shook. In the rumble of the approaching saucer drive.

Subtitle?

FRANK SHOOK: Saucer Wisdom For The Coming Millennium

FRANK SHOOK: Welcome To The New Millennium

FRANK SHOOK: Encounters With Remarkable "Men"

FRANK SHOOK: A Cosmic Traveler

FRANK SHOOK: Millennium Teachings

FRANK SHOOK: Alien Visions For A New Millennium

Good idea to work in something about the Millennium, this could well be my last book out in time before 2000. Millennium fever's in the air more than people have yet twigged to. Hence in fact the saucer craze. Could put something about the Millennium in the book. Why the saucers came, they've been preparing Frank to deliver the message. Probably wise to put something about saucers or aliens in the subtitle, no?

Note on September 5, 1997. Peter Ruten's left Wired Books now, so fuck what he thought. SAUCER WISDOM is the title people respond to the best, putting

FRANK SHOOK in the title just confuses them.

Hoaxes

The Hollow Earth.

Carlos Castaneda's books. *The Teachings of Don Juan.*

The Howard Hughes biography, *Bashful Billionaire* (?)

Dept. of Synchronicity

December 23, 1996.

Just as I'm starting these notes, the phone rings and it's the Washington Post Book Review asking me to review a new book by Freeman Dyson of his lectures on his imaginings of the future. Can do, can do!

January 7, 1997.

Thinking about Prince Tupou, I open my dictionary to look up "prognathous," and open it to Liluokalani, Queen of the Hawaiian Islands (1891-1893). Secondary synchronicity: I've been wondering how to spell *Hawaiian*. What was the name of that famous Queen of Tonga? Queen Salote.

January 27, 1997

I get a big package from a UFO nut Lee Graham complete with "copies" of the Top Secret "Majestic" and "Aquarius" government documents about saucers. Graham has dreamed he went back in time and found an old photo that looks like him and he got it together to make a positive transparency enlargement print of the photo to turn over and compare with his own mug, a good match. So he writes me as author of *The Fourth Dimension* to ask if you could turn into your mirror-image by turning over in time. (I actually wrote him back, see the Lee Graham letter in these Notes.)

The passage he Xeroxed from *The Fourth Dimension* was this: "In these dreams I would be walking down a street with someone on either side of me --- my wife, Sylvia, let us say, on my left, and my friend Greg on my right. I would move out of my body and watch the three of us from a distance, first from a point in our space, then from a point entirely outside of space. What struck me was that *depending on which half of hyperspace I looked from*, the order of the three people would be Sylvia-Rudy-Greg, or Greg-Rudy-Sylvia." [p. 49]

And then on February 18, 1997 Greg showed up and took us out to dinner, and we were walking down the sidewalk next to Valeriano's restaurant and Greg and Sylvia were a bit in front of me, Sylvia on my left and Greg on my right!

Correspondence (Mostly Email)

Walker On White Noise Encryption, March 12, 1996

[From an email from Walker March 12, 1996, sent in response to my sending him a copy of the just-finished FREEWARE. (I sent out three copies, I think, one to Susan Protter, one to Avon, one to Walker.)]

I don't have any real suggestions this time--I think it's just great. I did, in the process of reading it, flash on how to get rid of the cosmic ray information limit without invoking Hilbert crystals. Here's the idea:

Information theory shows that the higher the information density of a signal,

the more it will resemble random noise: you used to be able to hear the modem alternate between mark and space tones, but what a V.34 modem sends down the line when going full tilt at 28.8 would probably be indistinguishable from white noise by an electronics engineer of the 1950's. We've been able to go faster and faster on the same wire by throwing computing and mathematics at the problem. In particular, the V.34 modem basically works by doing an adaptive Voronoi tessellation of the state space the output signal parameters can occupy.

To anybody who couldn't figure out the encoding or compute fast enough to decode it, it would just be white noise.

The universe is full of what is apparently white noise (or more accurately, white light, since it is electromagnetic) with a complicated spectrum ranging from DC to the highest energy gamma rays.

Consider, for a moment, the Fermi paradox--if aliens existed, they would be here already since the time to colonize the galaxy is so short compared to the age of the Earth. But what if the most efficient way of colonizing the galaxy and the universe (or just exploring) was not to physically travel to other stars but simply to clone a backup copy of yourself, run it through an n-dimensional encoding modem, and broadcast it in interesting directions? Sooner or later, it would encounter an artificial intelligence which had built a compatible modem (if this is the most efficient encoding, one with the absolutely highest information density, not it will not only look like white noise to anybody without a modem, it will be the inevitable endpoint of technological progress in information compression, on which all intelligences will eventually converge). And as soon as Gurdel-7 gets it working, a lot of that white noise raining down from the sky is going to decrypt into aliens.

The answer to the Fermi paradox is "They do exist, and they are already here, but we haven't built a modem than can distinguish them from white noise so they just zip past without decrypting."

This eliminates a Quuz quibble that bothered me. The Sun is not a source of cosmic rays--energetic particles in the solar wind, sure, but not the 50 joule fastballs which seem to come from supernovae or more exotic things. But the Sun is the brightest source of white light at bandwidths from DC through soft X-rays in the sky, and as a ball of plasma, it'd be only natural for creatures on the Sun to be electromagnetic in nature. So Quuz makes perfect sense--as a primitive electromagnetic creature he didn't use as optimal coding as Shimmer and the rest, so he was easier for Wendy to decode and thus the first to decrypt after she started running Stairway to Heaven.

Perhaps all AIs, anywhere, share an instinct to propagate themselves by sending personality waves, and to decrypt other personality waves. Maybe this instinct, expressing itself in a more primitive AI, is what impelled the boppers to commune with the One.

Walker On Femtotechnology, January, 97

Rudy: My desire is to go for the femtotechnology option.

John: Notwithstanding the resources of the NEAs, it opens up lots of new ground. And after all, creation of matter from energy is completely mainstream physics and engineering--it's just extraordinarily inefficient and expensive at the

moment.

In the '70s, in a paper in *Nature* with the delightful title "Eternity is Unstable" (*Nature* 276: 453), Barrow and Tipler calculated that, assuming there is no lower mass limit on black hole (no limit is suggested by present theories), then a proton has a nonzero probability of spontaneously turning into a quantum black hole due to the uncertainty principle causing its quark components to instantaneously occupy a small enough volume to trigger gravitational collapse. The black hole would then, almost instantaneously decay into radiation by the Hawking process, releasing a large amount of energy.

Don't worry about this happening. The probability is so low that the odds are enormous against it having happened even once since the Big Bang. But it's nonzero, and much of modern electronics is based on manipulating matter and energy to tilt the odds of quantum processes....

I'm just finally getting around to reading Stephenson's "Diamond Age". I agree that the nano thing is getting to be worked out terrain, at least in terms of the "Wow! Isn't it cool you can do that!" story.

Answer To Laidlaw, February 20, 97

>You're going to have to somehow backpedal to explain your vitriolic attack on that saucer abduction book you reviewed for the Post a few years ago.

Ah! This is in fact evidence that I'm now telling the truth! I attacked Mack's book for two reasons (1) I'm uncomfortable about my own deep UFO involvement, so was trying to over compensate. A bit like a closet gay Congressman passing anti-gay laws. (2) From what Frank Shook tells me, I feel that the kind of UFOlogy taught by Mack and his ilk is a false path, a scam, and not the real thing. Far from looking at the TRUTH of the SAUCER WISDOM they try and distract us with psycho sex hang-up garbage. (The great C.G. Jung warned of this, the confusion of the sex and power centers with the religious center which is the true core of the Saucer.) Frank has in fact witnessed some abductions of Mack type people and shakes his head at their inappropriate behavior. The obsession with govt. cover-ups on the part of Roswell devotees is a similar distraction from the true core. Books like Strieber's or the Roswell books are like empty packages. They obsess on the trappings of the UFO psychology but miss out on the SAUCER WISDOM!

Answers To Frauenfelder, February 21, 97

>Peter thinks the title *Saucer Wisdom* won't work, and that it sounds too new age, too confusing, and that it won't reach the right audience. He likes the name FRANK or FRANK SHOOK for the book. Hollis and I like those too."

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I'm seeing the stories about tech in terms of places Frank visited. Not sure at all which of the tech ideas in the Speculations thing I'll put in. Some doubts about how to handle the things that are already in FREEWARE, whether to use them or not in FRANK SHOOK.

I'm seeing an Earth-A that he goes to, like a (possibly alternate) somewhat future Earth, or maybe just Earth-like planet. And other places as well. A bit like Olaf Stapledon's Starmaker.

I feel bipolar about discussing all this at this point. I do like the input and the stimulation, but I'm anxious about "leaving my game in the locker-room" as the saying goes. Talking it to death so that I feel flat going in and writing it. On the other hand maybe talking is getting me pumped up. I can print this and this is notes for the book.

>We are going to tell PGW, our distributor, that this is a work of non-fiction. Even the catalogs we print will say the book is non-fiction. I think if we are going to do this, we need to push it all the way to the limit. Even past the limit a little bit. Teetering on the edge of believability, so that people will be talking and arguing about whether or not it is a "true story."

Yeah, let's push this. If it gets out of control in some way we can always pull the plug down the line. Literary hoax a noble tradition, so it's no shame.

>3. It will be interesting to know how Frank receives his transmissions. And then what does he do? call you on the phone? Or do you call him periodically and pump him for ideas? Have you ever wondered if he might simply be hallucinating or faking contact with the saucer people? Have you ever had writers block and had to pester him for ideas?

>4. Does Frank ever ask you to cut him in on the money you get for your books? How do you handle that? What does Frank do to earn his keep? What kind of place does he live in. Does he have a satisfactory sex life?

Good things to think about. Wait and see. SHOOK will grow organically into a coherent whole, God and the Muse willing.

>5. How are you going to deal with the saucer worshippers you've debunked when they find out that you've been getting your ideas from saucers?

Two possible answers to this. (a) I was covering up, like a gay-bashing gay congressman. (Weak) Better than that, (b) Given the vast knowledge of UFOlogy imparted to me by Frank Shook, I can clearly see how debased and false is what is being pawned off on the populace in this area by ignorant hoaxers! They drag the religious holistic and cosmic UFO down into gross butt proddings, the lying fools. Frank has seen the real thing! (I kind of *believe* this, and it's one reason I want to do this book!)

There's a great craving for spiritual enlightenment these days, and I want to slake a bit of that thirst.

>6. It'll be fun to see how you build up conflict as you go along.

Yeah, this oughtta be quite a run. And I'm gonna have to work fast. I'm wound up like a sprinter in the blocks.

>7. About art -- it could be fun to find an artist who can do drawings that look like they came from a fairly talented, but entirely self-taught, untrained, obsessive-as-all-get-out artist. You know what I mean? Like blue ballpoint-pen drawings with lots of shading and cross-hatching and over-the-top detail. Feverish. Mavrides might be able to do that, or Hal Robins? (Robin's is very obsessive) Maybe we could say those are Frank's drawings.

That's a cool idea, the hatched ballpoint thing. Crumb-like. Like you said, Paul M. can do about any style. As he is such a friend of mine, it might be easiest to work with him. I know he needs \$\$\$, so would welcome the gig. Paul has drawn a million UFO things, I've pored over his sketchbooks with him, it would be easy and fun to work with him. I read him just about all of FREEWARE out loud while working on it, I used to go up to see him every couple of weeks, and haven't seen him much lately and it would be fun to have an excuse to visit again.

To Frauenfelder, February 21, 97

Just a few thoughts today. I really need to get started.

Alien Concepts might be a good subtitle. Maybe pushing the Millennium thing in the subtitle is overdoing it. FRANK SHOOK: ALIEN CONCEPTS

On second thought, maybe Hal Robins would be a better artist for this. As you say, he does have that obsessed quality. Better I shouldn't think about this too much more yet.

One design thought. I don't think FRANK SHOOK should be pink and orange like the first set of HardWired books. I think it should be black and green. Also I think the font should be a softer warmer less mechanical font than the first

HardWired books, which are very sans-serif and look a lot like the magazine. Again, though, I'm getting off the point here. I need to write.

Regarding secrecy, I'll do what I can to keep it mum. But I don't want to get too obsessed about it. Like if I were to see Mavrides and talk about that I'm working on a book which he might illustrate, it would be kind of unnatural not to tell him the truth. Certainly my family members are going to know the truth. This is another distraction, really, to think too much about the secrecy and the prank.

What I really need to focus on is writing the book. The fact that it'll be short means it has to be written with that much greater intensity and richness.

In a way this is all just a memo to myself. Now I can paste it into my working notes!

To Walker, Feb 22, 97

In the meantime I've gotten an offer I can't refuse to do the Frank Stook saucer book, so my question about whether to do it is mooted. Of course now I have to write it! *Don't fear that I'm a saucer true believer.* This is just meant to be an interesting book about some odd ideas. As usual, I'll be asking you questions; many of Frank Stook's notions need to be fleshed out with articulate tech. Frank Stook believes, for instance, that he contacts the aliens by staring at flea-circus TV and/or by listening to radio static. My FREEWARE notion of the aliens as cosmic rays is a realization of this, and your mutation of this idea into the aliens as modulated radio waves fits even better.

How much of radio static is fact of extraterrestrial origin? Where on Earth might be the best place to pick up lots of such static? Would, e.g. Tonga be a good place? If an alien were inside a radio wave, how long would you have to "listen" to the wave to get a whole alien? Could you fatten up the signal to pick up a whole alien really fast? Clearly you can fatten signals, as a TV is picking up more info/sec than a radio. Is that you use higher frequency waves to modulate to hold more info?

Walker on Cosmic Radio Signals, Feb 23, 97

>Frank Stook believes, for instance, that he contacts the aliens by staring at flea-circus TV and/or by listening to radio static.

Aliens, dunno. Extraterrestrial transmitters, you bet! The following is from Frank Drake's recent "Is Anyone Out There?" (p. 91):

The Crab Nebula Pulsar remains to this day the only one that alternates its ordinary pulses with giant pulses that are about one thousand times more powerful. In fact, those giant pulses are among the brightest radio signals we have found in the universe. They are so strong you can see them on your television set with an ordinary household antenna. Just turn to a channel that has no program and stare at the screen. Every five minutes you'll get a lot of snow that covers about one third of the screen. That's coming from the pulsar in the Crab Nebula, about six thousand light-years away.

Details Drake doesn't mention: use a VHF channel around 100 Mhz (channel 6 is 88, channel 7 about 174), try it when the Crab Nebula is high in the sky, and use an outside antenna. An FM radio also tunes through the 100 Mhz range, so you might

be able to hear it there as well (though most modern FM receivers mute when there's no carrier, so you may have to use one from the dark ages). The signal is extremely wide-band--the exact frequency doesn't matter, but the Crab is relatively weak at UHF frequencies, so VHF is best.

>How much of radio static is fact of extraterrestrial origin?

Depends upon the frequency. At the 21 cm Hydrogen line, almost all of it; at low frequencies, terrestrial sources such as lightning predominate. If you ignore the effects of human broadcasting, electrical distribution, and electrical systems in cars, etc., you're basically left with lightning, geomagnetic effects (of which the aurora is only the most obvious), the Sun, and distant sources.

>Where on Earth might be the best place to pick of lots of such static?

For high frequencies (say, 500 Mhz and up, which is where most of the good stuff is, and is better for high information bandwidth anyway), anywhere all human transmitters and noise sources are well below the horizon. The big radio telescopes tend to be located in desert basins far from human habitation, often ringed by mountains that provide additional shielding.

>>would, e.g. Tonga be a good place?

Tonga would be an excellent place, since there would be little human interference, at least until Gullichsen gets his radio-Internet running there. It's also reasonably close to the equator, which lets you see more of the sky over the year than a site at greater |latitude|. Unfortunately, everywhere on Earth is getting increasingly radio-loud due to transmissions from satellites. As usual when it comes to information pollution, Bill Gates is in the lead. When his 870 satellite Teledesic system comes on line, substantial chunks of the spectrum will be closed forever.

The best place in the solar system for a radio observatory, bar none, is at the equator at the far side of the Moon. The Moon blocks all the noise from Earth and satellites out to geosync and beyond, all the noise from the Sun for two weeks per month, and the noise from Jupiter for half the time, depending on the planetary geometry at the moment.

>If an alien were inside a radio wave, how long would you have to "listen" to the wave to get a whole alien?

That depends on how complicated the alien is! The archaeobacteria *Methanococcus jannaschii* is 1.77 million base pairs, *E. coli* is 4,716,173 (I happen to have the sequence on my machine--still looking for that picture!), and the human genome is about 3 billion. Each base pair encodes 2 bits, so dividing these by 4 gives the number of bytes. There is almost no short-string redundancy--GZIP compresses genome files by almost exactly 4 to 1. At the higher level, there is a great deal of possible compression. The human genome is believed to contain only 5-10% coding

regions, the rest being "junk DNA" (though not everybody agrees it has no function), with about 50-60% repeats throughout. So, if you take the coding fraction as 10% and repeats at 50%, you end up with 150 million necessary base pairs for a human, or 37 megabytes--that's not too bad.

>Could you fatten up the signal to pick up a whole alien really fast? Clearly you can fatten signals, as a TV is picking up more info/sec than a radio. Is that you use higher frequency waves to modulate to hold more info?

Sure, it's just the Shannon theorem relating the bandwidth, signal to noise ratio, and error rate. And you can't do better. In practice, transmitting over interstellar distances has a number of additional factors to worry about. You have to account for Doppler shifts since everything is moving relative to one another, stay away from peaks in the noise spectrum like the H and OH lines (which, of course, get Doppler spread by the motion of the various emitters), and worry about dispersion due to interaction with the ionized interstellar medium, which limits the minimum bandwidth in the microwave region to about 0.1 Hz.

For point-to-point transmission, there's a lot to be said for moby space-based solar powered lasers. You have enormous bandwidth, much less dispersion, and with a narrowpass filter you can pick the signal out of the continuum radiation from the star.

A number of suggestions have been made for ways a supercivilisation could create X- or gamma-ray *pulses* to attract attention to itself, but nobody has suggested a plausible way to modulate them with any significant amount of information.

Letter to ***, Feb 23, 97**

Dear Mr. *****,

I have gotten a lot what I usually dismiss as "nut letters" over the years, and ignore them, but your package is so interesting that I want to answer you.

I really enjoyed the way that your exhibits work out a more or less coherent narrative.

Whether or not they are really authentic, it was fun to see the Xeroxes of the MAJIC and AQUARIUS documents.

Your falling in love with the picture of Rosa May made a nice tale. If she had her heyday in, say, 1880, there does seem to be a bit of a time problem in relating her to the photo of the Reno Marching Band member from "early in the 20th century," perhaps 1910. If the man in the Band were 40 in this picture, he would have been 10 in 1880, and in no position to romance Rosa May. But I guess we could say he's 45, and that he met Rosa in 1885, when he was 20.

I was impressed by your energy in making a "positive" print of that man so as to be able to turn it over and compare it to your own photo. There is indeed a resemblance.

As for your question, yes, if someone were to travel through the fourth dimension, they could indeed come back "down" into our space as a mirror image.

Being lifted out of spacetime and moved into the past would actually involve moving through a five-dimensional higher space above the four dimensions of spacetime. But you could be pasted down backwards.

There are two possible problems.

(1) A mirror-image person might be made of anti-matter (which may be mirror-reversed matter) and would explode on contact with normal matter. But maybe this isn't true.

(2) Even if this were not true, a mirror-image person would definitely have difficulties in digesting food. The mirror-image form of the sugar dextrose, for instance, is called laevose, and is indigestible. If you were a mirror-image person, then dextrose be like laevose for you. But many foods would still be digestible. Most likely your Reno Marching Band counterpart had stomach troubles!

Although I'm still very much a UFO skeptic, thanks to you the whole topic is of more interest to me than it used to be. Thanks for your interesting package.

Phone Messages From Greg, February 26, 1997

[Greg was pretending to be Frank Shook. At first I thought this stuff was good, but then I realized it was shit. This isn't the right Frank Shook at all. For quite a few days I was distracted by Greg's bull-headed, contrarian insistence that the aliens don't use saucers. Of *course* they use saucers, that's half the fun of the book. It's just that the saucers travel in perpendicular time.]

"Sure I've seen lights and some of them were circular and or even ellipsoidal. The thing is they were **not** saucers. It was more like being a television and a show came on inside you. But you weren't looking at it from outside, you were the television. And there was never any abduction except in the metaphorical sense, it was as if you were the program and someone interrupted it with their own broadcast.'

Frank started calling after awhile and he was more comfortable using the answering machine and the few times I spoke to him he seemed to be rattled. I soon realized that if I wanted to hear him out I'd better get a longer tape in my answering machine.

'And no fucking aliens ever played with my pri --- my genitals either!'"

Email to Mark Frauenfelder, May 7, 1997

I could see taking in a day in SF next Wednesday, it'll be my first day of summer vacation. I have nearly half the book done now, and could bring that along, maybe make a copy for Mavrides to check out too. I could have lunch with you, hang out, do the interview, then go over to Paul's.

Right now I have 24,000 words finished! I still have a lot I want to do, so it might end up being around 65,000.

I still like this title (the one on the contract) the best:

SAUCER WISDOM:

THE FRANK SHOOK CHRONICLES

This is as opposed to

FRANK SHOOK:

THE SAUCER WISDOM CHRONICLES

"Saucer Wisdom" suggests things and makes you wonder what it is, while "Frank Shook" doesn't suggest much of anything. So maybe we can still talk Peter around on this point. Everything will be more concrete once you all see the first 1/2

anyway, so I don't know why I'm bringing this up right now.

Thinking about showing you all the first half makes me anxious, makes me feel like I should polish it another couple of weeks, so I'm not 100% sure I'll let you see it yet, I might hang onto it till June 1 unless you like really beg me :)

I do need to get at least 10 or 15 more pages done to make it clear how it continues past where I am right now, and I'll try and get those done by next week, and if I do, I'll show it to you.

I'm starting to feel real comfortable with alien abduction, I had another dream about it and this time I wasn't scared, I was just oh well. I think maybe Frank Shook will get me to take a ride on the saucer as well. Go for the BIG lie. I was in Santa Cruz Sunday imagining I was an alien abductee and it made me feel really spaced-out and hip. Everything looked so weird all of a sudden! A conceptual high.

So hope to see you next Wednesday, and if not then some similar time, maybe Wednesday in TWO weeks (would give me more time to write as well).

Email to Laidlaw May 24, 1997

The Frank Shook saucer book is moving along well, about half done. It looks they'll let Mavrides do the illos, i.e. the art direction of Frank Shook's sketches. I've come to have pretty good feelings about being abducted. My head is in a place I couldn't even imagine when I started, relative to ufology. I recently heard Paul DiFilippo use the word "blowback" relative to this kind of phenomenon. It's a word the CIA used to mean when you spread some propaganda or disinformation and then end up believing it, like you forget it was you who spread it or other people run with it so much you're like oh yeah.

Email to Walker, May 29, 1997

Hi John,

Well, I'm coming back to the well for more info. Included below are some notes for Appendix D and part of Chapter 6 of my work in progress, SAUCER WISDOM: THE FRANK SHOOK CHRONICLES (title subject to change).

I hope this isn't too burdensomely long a text inclusion, you can just read the Appendix part if time is short. But I thought you might get a chuckle out of the rest...

"According to Frank" the aliens do indeed arrive as electromagnetic waves. I'm thinking that a full body and soul encryption might be as much as a zettabyte of info (mainly because I like the word, and yes "zetta" is real, it's in Conway & Guy's new BOOK OF NUMBERS), though if needs be I can settle for maybe an exabyte.

My problem is I want an alien's worth of radio waves to not take years to come in, so am not sure how to swing this.

I'm not above switching to esoteric futuristic physics if needs be. Who are we mean wretches to limit the aliens' abilities after all...

As usual, this is HIGHLY CONFIDENTIAL material, your eyes only.

Happy Summer,

Rudy

Walker Email on Mind Encryption, June 12, 1997

Okay, I've read the Frank Shook material you sent a couple of times, and here are some random comments.

> How fast is a really fastest possible computer connection?

Theoretically, communicating through a vacuum, you can always increase the speed by using a higher frequency and more bandwidth. The only theoretical limit is the Planck scale bound at which the energy of the photon is so high it collapses into a black hole. This is nothing to lose sleep over, since it's about 40 orders of magnitude away from radio wavelengths. The limit on how much information you can encode in any given volume of space is the Bekenstein bound, which is identical to the entropy of a black hole whose horizon encloses the same volume.

The real limits on interstellar communication are due to the properties of the interstellar medium, which is not a vacuum but a diffuse mix of plasma, atomic and molecular hydrogen, dust, and other gases, laced with magnetic fields. At low (radio and microwave) frequencies, this limits bandwidth due to dispersion, and at very high frequencies (in the gamma range), you encounter opacity due to the Compton (photon/electron) scattering cross-section becoming large at energies above 511 Kev (the electron mass). Most people think visible light or infrared would provide the highest bandwidth in this medium, since dispersion is lower at such frequencies, carrier capacity is high, and it's evident that the universe is pretty much transparent to light (infrared is better at punching through dust clouds, if that's an issue).

> Is this electromagnetic wave in nature?

Yes; the only alternatives I can think of to EM waves are:

Matter:

Charged particles (nope--they spiral in the galactic magnetic field which screws up propagation)

Massive neutral particles or atoms

Neutrons decay after 10 minutes, though at ultrarelativistic speeds they could last an arbitrarily long time in the rest frame--but how much information can you encode in a neutron? Atoms get ionised by radiation, and then the charged pieces get scrambled by the magnetic field as above.

Neutrinos

Interact too weakly with matter to be decoded by anything as small and rarefied as a brain or TV set.

Gravitation:

Gravitational radiation

Can potentially encode as much information as EM, given some exotic way to generate it with sufficient strength and high enough frequencies,

propagates at c , and the universe is essentially completely transparent to it. The latter is the catch--like neutrinos the interaction with matter on the human scale is impossibly weak.

Small black holes

These have to be big enough not to evaporate through the Hawking process, but small enough to be accelerated to relativistic speed (*very tough*). However, if one buys the recent argument from string theory that all the information that went into the hole is frozen on the horizon, and you imagine some way to get it back out, an enormous amount of information could be encoded.. The Bekenstein bound for a black hole with a horizon one metre in diameter (sloppy terminology, but you get the idea) is 10^{45} bits. Of course any suggestion of a mechanism for getting *any* information out of a black hole constitutes relativistic arm-waving. Further, if such holes existed, their collisions with the Earth and Moon would be obvious. Finally, it's hard to imagine how one could interact with a human or TV set in any way other than tidally crushing it to a geometric line and then swallowing it up.

These are the only physically established channels I can think of capable of transmitting information at relativistic speeds over interstellar distances. (Starships are a special case of massive neutral particles.)

So, it looks like that if you accept the figure of a petabyte, you've got a serious bandwidth problem at any frequency a TV set could have anything to do with.

Here are some potential ways to wiggle around the problem:

FRACTAL COMPRESSION AND EXTRACTION

Perhaps the petabyte figure is pre-compression, and there exists a technique to reduce it by many orders of magnitude. Turla says as much when explaining to Dak why we can't decode the aliens, if you take "encrypted" to mean the encoding and compression technique. (If your goal is to be decoded and reborn, it doesn't make any sense to encrypt the signal, unless it's to set a minimum level of intelligence you want to be able to decode you.)

Now suppose there's some super-Barnsley algorithm which, when run on a 3D parallel quantum CA, losslessly compresses a lifebox down to something tractable.

If such a thing were possible, certainly it would be used because any civilization, however advanced, is ultimately going to be energy constrained, and the fewer bits you have to send the more copies you can afford to transmit out to explore the universe.

Perhaps the first stage of decompressing and extracting this encoded, self-extracting message is performed by its interaction with the gnarly branching world-lines in the vicinity of somewhere interesting to visit. Then the signal automatically becomes accessible only at the best roadside attractions. This first level decompression and extract done, it can then interact with beings at the destination in various ways.

QUANTUM ENCODING

In theory, you can encode as much information as you like by superposing quantum states; this is how quantum computers are supposed to obtain additional parallelism and storage capacity. Sending a superposition which could be decoded by a quantum computer on the receiving end would boost the channel capacity. Of course you'd have to show that nothing between transmission and detection would cause the quantum state to decohere.

This is interesting in light of suggestions by Roger Penrose, Stuart Hameroff, Henry Stapp, and others that the brain is a macroscopic quantum computer in which consciousness consists of generating superposed states in the microtubules and then reducing them by an irreversible measuring act that fires the neural net, which is more a receiver than a computer in its own right (although it probably would serve as the storage medium).

This means that only a conscious quantum computer has the ability to decode the alien signal, already pre-processed through interaction with the tangled fractal web of world lines. This explains why the aliens manifest themselves in the perception of humans and not, say, the microprocessor in your toaster. Further, the complexity of the signal and its form of encoding needs to be a rough match with that of the receiver, which automatically guarantees you only decode aliens vaguely similar to yourself, as Herman explained. Pig-brained aliens get decoded by pigs, and starspot plasma people by sunspots.

THE PERPARED MIND

If the first stage of decoding is done by the gnarled world lines interacting with the quantum signal and the final step by the human quantum biocomputer, both of which have existed for millennia, why has the incidence of alien contact of all forms increased so dramatically in the years since 1947, and why does the phenomenon seem to occur with such frequency only in Western societies?

Throughout most of human history, contact with aliens, angels, divine intelligence, elves, demons, fairies, gnomes, and other culturally-influenced interpretations of the same phenomenon has been a rare event, experienced for the most part by prophets, shamans, and masters of meditation. Only recently has it become so commonplace that according to a Roper poll, in excess of 3.5 million people in the United States alone may have experienced alien abduction-like encounters. What changed shortly after the end of World War II to cause this?

Television. Consider: in order to decode an alien, the brain must first put itself into a neutral state in which collapse of superpositions by conscious thought is suppressed so that the extreme superposition needed to interfere with the alien quantum state is created. Achieving this state used to require "emptying the brain" by techniques such as meditation, psychoactive drugs, the effects of starvation and exposure in the wilderness, or other such extreme measures, or else being born with an exceptional mind in which extreme superposition is more readily achieved (such people are spoken of as "deeply spiritual", Krishnamurti being the most recent obvious example).

It was only after 1945, however, that a *technology* was developed which empties the mind as effectively as a lifetime of meditation on a mountaintop: television, and in particular the form of televised entertainment which originated in the United States and has become ubiquitous in the Western world. The combination of the 50 or 60 Hz visual integration of the raster-scanned image and the content-free nature of the material transmitted acts to clear the mind of all intellectual content, rational thought, and reasoned judgement, rendering it optimally receptive to decoding alien quantum states. It isn't the TV that attracts or receives the aliens; it's that the TV clears the brain so that it is able to do so. (Note further how many alien encounters occur on long boring drives at night and other situations where the mind is lulled into a neutral, receptive superposed state.)

White noise on a vacant channel is as content free as you can get, so it is optimal for preconditioning the brain to receive an alien but, in fact, "Baywatch" or "Married, with Children" works almost as well. The often-reported inability to recall the plots of such programs, even minutes after their conclusion, is one of the most commonplace manifestations of the phenomenon of "missing time".

Even though there is great variation among the aliens, the perception in the human brain when one is decoded is conditioned by its own wiring. This is why the overwhelming majority of abductees report similar experiences and types of aliens (Greys, Nordics, etc.) encountered. This is because the alien quantum signal is, in the words of Rucker, first to explain all this in SAUCER WISDOM, "accessing a deep part of the human mind", which explains the prevalence of stories of "little people" of all kinds in virtually every human culture.

* * *

Okay, that said--back to 640K real mode...the big problem I have with UFOs and abductions (about which I highly recommend C.D.B. Bryan's "Close Encounters of the Fourth Kind", a delightfully open-minded and rational view of the whole phenomenon) is the lack of forensic evidence. In the 50's and 60's you could easily argue that this was a rare phenomenon that happened mostly to people in isolated areas, which somewhat unhinged them and rendered their stories unverifiable.

But it's the 90's now, and regardless of whatever off-the-wall thing happens--a meteor bashing somebody's car in upstate New York, a bomb at the Atlanta Olympics--there seem to be at least one and often several camcorders recording these incredibly rare occurrences. So why have we not seen one, single, unambiguous video record of a UFO, alien, or abduction in progress?

This is explainable under the scenario above (and fits with some of the reports in Bryan's book where an "abduction" happened while the abductee was observed by others to simply be asleep), since it's all in the mind, albeit real, it leaves no physical evidence.

----- <<http://www.fourmilab.ch/>> -----
John Walker | I shot the serif,
Internet: kelvin@fourmilab.ch | But I did not shoot the dingbat font.

Email to Frauenfelder, June 25, 1997

It's moving along well. I did some research in South Dakota, in fact I saw Frank Shook there and had some rather unusual experiences with him. We walked around Devil's Tower together and that night --- well, wait till you see the last chapter.

Yesterday a reporter Marc Leibovich from the SJ Mercury News called to ask me my opinion about UFOs, he was working on a Roswell story.

So I told him "I'm working on a book about a man I know who's had a lot of abduction experiences. They are interesting reports, not like the usual kind of thing at all. Book's working title is Saucer Wisdom with the working subtitle The Frank Shook Chronicles."

"The man I call Frank Shook used to live around here, but now he's in South Dakota. I'm not going to Roswell cause I just got back from South Dakota. Yes, that's right, I was there to see Frank Shook."

"Do I believe him? Well, the stories are very interesting, very compelling. And certainly there has to be some other reality than what you see on the freeway every day. Frank is --- well, I've been going back and forth with him for three years on this book. It hasn't been easy. He's a difficult person to deal with. But along the way some pretty strange things have happened."

So, as Sherlock Holmes would say, "The game is afoot." I'll let you know when the article comes out and if it mentions any of this.

How's the progress on planning the art for the book? Have you all decided whether to use Mavrides? If so I hope he can get started soon. And if not, you might instead consider David Povilaitis, who did the drawings for my Houghton Mifflin book THE FOURTH DIMENSION, I think Hollis has a copy.

The length is 56,000 words right now, with maybe 30,000 more to come, for a total of 80 to 90 thousand. I know we'd thought it might be shorter, so I hope this isn't a problem. I think it'll still be modular enough that the length won't put people off.

The UFO mania keeps building. I'm really happy to be on this wave. Thank God I started paddling last February! This could be my most popular book ever. I am so stoked.

I think I'll hit the October deadline fine. We should definitely get the book out Spring 98, not to miss the wave. Though, actually, I think UFO fever will build right on up into 1999. It's a major way people are dealing with the Millenium. Hell, we could even do a sequel for 1999 (just kidding (I think)).

Email to Greg, June 26, 1997

The game is afoot.
=====

Don't mention this to the chat group, especially not with Jack "Time" White in there. But, hey, it's great having Jack in the group, isn't it.
=====

Yes, Frank used lived in Boulder Creek, back when I met him in '94, but then he had two years of missing time and turned up in the Black Hills of South Dakota. I just visited him. We camped out by the Devil's Tower National Monument. He used

to be pretty clean-cut but now he has shoulder length hair and a full beard. Got a picture of me and him here someplace, I think maybe you can see the Tower in the background ...

=====

>

>San Jose Mercury News, Thursday, June 26, 1997, p. 1

>

>Roswell at the heart of U.S. Alien nation

>'UFO landing' is ground zero for out-of-this-world debate

>

>by Mark Leibovich

>Mercury News Staff Writer

>

>In a manner of speaking, Walter G. Haut's quiet life has been

>abducted by aliens.

>

>Haut is the Army public relations officer who announced in 1947

>that debris from a flying saucer had been discovered at a base

>in Roswell, N.M. Now 75, and still living in Roswell, N.M. Now

>75, and still living in Roswell, the retired insurance salesman

>has become a real-life victim of cosmic folklore.

>

>"They call me from New York, they call me from New Zealand," said

>Haut...

>

>"They" refers to a purveyors of the growing obsession with

>extraterrestrial life, true believers who have coalesced into a

>movement...

>

>...Anthropologists, theologians and cosmologists say the Great

>Beyond offers a ready oracle in this millennium age, where

>belief in centralized authorities such as religion and government

>has been diminished.

>

>"It's part of the built-in human drive for spirituality," says

>Rudy Rucker, a prolific novelist and science-fiction writer who

>lives in Los Gatos.

>

>Rucker said he recently was watching a tape of an early episode of

>"The X-Files" when he noticed a poster in the background that said

>"I want to believe."

>

>"That's basically it, in a nutshell," says Rucker, who is working on

>a book about a South Dakota man who insists he's a UFO contact.

>"I think a lot of people are more freaked out by the millennium

>than they care to admit."

>
>...

Email to Frauenfelder 1/14/97

[He asked if he could have a copy of SAUCER WISDOM soon, turns out they want to see it to help Paul Mavrides plan his picks. I sent this, then called him and weakened my stance, and will in fact show it to Paul next week.]

Really it would be better for me to finish it before showing you anymore, so if you can wait till end of August that would be better. So in other words I don't think I should come meet you for lunch next week, I should stay home and write.

If you have some specific question about the book I can maybe help you with that. Might this be related to your negotiations with Paul M? I talked to him last week, so I have a vague idea of what's going on, so if you have a specific query about, for instance, the illos, I might be able to address that.

The reason I don't want to send the book is (a) to do it would give me a new deadline to meet (b) I'm worried you might make suggestions I'd get into taking care of instead of keeping my focus on getting the last three chapters done. (c) I'm scared you'll say stop writing its too long already.

I'm in the hardest most painful but potentially most rewarding part of the book now, where I'm trying to really go beyond anything I've ever thought of before and come up with totally new ideas. I know from experience that I won't be able to get as far out as I wish I could, but each book I hope to push a little further, like a man throwing himself against a thick locked door and each time thinking it gives a little bit more and thinking maybe this time it will swing open. It's starting to hurt, but I don't want to quit yet. Once I do finish the book I'll be glad to take into account any suggestions you do have.

This by the way is exactly what I had to keep telling Frank Shook, and he got so impatient he broke into my house and stole my computer so as to print out the first four chapters. I called the cops and he moved to South Dakota, only he lost two years of time when he did it...

Email to Walker 7/15/97

I'm looking for the name of a nice asteroid. Frank Shook's seen a vision of a family named Robinson who have flown out to the asteroid belt and used a femtotechnology alla to hollow out an asteroid and fill it with air. They're populating it with life forms grown from cells from inside their lips implanted with custom DNA that the download with their uvvies. It's all you need: uvvy for software, alla for hardware, your own dear bod for wetware.

Anyhow, the asteroid is a sphere 8 km in diameter, so I'm wondering if there is a nice name of such a one. I'm calling it Xerxes for now, but will search and replace a real name if you have a good one.

I'm not MARRIED to the 8 km diameter, it just seemed like about the right size for a tribe that starts as 3 men and 3 women. I'm assuming the hull is 1 km thick, so there's a 6 km diameter of air in the middle, with a 1 km diameter floating pond in the center, light from quartz bands alla-grown in the asteroid's rind, natch.

Maybe 8 is a little small, especially once the giant vines start filling in, I think I'll make it 16.

Walker's Answer to Email about Asteroids 7/14/97

>> I'm looking for the name of a nice asteroid.

Well, since there are over 4000 named asteroids, you've got a pretty good selection to choose from. As of the most recent database I have (1993-1994 vintage), Xerxes has not been assigned, so (unless it subsequently is), you can give it any properties you like without getting natters from astronomers. Most asteroids are named after astronomers or people involved in popularizing astronomy. I actually know two people with asteroids named after them, Dennis diCicco:

DICICCO

3841,13.1,0.15,181.97834,359.36741,46.272854,5.229501,0.1606456,2.27364
88,48800

and Roger Sinott:

SINNOTT

3706,13.8,0.15,67.339997,310.05268,137.20604,3.505303,0.0980783,2.18995
09,48800

both editors of Sky & Telescope magazine. Only the first asteroids tended to be named after mythological or historical figures, although the IAU generally respects the recommendation of the discoverer, unless it duplicates something else or lacks the dignity becoming a solar system body. T'was a Beatles fan, for example, who discovered and named the Belt's own fab four:

4147 LENNON

4148 MCCARTNEY

4149 HARRISON

4150 STARR

>> Anyhow, the asteroid is a sphere 8 km in diameter,

>> so I'm wondering if there

>> is a nice name of such a one.

Based on the asteroids imaged so far (Gaspra, Ida and its moon Dactyl, Toutatis, and Mathilde [just a couple of weeks ago]), it's very unlikely you'll find many asteroids less than 25 km in diameter which even vaguely resemble a sphere--asteroids suffer numerous collisions and re-accretions in their evolution, and gravity just isn't strong enough to pull the material back into a sphere. An odd counter-example is Dactyl, which is only 1.5 km across and apparently reasonably close to a sphere (at least from the roughly 1/4 imaged by Galileo during the fly-by in 1993--experience from the Moon and Mars makes one cautious about extrapolating from even a whole hemisphere to the entire body).

You can find images of Ida and Dactyl at:

<http://www.jpl.nasa.gov/releases/idamoon.html>

Ida, much larger, (about 58 by 23 km) has the potato-shape one generally expects.

Aside from the very largest, all asteroid size estimates should be taken with a kilogram of salt until you've actually gone there and seen for yourself. The only information you have to infer size is brightness, spectrum, and light curve (if it's rotating and presents different faces). From the spectrum you guess composition, which usually falls into a relatively small number of categories, then you guess the albedo (reflectance) from the composition, then you guess the size from that and the

brightness. The problem is that there isn't any "ground truth" to back up all this guesswork. Mathilde, turned out to have a density of only 1.3, and nobody has really figured out why so far. Many asteroids may be piles of rubble loosely held together by gravity with lots of empty space inside rather than coherent bodies like planets.

I don't know (I doubt anybody will until in-site sampling is done) whether a 1 km shell made of carbonaceous (type C) asteroidal material would be structurally sound. You want a type C both because they're the most common and because only they contain the raw material for biology--stony and iron-rich asteroids don't. 1 km, even of type C low-Z stuff, should be far more than enough for radiation shielding.

Asteroid sizes obey a power law as far as the existing data goes, and I think most astronomers expect it to pretty much hold from the 100 km range down to dust, since that's what you expect from the collision/accretion mechanism. So, that means there are lots of little ones (8-16 km is little as Main Belt rocks go), so you can always say this or that property of Xerxes is atypical, but something you'll find among a large population.

You'll need to actively stabilize the spherical pond in the middle, since it'll be in the zero-G regime of the outer shell with no restoring force to keep it centered. Also, if there are fish, etc. in the pond, you need to actively circulate and aerate the water since there won't be any convection to do the job. Maybe put a pod of blue whales in there to keep things well stirred.

Quartz windows may let in too much ultraviolet. A layer of water will filter it out nicely. With km-thick walls of greasy coal, you'll probably also need an active system to get rid of waste heat--water circulating through radiator pipes on the surface should work fine.

In fact, thermo is the only reason I can imagine for going to the asteroid belt. There are plenty of near-Earth asteroids in the size range we're talking about, and many of them close to the plane of the ecliptic with modest eccentricity (in both cases, the vast majority) can be reached with less delta-V than it takes to go to the Moon. Getting to the Belt is a *lot* harder--with the piss-ant rockets they give us for probes from Earth these days, the only way you can get there is one or more slingshots around the Earth and Venus. Of course, if you're getting your engines from the saucer people, I suppose that's not a problem--I'll have to ask the guy down the road who always wears a black suit and Ray-Bans.

Volume goes a long way when you can use all three dimensions. It's interesting to work out the volume of an aircraft carrier, which is a close to self-contained environment for more than 3,000 people (albeit extremely Spartan, but then a habitat doesn't need most of the stuff which takes up a large fraction of the space on the carrier). In one of L. Neil Smith's early books ("The Venus Belt", as I recall), he describes the architecture, including a drawing, of the zero-G mall at the center of Ceres. Astronauts in both Apollo and the Shuttle have frequently remarked how much larger a given volume seems once you're free to consider any surface the floor.

More from Walker about Life In Hollow Asteroid 7/21/97

[After I sent him the Xerxes section of Chapter 10]

This is terrific! Thanks for sending the peek into the future.

A few random observations....

>> Funny image of the floundering whale. But why would it become catfood really. It can breathe air, right. And could probably absorb a bounce?

After I sent the message about the whale it occurred to me that a whale might have enough surface area and strength to actually be able to *swim* in the air at zero-G. However, unless it's possible to toilet train a whale, this is going to be a pretty messy proposition.

> Big WHOOSH, I think, how big IS a kilogram of air?

At room temperature, the density of air is about 1 gram per litre, so a kilogram of air is just a cubic metre or so.

> Running an alla is expensive. The alla can draw its power from almost any kind of clean energy source, but you need a lot of it. If you need portability, you have to use the quantum dot batteries known as glorks, which also happen to be the international unit of currency. The alla is actually able to transmute, say, a wooden nickel into a glork disk, but it costs a little more than a glork's worth of energy to make the glork, so the basic monetary system is undisturbed.

The energy requirements should be such that *I* wouldn't want to carry around glorks in my pocket! Suppose I want to cook a kilogram of iron into a kilo of plutonium. Regardless of the technology that lets you rearrange the nucleons and quarks, the gigatons of binding energy in the plutonium (only a tiny fraction of which is released by fission) have to come from somewhere due to conservation of energy. (Otherwise, cook barium into plutonium, fission it to release the energy, then cook it back, etc.)

But...depending on how the femtotech works, you might not need an energy source at all! Anything lighter than iron can release energy by fusion and anything heavier by fission--we just can't easily create the stellar and supernova conditions it takes on Earth. But if you had femtotech (or, in the case of fusion, simply a kind of catalyst that would force nuclei together despite their charge), you could make as much energy as you need--you'd just set up reactions in opposite directions so fusion of low-Z nuclei provide the binding energy to make the heavy ones. This doesn't violate conservation of energy since every fusion gets you closer to iron, which is the ash from the process.

> In a few months, Xerxes is hollowed out like an insect's egg-case, with a kilometer-thick hull, and an ellipsoidal internal space fourteen kilometers long. In gravitational terms, the mass of Xerxes is negligible; a condition of weightlessness prevails within the immense stone space-station that the asteroid has become.

Since the cavity isn't spherically symmetric, there will be a residual gravitational field along the long axis which only cancels in the exact centre of the

ellipsoid. Making a rough approximation of Xerxes as a cylinder 16 km long with a radius of 2 km, I get a mass of about 100 km^3 of rock in the walls. With rock of about 3 grams/cm^3 that gives a mass of about 3×10^{17} grams, which (unless I bungled the numbers somewhere) gives an acceleration of about 0.005 cm/sec^2 at a distance of 20 km. Now this would be totally imperceptible to the inhabitants, but it is enough so that stuff couldn't float free inside--everything needs to be fastened down, albeit weakly, or it will eventually drift toward the nearer end cap.

> Through clever use of the alla, the last kilometer of space at each end of the hollow potato has been partitioned off with stone lattice-work, and beyond these lattices lie two great, wobbling internal seas. Here and there small bulging ponds are fastened to the internal walls with domes of golden mesh.

With surface tension as the dominant force, the mesh probably doesn't need to be all that fine. Gravity will also tend to keep the seas in the ends. Something like chicken wire would probably be adequate, and will allow the goats, cows, etc. to lap up water when they're thirsty.

> The great space's interior is lit by great patches of kilometer-thick diamond that the alla has patterned into the asteroidal rind. As the spotted asteroid tumbles, beams of brightness play about the interior like shafts of sunlight from a cloud-dappled sky.

I can't find any figures for diamond, but glass absorbs about 1% of the light for every centimetre it travels (the effect depends dramatically on the wavelength, with best transmission in the green, which is why thick glass has a greenish colour).

Unless diamond is a lot more transparent (it may be--some minerals have transparencies more than 10 times that of glass for infrared frequencies), km-thick windows might not let in much more light than rock. But since diamond is so strong, there's no reason the windows need to be very thick at all--just thick enough to block cosmic rays, so a few metres should do.

Doesn't making the asteroid tumble complicate everything horribly? Now you've got coriolis forces screwing with the lakes, and the minute you jump up in air, you're in your own personal orbit around the Sun with the asteroid turning around you. Of course if the rotation is very slow these effects would be minimal. But the Robinsons should be able to easily arrange any rotation they want, for example choosing a 24 hour barbecue about the long axis to equalise heating and provide a day/night cycle.

To adjust the rotation, while you're hollowing out the inside you simply shoot away the overwhelming majority of mass you're going to discard anyway in directions which counter the initial rotation of the rock and then spin it up to whatever you prefer. Given the amount of mass you're ejecting, you'd have to make a deliberate effort to preserve the original rotation, even if you wished to.

O'Neill worked out using mass drivers to deliver asteroids from the Belt to the vicinity of the Earth back in the 70's, and that requires much more delta-V than just a

de-spin/re-spin.

> Much of the remaining parts of the outer surface of Xerxes is covered with photoelectric materials; the Robinsons have done a bootstrapping process of using their allas to make photocells, using the photocells' energy to make still more photocells, and so on.

If the rock rotates, half your solar cells are in shadow all the time. Why not take some of the material you hollowed out from the core and make a huge, nonrotating, disc you cover with the solar cells so all of them produce power constantly. You then beam power to the rotating habitat in any number of ways? or just store it in glorks you physically ship back and forth. The disc can be in a very slow orbit around Xerxes—there probably isn't a stable orbit very close to such an ellipsoid, so you can trim the orbit when needed with a station-keeping thruster fueled with propellant transmuted from stone with an alla.

It's a little-known fact that there are no stable orbits around the *Moon*. The inhomogeneity and perturbation from the Earth is such that in the 9 mile orbits used by the CSM in the later Apollo missions to conserve lunar module fuel, the astronaut left in orbit had to make small trim burns once or twice a day to avoid impact: "DOOOHHH!!! Can't orbit through rock!".

> When the Robinson's need something from earth --- such as new model allas, or more uvvy time --- they pay off the Earthlings by capturing small asteroids and launching them into orbit near Earth. One natural resource still needed in this new femtotechnological age is raw matter.

Why ship mass from the Belt when dirt from the Earth works just as well?

I've only seen a small part of the femto picture, but it's worth keeping in mind that once one nanotech many scarce elements become abundant simply because you can now separate them economically from seawater or dirt. In "The Man who Plowed the Sea" in *Tales of the White Hart*, Arthur C. Clarke calculated that the water that passes through the propeller of an ocean liner crossing the Atlantic contains a king's ransom of gold, if only you could separate it. Another amusing fact is that the trace uranium in coal, if separated and fissioned, contains far more energy than one gets from burning the carbon.

With self-replicating gadgets that can sort things atom by atom, you're able to concentrate almost anything from extremely poor feedstocks. Once again, biology points the way--there's only a tiny amount of copper in everyday dirt, but plants manage to separate it so every chlorophyll molecule can put one where it's needed in the photon receptor.

March 17, 1998, Kathryn Cramer editorial suggestions.

Date: Mon, 16 Mar 1998 20:15:01 -0500 (EST)

From: Kathryn Cramer <kec@panix.com>

To: "Rudy Rucker, Sr." <rucker@mathcs.sjsu.edu>

cc: kec@panix.com, dgh@tor.com

Subject: Re: SAUCER WISDOM

Dear Rudy:

Here are my editorial comments on SAUCER WISDOM. It's a neat book with lots of wild and crazy stuff in it.

Peter's spots are gone, but his first tooth surfaced this morning and our 17" monitor blew yesterday, so the last few days have been trying. We are leaving for Ft. Lauderdale tomorrow and will return on the 23rd.

Enjoy.

Best,

Kathryn

PS: On the subject of UFOs, David once met an eccentric who had been a physicist (or something like that) at Los Alamos and as a hobby had tracked the UFO/government briefing stuff. He had gone to the early briefings and then kept track of the wild tales after the fact. His theory was that the government held UFO briefings to attract Russian spies whose comings and goings could be monitored thereafter. I believe him.

General remarks:

- 1) You need a preface: What we have here is a descendent of those 19th century works of futurism which use a fictional frame for the author's exposition on what the future will be like, a technique common in the era when literature was supposed to be didactic. You need some sort of preface positioning the book in this context (a completely non-fictional preface) since the book will be marketed as popular science rather than as SF.
- 2) Frank: Frank's background in the current draft is not sufficient for him to convey all of the information attributed to him in the piezoplastic section: he would not have the vocabulary to talk about or understand I/O devices or file formats. The easiest fix for this would be to change Western Appliance into an something like an educational video and CD-ROM company (which produces educational materials on sexual abstinence or some such for the high school market). Peggy Sung can still be the bookkeeper. Frank can have been a Quality Control guy (which would give him the right vocabulary without changing the rest of his educational background or his working hours). But the aliens told him to stop messing with computers so

he had to quit his job.

3) The future fame of SW: The shtick about how famous and important a book SAUCER WISDOM is going to become doesn't work for me and really undermines

the last part of the book in which Frank travels with the transhuman. Frank can claim that the book is really going to be important and influential, but this should always be related to Frank's desire for money. (As time goes on, Frank could try to get Rudy to advance him money against the book's vast future earnings.) The only exception should be Rudy's dream at the end, in which aliens speak directly to Rudy.

4) The Transhuman Saucerians: The frame of the transhuman section needs some rethinking. The re-enacting SAUCER WISDOM thing makes this section

tiring when it should be climactic. (I made fewer detailed comments toward the end because most of the problems were related to this one difficulty.) Throughout the book up to this section, Frank has been pretty free to tell the saucer folks what he thinks is interesting and to guide them toward showing him what he wants to see. When he's picked up by the transhuman, however, this would not be the case. They would have their own human agendas and, like the ghosts in Dickens' "A Christmas Carol," they would have specific points they want to make and lessons they want him to learn. Perhaps each of the three of them has something to teach him. But this would be a different situation for him than all previous saucer encounters.

5) The future of the Space Program: Somehow you need to work in information about the progress of old fashioned meat-&-metal space travel over the course of time. (Is there no space colonization at all until the alla?) This could be accomplished by dropping in little details and occasional mentions into currently existing scenes.

6) Audience: Your aliens have a Hitchhiker's Guide to the Galaxy feel about them, which allows you to get away with using UFOs as a frame for ideas about the future of communications, science, technology, etc. Although I don't have any particular targets for cutting, there may be places where the ufology stuff could be condensed a little. In the main body of the text, you should consider whether passages on the topic of ufology would be amusing to the popular science audience.

The book's audience is readers of popular science who enjoy neat ideas. Its audience is not the ufology audience, which will hate the book because you are making fun of them. This being the case, you should drop Appendix A. Integrate any material from it that you think is necessary to the book into the main body of the text and discard the rest.

Appendix A has the additional problem of containing the occasional reference to Frank Shook. Just as one would not expect fictitious books in the bibliography, an Appendix would need to be entirely factual.

7) Californianism: The future, as described herein, is far too Californian. (Surely, over a period of 4000 years, interesting things happen in other parts of the world, too.) One can put the blame on Frank. Perhaps he isn't interested in anything which happens outside Silicon Valley until he is forced by circumstance to leave. Rudy might ask Frank to follow up on stuff happening in Tokyo, Paris, New York, or some such, only to have Frank brush him off. At the end of the book, Frank could become interested in happenings elsewhere.

8) Fill in the blanks: You have a lot of "TK"s in the manuscript signifying things you plan to check or include but haven't put in yet. I presume that you're going to fix all of these in this draft.

Specific Comments:

Chapter One: Another Nut? 1

In general, some of the introduction to UFOs should be condensed if you can find places to cut.

P: 1: "I've always liked the idea of flying saucers." Would make a better 1st line than the current one. Consider moving the 1st 3 paragraphs to P. 2, between the paragraph ending "starchildren" and the one beginning "I actually drew." (What I'm after is a better 1st line and 1st paragraph. You might have other ideas on how to accomplish this.)

P. 3: "Your mother is the very first 'round hovering entity' that you encounter."

To point out the obvious: the standard UFO looks a lot more like the breast, an image infants are able to recognize before they can see much else, than like mommy's face.

P. 5: I like the line about the "pervasive, icky concern with sexual molestation"

P. 9: I like the line: "I thought you'd like to know that the aliens have never fiddled with my privates."

Chapter Two: Frank Shook Time 13

P. 14: Change "thru her thick glasses" to "through her thick glasses"

P. 14: A bearded man w/ dark curly hair: since Rudy is immediately suspicious of the guy but knows nothing about him, he might fantasize that the man is illegally wire-tapping the phone or some such.

Figure 2-1: Two-dimensional time 16

Frank should discuss some of the "irrelevant" details that he puts on the sketch. The most enticing for this purpose is "Jesus' eternity." Also, this timeline gives you the opportunity to characterize a lunatic's idea of history. Mightn't he also be interested in, say, Nostradamus, the extraordinary life-spans of some folks in the Bible, quantum mechanics, or some such. Here you can hint at the contents of some of Frank's trips previous to working with Rudy. What questions would a weirdo like Frank have for the aliens? What would he have wanted to know?

P. 17: "It's incredibly zigzagged, with sharp bends in it for each and every occasion where some random event could go one way or the other." This sentence seems to me to imply branching time, but branched timelines don't seem to be what Frank was thinking of here. Clarify.

Figure 2-2: 3D Time Prevents Time-Line Crossings 17

Discussion of this diagram gives you the opportunity to eliminate from consideration branched timelines, since if timelines could intersect, then there could be branching.

P. 18: Might Frank have quasi-historical examples of paratime time travel he's been worrying about? Rip Van Winkle?

P. 18: "I've read a lot of books like yours." Give titles of the books he's been reading. (This could be fun.)

P. 18: "It had crossed my mind that I might be able to make a book out of Frank Shook's experiences." This line needs to be followed by something like: "There was big money in UFO books. The problem was that I didn't want to spend the rest of my career defending the existence of flying saucers. Maybe I could get away with just an article for OMNI or Wired."

P. 18-19: Finland: Later in the book it should become apparent why Finland. What does Frank "know" about the significance of Finland and the North Pole?

Figure 2-4: Humming-bird Alien 20

P. 20: "Of course matter can look like energy" Insert something like, "you know -- $E=MC^2$."

P. 22: regarding Area 51 and Roswell: insert some of the material from Appendix A here.

Chapter Three: Calling The Saucers 23

P 26: "my eyes were starting to itch with an allergic reaction" If he is allergic to dogs, why does he have one? Or is he allergic to something else?

Figure 3-1: Three cameras and three TVs 30

Which of these 2 diagrams represent how things are set up at Frank's cabin? Clarify.

P: 33: "It's like he wrote them while he was in a different dimension of time." Cut this line. You're having Rudy tell the reader what you're trying to communicate. He wouldn't say this here. Mary might try to explain, but Rudy would be annoyed at having to put up with this obvious attempt at a hoax.

P. 33: you need a little more characterization of Sylvia to set up the Mondo scene. This is a good place to put some of it. She seems a little too flatly normal in this draft. Why is she married to Rudy if she is this ordinary?

Chapter Four: Notes On The Future Of Communication 34

P 34, paragraph 1: that the answers were related to Rudy's questions is the first real "proof" of Frank's claims. He accepts this too easily

P 34, paragraph 2: "Many of the scenes take place take place in or near San Jose..." This is the place to blame Frank for the intense concentration on Silicon Valley. You might add to the end of this paragraph something like, "I asked him why the aliens were so interested in California, and not in, say Tokyo or Paris, and he said something like 'California is where it all begins. Everyone else just follows the leader'."

"Me-shows" 35

P. 35: typo? Shouldn't "they begin my telling" be "they begin by telling"?

Grandpa Ned And The Lifebox 36

Figure 4-1: The Lifebox 36

This illustration needs work. I'm not sure what its supposed to show.

P. 36: "soft transparent contact lens" Cut "transparent," as that is implicit in "contact lens"

Lifebox Contexts 37

P. 37: before changing the subject, grandpa might admonish them to always practice sex

Dragonfly Cameras 38

While I like the image, one would think that stars and politicians would learn not to "gesticulate angrily" at dragonfly cameras when they are being filmed.

Figure 4-5: Jeremy's Rig 39

Picture says "Julian" text says "Jeremy"

Milla And The Dragonflies 39

P. 39: "nude in a hot tub w/ Carlo, her new lover" This scene should be a little more original: what sexual innovation might she be trying to hide?

P. 40: "electronic flare-gun" why didn't he use this in the first place? Also, what is an "electronic flare-gun"? And wouldn't one of those laser pointers on the market now do the trick? Also, figure 4-5A needs an insert point.

P. 40: wouldn't Jeremy's dragonfly be insured?

Gnat Cameras 41

P. 41: Seems to me that the aliens would manifest themselves as grays here.

P. 42: "Frank is curious" etc. This is an important moment. Elaborate on just why Frank asks about the dragonfly muscles.

The LuvSlug 42

Figure 4-7: LuvSlug 43

why does it have eyes & a mouth?

Figure 4-11: Incredibly twisted molecules 47

What are you going to use as an illustration here? Are you going to draw these, or license the illustration?

Soft Displays 48

Somewhere in here you need to integrate extrapolations on current ideas on ubiquitous computing, wearable computers, etc. Like the stuff that MIT Media Lab grad students have been up to in the last decade. The pillow TV

seems like an extension of those ideas.

Sluggie Processors 48

It seems very unlike corporate America to allow freedom of movement to the computational apparatus of a kitchen appliance. Why do the sluggies need to get out?

P. 50: "The centuries-old tyranny of the right angle begins to fade away" Everywhere? Or just in CA? Or the US? Or?

Smart Furniture 49

What useful functions can intelligent furniture perform? Expand the scene w/ the photographer's furniture run amok. This is fun.

Life In The Saucer 50

Why are they giving him plain water to drink? Why not something more nutritious: a liquid suspiciously like human breast milk?

Figure 4-15: Food And Drink In the Saucer 51

This illustration is unnecessary.

Larky's Brain Concert 51

P. 52: "I can't write or paint or play an instrument -- but I'm a starry thinker." Artists need to master one discipline or another before striking out for the frontier, so it seems unlikely to me that Larky would say this. Attribute this line to Lucy and let Larky be an otherwise undistinguished video artist, tuba player, or some such.

Wigged In 55

P. 55: communication protocol is a term beyond Frank's ken, as is "real killer bigwig app" (p. 56) See general comment (2).

Uvvy Files And Superanimation 57

P. 57: What are the political implications of "you can always plug in with other people like yourself ... and just hang out with them", i. e. never having to inhabit psychological space with anyone who disagrees with you? Another question: under what circumstances might bigwig conversation be compulsory?

Figure 4-19: Superanimation Of Flanders 57

looks interesting, but I don't understand

P. 57 I don't really get the idea of superanimations from the text either.

Recording Dreams 58

See note (3) under general comments

Chapter Five: Frank And Peggy 60

P. 61: how does Sylvia react to Rudy talking to a madman about God while she is trying to sleep? At minimum, if I were her, I'd ask Rudy to take the conversation in the other room.

P. 62: uh, what's a "loop T-shirt?"

P. 64 top: FS should mention that the book is going to be really famous & important, so it's going to make big money.

P. 68 Could Saucer Wisdom be Rudy's working title which is already on the manuscript which he has not shown to Frank?

P. 68 bottom: how does Sylvia react to Rudy's enthusiasm?

Chapter Six: Notes On Aliens 73

The Saucer 74

Figure 6-1: The CAD Saucer 75

Can you really make this one work? "it's like the lines go too many directions for 3D space" do you have in mind some way of visually presenting this?

The Aliens 76

Figure 6-3: Cooper/Stanwyck Flesh-Glob Aliens 77

unless this illustration is going to be really amusing, cut it.

Soul Broadcast 84

P 84 bottom: See general comment (3).

The Smell Of Souls 90

P. 90 bottom: expand explanation of "collapse of the local quantum state function"

The Alien Guest-Book 94

Figure 6-16: Saucer And Ziggurat 95

cut illustration? the text description is better

Chapter Seven: Notes on Future Biotechnology 101

Wetware Engineering 109

why not give Big Tongue a loud purr like that of a mother cat?

P 121 2nd paragraph: knives should be knives

Chapter Eight: The Mondo Party 129

then
This needs to be set up as a more pivotal disaster. Also, to set up Rudy's going through recovery, he should drink too much at the party and have to ride in the squad car the next day with a hangover. Also, it's never clear how or why Spun and Guster were invited or what made Frank freak out and steal the computer.

P. 141: following the sentence "It occurred to me that it would have been very easy for the aliens to show Frank my key." add "It also occurred to me that it would have been even easier for him to have followed me home after our first meeting -- I had forgotten my key and had to let myself in using the spare."

Chapter Nine: Missing Time 143

P. 148: after "She had a big yard sale Sunday and Monday..." add "We bought one of her TVs. Don't know why they needed three in a place that small."

P. 151: after "Did I believe Frank Shook?" insert "No. But"; after "Was I still angry with him about the break-in? Not really." add "I was angrier that he'd disappeared halfway through a book project I'd already put so much time into."

P. 155: Missing word? "UFOs are so popular anymore."

P. 156: expand on "Spun was acting weird." was he perhaps talking about taking the VCR and the stereo?

P. 159: change "first person to climb" to "first person known to have climbed"

P. 195: cut or revise the Aug Dogs scene. I find it unpleasant in a way that nothing else in the book is.

Bruce Sterling's Introduction, June 2, 1998

Date: Tue, 2 Jun 1998 20:24:05 -0700 (PDT)

From: Bruce Sterling <bruces@well.com>

To: rucker@mathcs.sjsu.edu

Subject: intro to SAUCER WISDOM, forward to relevant parties

Bruce Sterling
3410 Cedar Street
Austin, Texas 78705
FAX 512-206-0087

Introduction to SAUCER WISDOM by Rudy Rucker

By Bruce Sterling

I have been asked by Professor Rucker's publishers to explain a few facts about this extraordinary work.

On the face of it, it would seem that one of the professor's friends has been abducted by aliens in flying saucers. These friendly creatures can time-travel, so they conveyed our witness step by step into the deep future, and they showed him any number of amazing marvels. No: it's even better than that. They brilliantly lectured to him about everything he saw, just as if they were Olaf Stapledon. While he was a contactee, our guy took copious notes on a yellow pad. He did a lot of cool eye-witness drawings, too. And it's all in here.

I have studied the manuscript closely, and I've reached an important conclusion. While the twisted super-science marvels of the future seem only too plausible to me, I pretty well know that Rucker's pulling our leg with the "friend" part. I strongly question the reality of this supposed "Frank Shook" character, the "friend" who does all the close encounters. As portrayed, he's supposed to be a guy who is more imaginative than Rudy Rucker.

As if.

This is where I must balk. I can take all the other stuff: high-speed inline skates made of slug slime, women with human fingers growing out of their necks, time as a three-dimensional helix, prion-infected clones; I'm totally down with all that; in fact, having read it all, I just wanted more, MORE. What I can't swallow is "Frank Shook," a cyber-hippie so totally spaced that he makes Rudy Rucker seem like a normal, aw-shucks kinda guy.

You see, this telling detail, this fatal discrepancy, absolutely proves to me that this book is not, in fact, "real." If you're examining SAUCER WISDOM imagining that Rudy (or some fictional "Frank Shook") have been actually logging a lot of on-board saucer time, well, you can knock that off right now. Rudy Rucker made up the flying saucer

part. There is no actual flying saucer. The saucer is not an interplanetary faster-than-light device. It's what we professional authors like to call a *narrative device.*

I'm going to spill the beans as directly as I can here: SAUCER WISDOM is a work of popular science speculation. It's a *nonfiction book*, in which Prof. Rucker takes a few quirky grains of modern scientific fact, drops them into the colorful tide pool of his own imagination, and harvests a major swarm of abalones, jellyfish and giant anemones. This book is not the puerile raving of a UFO-stricken madman, but *firmly controlled, intelligent* hallucination -- it's the science fictional imagination in an almost pure, virginal state. Through the simple device of declaring this book to be a flying-saucer confessional, Rucker has instantly removed the bad plotting, the ray-gun melodrama, the thumb-fingered boy-meets-girl elements, the cute Spielberg dinosaur-fodder children, and all those other things that make the "fiction" in science fiction so depressing. Instead, we're getting right down to the vital hot stuff here: raw futuristic speculation, coming straight at your brain like a fiery wheel in the sky. To create a narrative like this, it might *help* to be a demented saucer nut like "Frank Shook," but raving this well and at such a sustained creative intensity takes more mental horsepower than the Shooks of the world will ever manage to muster.

Rudy Rucker can do this sort of thing very well. Thanks to his "transrealist" compositional habits, conventional narrative structures do not trouble him (as I know only too well, having co-written two stories with him in the past). What Rucker has created in this book is not "Science," not "Fiction," and not conventional "Science-Fiction," but a dainty little genre all its own: Science/Fiction, you might call it. With the emphasis on the slash.

Pop-science writers didn't used to treat "science" in this boisterous way, but there might well be a trend here, there may be a real future in this. SAUCER WISDOM is a book by a well-qualified mathematician and computer scientist, a veteran pop science writer, in which "Science" is treated, not as some distant and rarefied quest for absolute knowledge, but as naturally great source material for a really long, cool rant. The book is a brilliant series of Kerouac "sketches" and Burroughs "routines." It's Beat pop science. SAUCER WISDOM has a genuine beatnik sensibility: there's lowlife, plenty of road travel, dope and booze problems, spells of petty thievery, and romantic fulfilling moments where you get a decent Mexican soup in a cool roadside cafe', and life suddenly seems full of beatitude and sweet illumination.

Without being in any way New Agey or mushy, SAUCER WISDOM is a very

spiritual book. It's the kind of book that would probably do actual saucer nuts a world of good, were they to pluck it off the shelf in the midst of their dopey quest for ancient astronauts or a desperate spiral down toward the poisoned pudding. Luckily, actual saucer devotees almost never read entire introductions, so they will have no idea what I have been actually going on about in this entire introduction. Instead, they will skim the first sentence, and then read the last paragraph, and then dive right for the cool stuff. So for their sakes, let's move right on, shall we?

I devoutly hope that all those fascinated by flying saucers will put aside the dangerous illusions that have been foisted on them by lesser adepts. They should buy this book at once, and put themselves, entirely and trustingly, in the capable hands of their friend and mine, Professor Rudolf von Bitter Rucker.

June 4, 1998, Email to "Chat" group, Greg, Don, Roger, Jack White

I'm off to Kauai with S and the 3 kids tomorrow, guys. I'll be gone for two weeks. I managed to rent us a small house on the North Shore, in Haena. We were in Haena three years ago and it was really nice, it's the end of the road. We're so lucky to be able to do this and to have the kids come along. Today I'm anxious about packing, the plane, etc., praying to God it all works.

My fellow cyberpunk Bruce Sterling wrote a great intro for SAUCER WISDOM, the "Frank Shook" book. This achieves some closure, so now I can tell you the exact story. My publisher for it, Tor, wanted an intro for SAUCER WISDOM so as to make absolutely clear that the book is not meant to be literally believed. This is a load off my mind. Tor is publishing it Fall 99, just before the Millennium. In the book I seamlessly present it as transreal nonfiction, saying all the info is from Frank Shook, a real friend of mine who's been on many (maybe too many) flying saucer rides. I blend a lot of my real life experiences in with the made-up stuff about my saucerian friend. Sterling explains the key point that the UFO is a NARRATIVE DEVICE I use so as to frame the little sketches and routines "Frank" told me about the future, these are really just unrefined SF speculations of mine about what might happen in the coming millennia, but I didn't want to write a POMPOUS "this will be the future" book like some scientists have been doing of late. The people who were going to publish it first, Wired, wanted to go out and insist the book was TRUE and try and do a hoax, and that would have been a hassle and probably a marketing debacle. What was Greg's role in all this? Recall that when I was first pitching the idea to Wired, Greg happened to be in town so I made him come to the editorial meeting with me, because I was anxious about the pitch, and I presented

Greg as really being Frank Shook. The gen-X editors really believed it for awhile, and even after I told them that Woof was really just a burnt old college friend of mine, they had like imprinted on Greg as "Frank" and couldn't get it out of their minds the book was really true. Greg was reluctant to do this act in the first place, but he did a bang-up job. Vague, mostly silent, seething, finally stalking out of the meeting. To talk him into doing it, I grandiosely promised him 2% of my advance. And then I came to feel like I shouldn't have to pay him, but I did. As the months went by, I came to resent having written a check to Greg more and more, especially after Wired Books went down the toilet and the book was orphaned (though I did get to keep most of the advance). Finally I whined and pressured Greg so much that he gave me the 2% BACK, which was big of him, I used it to get a better new mountain bike than I otherwise would have. And then nobody wanted the book, but finally Tor came through, quite a good SF house. Tor made me rewrite it a lot, though that was for the good, the book got better. The book has 58 drawings "by Frank Shook," and Wired had planned to hire an artist, but Tor is kind of cheap, so they said, "Hell, your sketches for the drawings look pretty good, Rudy, after all they are supposed to be drawn by a psycho on a saucer ride." So now I'm redrawing the drawings, doing a better job, using hard pencil, art gum, fountain pen, white-out, 100% rag typing paper, couple of Rapidographs for touchups. A real trip to be drawing like this again, I used to do this back in the early 70s, the days of the "Wheelie Willie" cartoons I drew for the Rutgers Daily Targum. Drawing yesterday I put on some old Rolling Stones CDs, man it was total time trip. And I'm hear to tell you, underground cartooning can be done WITHOUT smoking two big bones of the good old green, as I formerly deemed canonically necessary. All that was just a smokescreen, a "badge" to give permission to do art. It's slow hard work doing these drawings, though, so I'll pack up the equipment and take that Kauai with me.

Aloha,

Diary

April 11, 1994

I wrote a savage review of a book called *Abductions* about UFO encounters. Next week it comes out and I'm worried a lot of nuts will be after me. Or the saucers themselves. The "experiencer" views everything as a plot by the aliens.

Last night I dreamed I saw a saucer, it was drawn of lines of pale light against a blue sky, a traditional saucer shape. Today walking with Arf on St. Joseph's hill, I found a new little meadow and looked up and the sky resembled the sky I'd seen the saucer in. The noises in the woods seemed alien, seemed to stick together in new metashapes. Last night I saw a picture in the paper or in a magazine such that if I crossed my eyes the picture became three dimensional. One of those new illusions. Night before last I had a remarkable dream.

I was in a high brick apartment building, perhaps in New Jersey or NYC. I was looking out across a park, maybe Central Park. Airplanes started going by, small planes at nearly the same level as my window. These were special custom futuristic yet antiquated airplanes, like Buck Rogers planes. Some had short stubby babyish

wings. They were snubby and chromed, some looked like fifties cars. They were very agile and playful, one of them swooped down in a vertical drop just like I saw a crow do the other day.

June 1, 1994

Went in to SJSU to pick up my check, see Borecky, check the US 1900-1940 show at SJ Art Museum. "Synchronism" and "Precisionism", new names for U.S. art movements.

June 10, 1994. Jahva House sketch, Santa Cruz

The coffee shop was in a large old garage, a hundred feet square with a high wooden ceiling with old beams showing. There were fans up beyond the beams, stirring the air around. The windows were translucent pebbled glass reinforced with chicken wire. The windows had horizontal pivots in their center so that they could be swung horizontal to let the air in. Out the window I could see a low gray building with ventilation ducts on the top and a satellite dish, and above the building power-lines and a pale blue sky. In front of one window hung a stained glass panel showing a setting sun, a dolphin, and a humming-bird at a flower. Another window showed a green-leafed tree, its branches tossing chaotically in the breeze. Outside the big open garage door was a street with cars, and across the street a yellow brick building with green awnings. A sign on a shop under one of the awnings had a sign saying OPEN.

Inside the coffee-shop were large planters with ficus trees, also pots with dracenas and other tropical plants, all tossing very slightly in the breeze from the fans and from the open windows.. The tables were wood, some with maps set in, and on the tables were beat-up brass lamps. The chairs were captain's chairs, with arms that wrap around. Against one wall was a case marked *Odwalla*, full of natural drinks. The walls were coarse red construction tiles, and the floor was cracked slabs of polished concrete, with threadbare oriental carpets here and there.

A big speaker in one corner played reggae music.

There were a pair of young guys in loop T-shirts playing chess, one with curly hair had a purple shirt bent over the board with his back to me, the other bearded and stoned-out looking, with a turquoise shirt and a black baseball cap worn backwards. His dark hair stuck out to the sides under his baseball cap like a wig. Weatherbeaten hardworked face with a wrinkled brow. Two young women in granny dresses and no makeup. A stout young dark man in a purple and green plaid shirt, baggy torn-off khaki pants, sneakers and blue argyle socks, and a purple stocking pulled over his hair, a swarthy bearded pirate face, reading a picture book from the bookcases that stood against one wall. An old man in a green zip-up shirt reading a paperback. A student girl studying a stack of Xeroxed notes, she wore polka dot shorts and a T-shirt. At the next table sat a pony-tailed man with an earring, and his wife a shiny big-eyed woman in a purple tank-top and a flowered maroon skirt, also their little girl with a pony tail and a T-shirt. She walked around stamping her feet in time to the music playing out of a big speaker. She began wrestling her father, tugging at his hand and laughing. She looked like the mother, the same wise straight thin-lipped mouth. The coffee bar was half an octagon against one wall.

A man in a complicated wheelchair and a guide dog came in; two kids helped him pull up to a table. A sandy-red-haired man with a beard and shades, bobbing his head to the music, putting sugar in his coffee at a freestanding condiment bar liked

with three thermoses of cream, milk, lowfat milk, shakers with cinnamon and chocolate, tall glasses with spoons and straws, glass jars of brown sugar and refined sugar.

My tabletop held a map of the Monterey Bay. Sitting on the map was a cup and saucer that had held a cappuccino coffee with a big mound of white foam over the sweetened espresso. Traces of the foam had hardened on the cup.

Nobody, other than the little girl, make eye contact with me, nobody hassled him, it was deeply peaceful.

A girl with her hair piled on top and a T-shirt with scalloped neck and edges came and talked to the dudes playing chess. She was joined by a man with a toothbrush mustache and a seriously ugly baseball cap -- small, perched on the top of his head, and bearing a fragment of a large aloha print of flowers and parrots. He got a latte, and the girl went to the counter and got an iced tea and a chess set; they began playing chess as well. A man with curly hair and the wind-smoothed features of the stoner carried two conga drums out to the garage door. The man with the purple stocking cap drummed his fingers, stood up, walked slowly staggeringly back and forth, then drifted out the door, pausing to joke with the conga carrying man. A sparrow found its way in through one of the huge open windows and flew about.

Later that day, or another day, we saw "Endless Summer 2" in Santa Cruz at the Del Mar. Perfect place to see it.

January 5, 1997

My initial plan is to write *Realware*, a sequel to *Software*, *Wetware*, and *Freeware*. I think this time I should have an outline and write the thing in chronological A-Z order instead of going into it ass-backwards like I usually do.

January 6, 1997

Looking at the list of **Ware* characters and thinking about possible chapters, it's like looking into this seething anthill. So much going on in there already! I only need to look closer. Tonga or Fiji looks very promising. At the end of *Freeware*, the lovely young "Yoke said she was going to spend a few years on Earth, diving and studying oceanography." Perfect. The Somosomo Strait off Taveuni! And I really feel like doing something with Tempest Plenty. That's such a great name. Yet another hillbilly character? Well, hey, it's something I'm good at. Tempest is 60 in 2054. Have her be a Heritagist.

January 26, 1997

I'm 3,000 words into Chapter One of *Realware*, I've woken Cobb up. At present I have the date as January 25, 2054. But today I'm beginning to wonder about the wisdom of this project. It's like I'm doing the same thing again, and there is so much baggage of things to dovetail and explain, and *Freeware* is so good I don't want to have to be trying to top that. Why not start a completely fresh book for my new novel? Writing a Cobb wake-up scene feels so been-done-before.

And two technological issues are bothering me. (1) I feel like I should deal with the *Wetware* biotech issue, which I just completely punted and ignored in *Freeware*. (2) Before introducing femtotechnology I feel like I have to deal with nanotechnology.

A bad thing is that I seem to get getting into this exactly ass backwards just

like I didn't want to do, scrambling the whole time for what happens next.

February 3, 1997

Now I've decided not to do *Realware* for now. I took all the *Realware* specific things out of these Notes and copied the old Notes and the piece of *Realware* into a subdirectory.

In the last week of having no novel project, I've had a variety of feelings. One was relief, I have all this free time if I have no novel. I have two other book projects, but they are both on hold, waiting to hear from publishers. I could work on them, but I don't have the motivation as they are sort of boring projects that I need a contract for to motivate me. The one boring project is the *Joy of Hacking* textbook on software engineering, the other boring project is the *Gnarly!* book about gnarliness. That latter one could be interesting, but I can't get really stiff about it. I've dribbled out the pieces of it in so many ways, in short nonfiction pieces, and in the *CA Lab*, *Chaos*, and *Artificial Life Lab* manuals, that it doesn't feel like urgent news.

I worry that maybe I'm through writing books. Then I think, maybe I should just give it up and relax. I am in the autumn of my life now. I've written plenty of books, and one more book isn't going to make much difference. I'm tired of competing.

But when I do think like that for a few days, I get depressed. I like to have something beautiful to work on. I do want to write another novel.

I don't want it to be a sequel to anything because I don't want to have the baggage of all the old time-bound decisions. If I were going to do a sequel, my first choice would be to *The Hacker And The Ants*. But I don't want that commitment to (impossible) intelligent robots. But I could see doing something in that same kind of space, the near future Silicon Valley space. It would feel good to be writing transreal stuff about my daily life.

The far future is another thing I've thought of doing, like it would be cool to do the year 3,000 right as the year 2,000 rolls around, like call the book 3K. But then that seems kind of pointless. I'd rather write about real people and real problems.

What kinds of problems? Death, alcoholism, old age, crowding, meaninglessness, anomie, media bullshit, mass stupidity.

The solutions I'd like to get to are spiritual.

February 14, 1996

From Email to college pals Greg Gibson, Don Marritz, Roger Shatzkin.

I have a really "great" idea for a new book, and you could help me with this, Greg. The idea is that I have a lot of notes for science-fiction story ideas, and I've half-convinced Wired to publish them as a book. But they want a hook, a frame-tale, a high concept. So my hook is to claim that all of these futuristic teachings come from the saucer aliens. But rather than appear like a saucer nut, I will keep my distance and say that a *close friend* of mine has had frequent saucer encounters, and this is what they told him da-da-da-da-da. This is where *you* come in, Greg.

As it happens I have a meeting with the HardWired editors on Wednesday, Feb 19, and I could bring Greg along. We'll use a fake name if you like. Either "Ronnie Shook" or "Gregor Samsa" would be great. During the writing of the book you'll perhaps be abducted for good --- off to the triple-sunny liquid-methane beaches of Arcturus-3 for my old pal Gregor Samsa! But it would be nice to have an actual

image of him, like a grainy 60s photo or something. His many, multiply-jointed legs akimbo. The Viet-Vet beard. The hard, bewildered eyes.

February 19, 97

From Email to college pals Greg Gibson, Don Marritz, Roger Shatzkin.

Today Greg and I had a very successful trip to San Francisco. I had scheduled a meeting with some editors about a non-fiction book proposal, and they had wanted some hook or spin on the proposal. The book is to be thoughts about future tech, and they wanted some frametale which implies that I have some kind of inside track on the knowledge. I confessed that my track is that I get a lot of information from a close friend who is an alien contactee named Frank Shook! In fact ALL of my science and SF ideas are from Frank. Frank Shook was at the meeting with me -- you guys know him well --- with his pony tail undone and his hair down. He was perfect. Like that time when he was a Dog in the Hamburg Show and then kept on the Dog head for the rest of the evening and would hardly talk. That's how Frank Shook was today. He left after about fifteen minutes, I talked to the editors for another hour, and it looks like I may very well have the deal! Good old Frank.

February 20, 97

From Email to Laidlaw.

So in other words, the line on my new book SAUCER WISDOM is "Rudy says he has a UFO contactee friend, and that most of his ideas come from this friend, named Frank Shook. SAUCER WISDOM tells about Frank Shook and about a lot of weird future ideas. Some of the ideas were already in like FREEWARE, but Rudy says the ideas originally come from the saucers, and he's been feeling duplicitous about hiding this fact. Is Frank Shook real? Apparently so. The staff at HardWired all saw him. Rudy knows Frank from back in Jersey when he went to Rutgers. They met in a laundromat."

(Only after we went upstairs to a private room did I tell Mark and Hollis that Frank Shook was maybe an act.)

February 23, 97

So yesterday Hollis Heimbouch of HardWired calls Susan and offers her a big advance for the book! Whoa, Nellie.

February 25, 97

Last night, and still this morning, jogging, I was worrying about Greg's input, and the fact that I didn't like it. I had taken him to the HardWired meeting precisely because I feared the people there might start word-gaming me and trying to take over the project, and then of course that's what Greg turned around and started to do. Saying Frank Shook didn't like saucers, saying Frank shouldn't be a techie, saying Frank's job is "selling things," etc. etc. I realized I had to totally cut the cord on this bullshit, I have to grow the book from the inside. So I wrote Greg a letter, sending him copies of some pix I took of him doing "Frank Shook" out by the Lexington Reservoir.

From a snailmail letter to Greg.

I made an extra set of copies of those "Frank Shook" pictures of you, so here they are, though I'm not sure how much use they'll be to you. For the family album, or maybe for sending to email pals who want a snap of you. I doubt if I'll really use

one in the book or not, it's too early to tell. The literary Frank Shook is evolving pretty rapidly. The pix I did like best were the ones where you're smiling a little, and the picture with the rock is perfect. I put check marks on the backs of those four that I liked.

Probably as a way of avoiding the true work of getting on with the book, I've been mentally processing your input on the subject, and have decided to reject almost all of it. I want Frank to be sunnier and more intellectual than the persona you limned. To the extent that Frank ends up being at all modeled on you, it would be on the intelligent friendly book-dealer Greg I would draw, not upon the "seared" Shook character that you extemporized on the spot. Well, I better not talk about this anymore or I'll just be inviting still more advice and opinion from you, which is exactly what I don't want any more of on this particular topic! I don't want to hear other peoples voices arguing with me and trying to shout me down while I'm working. And nix on the Shook phone messages too, they upset me, and then I have to type them up and consider them and it's more energy misdirected. This is no joke, this is my *life*!

But it was a real gleeful trip to the City and great prank fun that you happened to be here on the day I was going in for the meeting.

March 12, 1997

I had a real flare-up over the involvement of Greg and the other Swarthmore "chatroom" group (Don and Roger). They kept emailing about it and it really freaked me out and made me scared I'd never do the book. I'm so ridiculously sensitive. Don and Greg are into the male thing of mocking, needling, riding --- this phony practice aggression stuff, and I take it all so seriously, especially if it comes in the written form of email.

The thing about email, you write just what you would say, you don't write what you would normally put in a letter, reread a few times, and then still mail. You just write what you'd casually say. But then the person who gets it is reading it, if he's someone like me anyway, with the weight of a serious letter.

Like when he got back home, Greg emailed that he and I had "a bitter argument over creative control of the Frank Shook character." And then he asked Don (a lawyer) to help take me to court over it. And then Don really got into that and said he was going to sue me. And then they started talking about me having tenure and calling me Herr Doktor Professor. And I just lost it, and couldn't think of anything else, and told them I didn't want any email from them at all anymore.

I'm still anxious because Greg kept saying I had to pay him a share of my money because he came to the HardWired meeting! And Greg saw me get a foreign royalty check while he was here, so he kept yelling that he had to get all the money I get from Finland, too. He's just mind-gaming me, though, he's a businessman, and that kind of talk isn't even stressful for him.

I've thought about this so much lately; it's been distracting me from the book. Or conversely it may be that I've been thinking about this as a way of avoiding doing the work on the book.

March 17, 1997, Letter to Greg

The huge metal saucer hovered soundlessly over the muddy logged-out redwood clearing. The Okies stood stock-still, motionless in frozen time.

Thanks for your most recent letter. My problems with your email basically related to my own fear. Regarding the book, I was having a lot of fear about (a) losing control of the book's "secret" and (b) leaving my game in the chat room and not being able to carry the thing off.

I really do appreciate you're having come in with me to HardWired that day, and it really was a big help. You helped me catch the big fish

April 21, 1997

Things have been topsy turvy ever since we went to the Grand Canyon at spring break. When we got home there was 500 gallons of raw sewage in our house.

I had a very frightening alien dream near Mt. Zion National Park in Utah.

The aliens are high over me, like in a long-legged bamboo-legged Dr. Seuss walking machine that is also a bulldozer, it is rocking uhhnnm, uhhnnm, uhhmmmn, the way machines do trying to push something. I'm protesting or something. They shine a laser down into my mouth, it is etching on my gums like etching chips where the teeth used to be. ZZZZT ZZZTTT incredibly painful, now they are etching on my real teeth too, and if I don't get away they'll do all of them, it is happening so fast, like the laser that drew a shape over the stage at the ZZ Top concert ZZZT ZZZZT. I wake myself up and feel that deep dark helpless paranoia of the real UFO nuts who think that the aliens have already taken over and made the MJ-12 deal with the government and we are just their cattle, their lab rats, controlled and dictated to by our implants.

Then the Heaven's Gate suicide broke, in fact the night I had that dream might have been the night they killed themselves.

The sewage in our house the objective correlative of UFOlogy.

But somehow I've continued to write and am feeling pretty good about the book.

The contracts came through and I really am getting good bread, and they only want about 50,000 words, and I have 20,000 done. 50,000 isn't very long, I may make it a bit longer.

April 23, 1997

Today I got a new Thinkpad 560 through the school, a \$4K machine, thanks to the CAMCOS project. I picked up Word 97, man this ware kicks butt!

You know last night I had insomnia and I was fretting about Greg again and then I calmed myself down, I knew it was a personality flaw I only recently copped to, and then I remembered it and calmed down and went to sleep: this is the flaw of REGRET. I need to just accept and GO WITH the things that happen to me. Not whipsaw.

Yeah. Today I was going over the notes and grouping the Frank Notes chapters some more. Communication, Aliens, Biology, Robots, Physics.

May 27, 1997

Roar! Here I am sitting in the 6th row of Century 21 waiting for Lost World to begin. All alone, heavily geekin', me and my laptop, my first day of true vacation, as I turned in my grades yesterday.

Frank Shook's moving along well. I need to finish this aliens chapter which is a little work as I need to invent a lot of things. Like more details about Herman's

home world. And I want to do a rope world, a crystal world, a shuggoth world, and a corkscrew world.

Then comes the Hiatus chapter. The rope things were seen by the Okie nabers perhaps.

It's been fun and easy working on the book as now I have this great IBM Thinkpad 560, 133 Mhz Pentium chip, 2 gig hard drive, 40 Meg of RAM, bright 16-bit color 12" screen, weighs 6 pounds. It has a nice feature called hibernation that means when I turn it off it remembers where it was. So in a sense I never need to close up my Book and Notes documents, which is perfect, like this is an eternal notepad. So futuristic already.

Roar!

July 2, 1997

Today I gave Rudy a ride to San Francisco and took the train home. I wrote some stuff about myself and the train ride and some stuff with ideas for the book. I'll put the book ideas down below and just leave the personal stuff here.

Pulling out of San Francisco on Cal Train, 3 PM July 2, 1997. I'm on the second level. Uh-oh there is quite a bit of left to right oscillation. A big character flaw I have is to immediately regret and second-guess my decisions, e.g. to think maybe I should have stayed on the lower level. Or maybe I should have ordered a different meal. Or should have watched the carpenter more closely. "I should have..." It would be nice to get rid of that character defect. To just plow on, INTO what's happening now. The only way to get rid of character flaws is to ask God to remove them. So I can work on that. God let me live in the moment and not regret the decisions I make. "God grant me the serenity to accept the things I cannot change, the courage to change the things I can, and the wisdom to know the difference." In the past I always thought the "wisdom to know" was more oriented to courageously thinking there are more and more things you can change. When really, for me, it should maybe be oriented to serenely accepting there are less and less things I can change. "Let go, let God." This 12-step stuff is such an amazing Yoga. Such a Path.

By the train tracks a yard of tanks, the size of fridge and cars, conical, cylindrical, spherical, all rusting metal painted silver.

Curves of light and shadow. A bigger scale.

What about future transportation?

What people eat. I really should try an Odwalla Future Shake. I had a mozzarella sandwich for lunch, but the bread was coated with nasty toothsome greasy pesto. I fill kind of sick to my stomach. Nasty taste in my mouth. The old poisoned-rat syndrome. Grant me the serenity to accept that I once again ate unwisely. Let go let God. Make the best of your situation. You aren't really THAT sick to your stomach.

A stranger who was just in front of me is now way outside. Amazing how time can be so readily cashed in for space. Come back, come back!

Someone should wash the hair grease and nose sebum off the insides of the train windows. If it were polyglass with mites in it, maybe.

Signs in each station ← SJ | SF →. The rocking of the train doesn't matter so long as I touch type. I'm wearing my Wig, you wave. I don't have to do any kind

of eye-hand thing. I'm typing them into my memory buffer, I can see it there.

I love how you see that back sides of everything from train tracks. Lots of parking too. It would be fun I think to commute by train. I think I'll get S to take with me next time we come to S.F. Of course then you have to do cabs in the city but that's OK. It's so relaxing not to be driving. If I get drawn into reading the signs on buildings, I don't see the buildings. An old station wagon with yellow grass grown up around it, sitting in a dusty lot. Aluminum bicycle boxes.

Bicycles of the future.

Would be so nice to put a bullet through Quantum Mechanics. All that "stranger than we can imagine" dancing Wu Li Masters crap.

All these little Peninsula burgs I never see or think about. You don't see JACK SHIT from the hiway, you see more from the train, if only the backs of things. What an adventure. Here's the San Carlos station, a solid little Richardsonian bldg. With a bar with white lace curtains, reminding me of German train stations. I never even heard of San Carlos before.

What did the Beach Boys mean by "I wish they'd all come be California girls." Certainly there are plenty of girls there, perhaps the finest ones. I think the message was that *fundamentally* every girl is a California girl. So the girls and their boyfriends cold feel cool. California! How lucky I am to live here.

Near the train station is often where these little towns have tried the hardest to spruce up. Which usually means lots and lots of concrete. No matter how quaint your iron lampposts or cunning your bus lane markers, concrete is concrete. The Atlanta syndrome. Could concrete go away? Sure it could. Why do you have it? To prevent mud, basically. Easy enough to imagine a superlawn that just won't bust, which self-repairs. Of course if you don't have cars there's not so much wear anyway. Haw we talked about cars really?

Should I mention living skyscrapers? Nanotech? What is there to say about nanotech. Tenor-voiced lawn-dwarf. A man I'm SURE is a Unix hacker gets on the train. Overweight, brown snakeskin cowboy boots, pursed self-indulgent lips like a fat lady, raggedy beard, long hair, white shirt, gets on in Palo Alto or Mountain View, gotta be a hacker. He takes out a color brochure and starts examining it. The colors are bright, garish cheap looking. I think "cheap fractals," funny how fractals can now be cheap. But they're not fractals, they're little porcelain figurines, page after page of them he's looking at for the next half hour, like Disney figurines, Hummel figurines like that. But maybe he is a hacker anyway. What if he wanted to make those things for himself with femotechnology. The lust for a material object!

July 26, 1997, Waikiki Beach

Breakfast under a Hau tree. It's branches are like human time lines. Except they even grow back together in spots.

Frank's boss at the IRC is a skinny woman named Helene Lundy She has lank colorless hair, and her mouth becomes a disapproving 'o' whenever sex is mentioned. Her pale skin is pink around the nostrils when she has a cold, which is almost always. In February she is sick enough to stay home for a day, and Frank gets his big chance.

He locks up the IRC for lunch hour and arranges the TVs and cameras. The saucerians are ---- humans!

[He has a notion that maybe he can get the aliens to set him back in

California and somehow undo the theft, the flight, the loss of Mary. But he finds out he can't do a time paradox. You can't go to the exact same space time as a past self. "Your past lives repel you." Aliens bring you back to a microsecond later so you don't overlap. Note that travel to future and back could cause closed causal loops already. But you can't do them? A strange super-physical force prevents it. The hand of God.]

[What if Frank were to try and overpower the saucer pilots and fly back to 1994 *anyway*?]

The human saucer pilots are from 4500. They have copies of *Saucer Wisdom* with them. The book is as influential and long lasting as Plato's dialogues.

Frank says, "You've traveled into your own past and it's OK. Take me to my past, take me back to stop me from robbing Rudy's house when I was drunk. I've lost my Mary because of it. I want her back."

"If you could go back and change your past, then you wouldn't come to South Dakota. And you wouldn't be here now. So you wouldn't change our past. This would be a contradiction. The universe doesn't allow contradictions."

"How's it gonna know. Maybe it's not paying attention."

"The Cosmos is God's body. All space and all time. Each moment is adjusted to make the greatest coherence. Like a great sheet that's settled down over a landscape."

"But what happens if you try and force a contradiction? Like what if --- what if I say I'm *not* going to call my book *Saucer Wisdom*? That would screw up you smug smart-asses! I'm get Rudy to call it *Frank Shook*!"

"And he will," laugh the aliens. "But he'll call it *Saucer Wisdom*, too. The full title is going to be *Frank Shook, or, Saucer Wisdom*, although not everyone will always use the full title."

"Oh yeah?" says Frank. "Well what if I decide to call it --- call it *Alien Visions For A New Millennium*?"

"That's a stupid title," says the saucerian. "Rudy would never use it. And even if he did, the publishers wouldn't keep it." He smiles and shakes his head. "Knowing the future doesn't cause paradoxes because people don't set out to do the opposite of what they know they want to do."

[More on the time paradox. "There's only one universe." Don't allow the messy branching-time solution. Because then *nothing would matter*! And no work would have been done in computing this particular cosmos.]

On the Aug Dog theme. The girl at the window of the Paradise Smoothie stand had two growths on her chest about the size and shape of fingertips. Aug Dogs could start doing that quite soon. A radiotelepathy eye. A piece of your body that's not connected to you. A hand that runs around like in the Addams Family Movie. Femtoclone a new body.

August 1, 1997

Re: Frank Shook and transhumanity. How do you change your body, i.e. add wings, become a mermaid, become a flying space-bug? Amnio tank. Gibberlin. Fast grow. This makes more sense than femtocopies, save that for something else, save it for teleportation.

Aug Dogs

Archipelago People, Multiple Bodies (Don't use the Cobb thing)
Simmie Selves (lifebox + sluggie)
Femtoclones and Teleportation
Human Saucerians
Bigger Self, Group Minds
The Unseen, the Astral Plane

August 22, 1997

Well, I've been on vacation from Frank Shook since July 24. We went to Hawaii, Sylvia and me. And then when I got back I worked on fixing the downstairs bathroom for awhile and then I worked on getting the Joy Of Hacking notes ready for my CS 160: Software Engineering course.

I'm still sober! Lord, lord. I'm getting this deep calm feeling a lot of days.

Big excitement today as Scott Billups called again about his plan to direct the movie of my book Software. "Everyone's signed off on it except this one guy Steve Freedman," says Billups. "Well, yeah," I say. "He's my agent!"

Billups told me a lot of names. Dennis Hopper and Ann Margret for Cobb and Annie Cushing (Pop and Priscilla). Marlon Brando for the Mel Nast version of Cobb in Marineland at the end. They want to use a young woman (!) named Fairuza Balk for Sta-Hi. Sid Mead who was the art designer for Blade Runner and Tron is signed to design Software. A guy named Wilson is writing the screenplay, he wrote The Addams Family and Beetlejuice. The producer is Mike Metavoy at Phoenix Pictures, which is backed by SONY.

Meanwhile Freedman is trying to get me as good a deal as possible. Not only do they want options for Wetware and Freeware, they want the rights to the CHARACTERS. In case someone wants to make a series of like Cobb and Sta-Hi movies or TV shows. Toy merchandising a big factor as well, they're adding an extra robot called Gremmie.

Tonight I rented THE CRAFT, a teen witch movie with Faruza Balk in it, she has a really big mouth, une *jolie laide*. She fixes your attention. I thought I might object to it being a woman for Stahn, but I kind of like the idea. Maybe I would be jealous of any *guy* who got to do it. I'd thought I might object to this big change, but I don't think I do.

Thank god I'm sober for this. I'd be a basket case otherwise. Stoned and gloating gloating burning it out, burning out the joy of it and ending up suicidal and strung once again, feeding my good fortune to the Imp Of The Perverse. And it's good that I'm feeling less inclined to try and control.

I always said that when I got my movie I didn't want to have a heart attack over it like Phil Dick did, if indeed that's what did give him his heart attack, it's just my perhaps unkind speculation that it was the making of Bladerunner that did him in --- he died a few months before it came out. I think I saw it in NYC when I went up there to get the Phil Dick award for SOFTWARE in 1982, lo these fifteen years gone. Or maybe I saw it right before I went up. I remember being really surprised how very unlike his book Do Androids Dream Of Electric Sheep the movie was. I didn't actually like the film that much at first, I thought it was too violent, and I think the ending was different from Phil's. But Phil's friend Ray Faraday said Phil had liked the new ending. So maybe he liked the movie and his heart attack had nothing to do

with it. I always said I'd be "the new Phil Dick" someday and now maybe it is finally happening.

The one thing I do hope is that I can get Billups to use cellular automata in the movie. I'm going to send Billups that old instructional film I made about CAs.

"Let go, let God" is my watchword for this wonderful but difficult passage ahead.

If I get some really nice dough I could pay off some of the house mortgage. That's the main thing I think of using the money for, for retiring some of that debt. Then I could maybe refinance and have a much lower payment. The payment has to be beaten way down over the next ten years so we won't need so much income when we retire. Even if we sell this house and move to a condo in San Francisco, the condo would probably cost nearly as much as this house, so in any case we'd need to have beaten the payments down. Sylvia is calling me "the goose that laid the golden egg." She says she got that from Aline Kominsky talking about Crumb, I think Aline did a drawing of herself carrying Crumb/Goose under her arm.

Honk!

[The option ran till about 2000, and then it expired. Ten scripts, no movie.]
got my desk cleared off from Joy Of Hacking and now I can crank on Saucer Wisdom and wrap that up. I'd like to wrap up Joy Of Hacking this year and maybe even close off that part of my life for awhile. Get all the stuff I've learned down in a book so I can let go of it and move on. I think I might go on leave for the academic year 98-99, and focus on writing for that year. Maybe give a lot of speeches and go to a lot of meetings. Maybe write a screenplay.

Characters

Frank Shook

Onar Anders

Funny Names

Wrestrum

A name for a bad guy, from Ralph Ellison, *The Invisible Man*. So many negative associations in this word. Wrest, wrestle, restroom, rostrum, rectum.

Shook

I love names that are English words. Ronnie Shook.

Win Zin and Fa Ou

These are actual names of two of my CS 130 Windows Programming students. Two guys, they're friends and hang out together, smart lads. I think Win is Chinese, but I'm not sure about Fa. Working with people with names like this, how can *any* name I make up be too strange.

Locales

The Anomalies Conference

The Anomalies Conference was held Feb 15, 1992, a Saturday, at the Angelico Auditorium of Dominican College in San Rafael, CA from 10 AM to 10 PM. From my journal notes:

This was a lot of fun. I drove up with Nick Herbert and smoked pot all day. My talk about "The Hollow Earth" presented this as a real manuscript I'd found. I had a good panel with Robert Anton Wilson.

Boulder Creek

These are some sketches I wrote down on March 7, 1997 while visiting Nick Herbert there.

The town.

Adelita's Mexico City Style Mexican Food. Right by the little old concrete bridge where Route 9 crosses Boulder Creek. The locals call it Channel 9 because people drive fast on it. Other stores nearby. The Dancing Crane: Acupuncture Herbal Medicine. Rainbow's End: A Coffeehouse & More. Johnson's Super, a beat-up old supermarket with a neon Liquors sign. True Nature Whole Foods. Joe's Bar. The Bistro.

In the bank, the contrast between the middle-American generic bank interior and the Boulder Creek people. Like iridescent scarabs inside a plastic ant-farm.

Watery mackerel sky.

Richest man in town is Scopazzi, owns the best restaurant, he's in his 70s a big gardener, he and his girlfriend have matching Cadillacs, his black, hers white.

The San Lorenzo River goes through town and Boulder Creek runs into it from this side and Bear Creek runs into it from the other side at nearly the same place. This place used to be called "The Turkey's Foot," and is now called "The Junction."

Boulder Creek grew out of a smaller town called Lorenzo. Maybe use that for the town name.

Nick: "Christopher Hills ran a business here called Lifeforce. They sold Spirulina capsules and air ionizers. It was a kind of Christian Yoga. His girlfriend Penny Slinger wrote Sexual Secrets. In his declining years, Christopher got into goddess worship. A lot of women dressed like goddesses at his funeral. You went up to hug Penny. She gave me a little glassine envelope. I thought it was drugs. But it was some of Christopher's ashes." "Did you think it was a burden?" "No I put it on an altar we have at home."

People I saw.

A girl with a wide-brimmed gray hat and a white dog, walking by the road.

A woman with tan cowboy boots and round granny shades. Her bare legs white, doughy, attractive coming out of the vaginal boot tops. Tie-dyed stocking cap: red and yellow. Black and brown striped jersey dress. White sweatshirt tied around her waist, grunger style. A black dog on a leash.

Three young men slowly playing basketball in front of the Boulder Creek

Recreational Hall.

Big stomached bearded pony-tailed young man with baby in back carrier.
Computer hacker?

Geezers inn a white American car. A hanger bar in back with suits and dresses hanging on it. He in plaid shirt, jeans with stitching, gray helmet hair. She white haired, kind face, pink turtleneck blue sweatpants sneakers.

A Mercedes.

Old yellow car fishtailing down the road peeling out.

Pickup with Tree Services on the side. Man driving, a dumpy woman all the way across the seat sitting right next to him.

Boulder Creek Fire Department. An iron bell hanging from a low-mounted log cross-bar.

A bus pulls up. A burr-cut boy in a red T-shirt leans eagerly forward, gets in the bus. A longhaired boy in white T gets off, unties his bicycle which was lashed to the front of the bus. Six teens in a pack get off the bus. Slitty shades and cigarettes.

A Jewish woman blue back pack exits Adelita's.

Old woman low down in seat in compact car peering over steering wheel thru thick glasses. Round "golly" chin.

Bearded man curly hair dark, shorts & T black. Things hanging from belt --- phone, tools --- gets in a Pac Bell truck. Gimmie cap. Carrying an envelope in mouth like a dog.

Basketball bounce bounce, gangling.

Whipped-to-shit van --- all that's visible inside is a big beard, a nose, the brim of a high-hat.

Ford Aerostar. Big pregnant woman. He is red-faced suspicious. Little blonde boy says Hi, another boy staring. She drives.

A purple shiny car, a fixed-up tricked-out classic. The driver chewing gum a mile a minute. Big mustache.

Nick's alien encounter.

"I was at home. I lived in the woods near Stanford. I was a physics grad student. It was called Trancos Woods, it was the slums of Portola Valley. Some friends were smoking pot with me. We started laughing at something and out laughter started seeming line one laugh. 'The sound makes us one being,' I said. Then they left. A voice in my head said, 'Nick, we're from the Interstellar Telepathic Brotherhood. Many of your friends already belong, though you don't know it. We transcend space and time. Would you like join?' I said, hey wait. I don't know what I'm getting into here. 'Here's an example.' The voice sent me into an acid trip with everything whirling around. Then it stopped. Then it started up and stopped. Start and stop. They would do this and let me go. 'This is just a sample.' I thought of killing myself with an axe. It seemed real. Why would I make it up? Why would I imagine such an unpleasant thing? I was trying out different hypotheses. I could be making it up; I make up my dreams and they're also pretty convincing. A big part of me believed it. The Interstellar Telepathic Brotherhood beings had evolved for centuries. Like gods. They seemed inhuman. If I joined, I'd be starting at the bottom. To join a non-human organization and be at the bottom ---- I didn't want it.

This was 1963, we didn't have the word 'freak-out' yet. Instead we called it 'psychotic break.' I had some friends come over to help me, and I knew they were in the Interstellar Telepathic Brotherhood, but they pretended they weren't. I couldn't stop thinking about it. It became an obsession. Finally to get rid of it, I said it was true. Or at least metaphorically true, I thought it stood for the issue of whether I should become socially integrated.

Things Nick said.

"I've lived here 27 years."

"I work for a toy company called that makes a product called the Liberty Light. A pen-lite that shines into a plastic ball full of water and glitter dots, the ball is shaped like a torch. There's a turning disk with five colors to change the light. It costs ten to twenty dollars. We're trying to get Girl Scout Councils to sell them."

"Abduction relates to the teenage fantasy of being special, different, not the child of your parents."

"Maybe there's something we have that the aliens like. Something we take for granted."

"All we do with slugs and worms is examine them. We don't show them things. They're just for science experiments. Maybe that's why all the Mack aliens do is examine people's genitals. Why would the aliens be so interested in our genitals? Because they know that *we're* so interested in them."

"They should *give* Frank Shook something."

"I've been with people in hot-tubs and they're high, and they look up at the stars and say, 'I'm open,' and they wait for the aliens to possess them."

"The guy who runs the toy company I work for was at the Tucson Gem Show and they were selling things that were supposed to be alien fossils from Area 51."

"One of the big innovations of the twentieth century is speed. Like cars."

Nick drooling over his neighbor. "She used to drink and come on to me a lot, but then two years ago she joined a recovery group. She's just starting to get a real personality back."

"I saw some Mack films at the Noetics Institute. Mack is convincing. He has this skeptical persona. Like 'This is what my patients say they see. I'm just a psychologist.' He had a film of an African who'd been abducted. It was convincing. The man felt shamed. He said he had a bad smell on him when they were done."

"Reality. We've been given such a fabulous gift and we just throw it away."

Nick's house. On Route 9. Going from Boulder Creek towards San Jose, you pass mile marker 14.56, and then just before 14.70 is his road.

The first house off the main road on the way to his house is a nightmare. "Okies live here." All the trees are razed, the redwoods sold off, and the other trees chipped. Raw muddy dirt, scarred and flattened by tire-tracks. A bonfire in the middle. A bitter unfriendly resentful red-faced man standing by the fire, he glares at us. More Okies in the next house: plumber Mike and Barbie.

A lopsided pen with four chickens in the back yard. Straw.

Wood smoke from a neighbor's low chimney, a pipe barely sticking out of their roof.

His house doors don't have locks. The screen door bottom chewed and clawed away by his chow dog.

Bare rafters in the ceiling of his office.

Redwoods all around.

The porch. A wood crate with an upside-down orange cook-pot sitting on it. Two buckets with scrubby pot plants. The buoy stove, with three legs. The chimney coming out the back, makes it look like a chicken. Loudspeaker magnets stuck all over it.

Sloppy bedroom with two little "backstage" rooms off it. A kitchen, bathroom and his office.

Driving home on Bear Creek Road. The little tree-covered mountains, or hills. A glint of water from a wooded lake. Beyond the mountains the Monterey Bay, softened by mist. The Monterey Peninsula, looking too high up in the sky.

South Dakota

Friday, June 13, 1997

Now I'm in Spearfish, South Dakota. I'm staying with Dick Termes, and artist who puts images on spheres using his own system. He calls his images Termespheres. He's sent me pictures and videos of the Termespheres and I've always wondered about them, and now finally I understand the system a little. It's *not* a matter of projecting the world onto the sphere in a direct way, as I'd thought.

Some notation. Let the *central projection* of the world to the sphere S be as follows. Let O be the center of the sphere S . The central projection maps world point P onto sphere point P' as follows. Draw the line OP and let P' be the intersection of OP and S .

Figure 1: Central projection of the world onto the surface of a sphere.

But there are practical reasons not to use central projection for a sphere painting. (1) The image produced would appear to be a mirror image of the world. Why? Because you are going to be viewing the projected image from the outside of the sphere. When we use a projection technique onto a canvas we don't get mirror reversal because we view the canvas from the opposite side from the side the world lives on. (2) It is not practical, if you are a painter with a spherical canvas, to do the mathematical projection as you would have to keep looking over your shoulder.

Figure 2: Mirror images in your projection.

Instead Termes does something which is equivalent to central projection followed by *eversion*. By *eversion* I mean this: turn the sphere inside out. This way the correctly projected image which was visible from the inside is now visible from the outside.

How to evert a sphere? If we were able to use four-dimensional space we could do it without tearing it, this is analogous to the way in which a 3D rotation can turn a (rubbery) 2D annulus inside out. But let's not worry about this.

Figure 3: Everting a 2D sphere with 3D rotation.

In 3D space we need to cut a sphere to evert it. A practical way to do this is as follows: (a) Cut the sphere into two hemispheres along any great circle. (b) Evert each hemisphere, exchanging convex for concave. (c) Glue the everted hemispheres back together, matching them up as before. If again we had access to the fourth

dimension we could push the two hemispheres “through” each other (actually by moving one up a bit in the fourth dimension).

In practice Termes uses two methods to produce his Termespheres: painting and photographing.

The photographic method, which he calls Total Photography, consists of using a special mount in the shape of a polyhedron. A camera is successively clamped to each face of the polyhedron, and the resulting photographs are assembled into a polyhedral (approximately spherical) Total Photograph.

The painting method consists of getting a spherical canvas, standing in front of it, and painting onto the canvas what you see on the other side of the sphere, in front of you. Termes does not work by painting what is behind him onto the sphere, all the while looking over his shoulder. He paints what is in front of him. Once he has finished a patch corresponding to what is in front of him, how does he add what is, say, to the left of the patch in front of him? He moves around the sphere to the right a little so that he is now looking directly at the area that was formerly to the left. And he rotates the sphere twice as much to the right so as to expose the blank part of the sphere canvas to the left of what he already painted.

To clarify this, let me try and mechanize it in terms of a cylindrical canvas C with central axis A . We pick some starting point S in the world. Let AS be the half plane AS which has the line A as boundary and which includes the point S . Project the half-plane AS onto the vertical line S' on the cylinder which lies directly opposite S . Now move to a point T to the left, say of S . Project half plane AT this to a line T' which is as far to the left of S' as T is to the left of S . In practice you do this by rotating the cylinder as you rotate the viewer. But central projection plus hemisphere eversion actually does the same thing, as a diagram shows. This isn't clear at all.

What I'm having trouble doing is getting a clean mathematical representation for the obvious physical process of, say, turning around and taking a picture in each direction and then gluing the band of pictures to a cylinder. This makes sense if you glue the pictures to the INSIDE of a cylinder, as then you are making a copy of what you saw. But then if you glue them to the outside of a cylinder it looks OK too, the connectivity is the same, even though the bending is going the wrong way. We can change from inside the cylinder to the outside with a hemispherical eversion. Or you can do it by rotating each picture around its horizontal axis, a different kind of eversion.

This keeps getting messed up in my head, let me drop it for now, though I feel this fanatic desire to nail it down (a) because I DID come here to understand it and (b) I feel I owe Termes the favor and (c) I want to impress Termes.

So anyhow what is Spearfish and Termes like?

I had to change planes in Denver, I flew NY – Denver - Rapid City. The Denver airport was so new and huge, my gate was out at the end of a finger in a satellite concourse. Muffled sound of incomprehensible voices in the vast concourse space. Whirring of the belts of the slidewalks. Propeller planes flying by like movie images, so clearly framed in the vast windows. The endless flat plains in the distance. A thunderhead is approaching with slanting rain. At the gate everyone is white white white. Speaking in a musical Scandinavian accent like in the movie *Fargo*. “I'm hopin' it [the plane] gets here before the electrical storm,” says a farmer in a billed

cap. A doughy white lank-haired sturdy young woman answers, "That's what I'm sayin'."

I feel very much on the edge of my senses getting in the low prop plane. So hyper-alert that I hear mystery in the crackling radio voices from the pilot's console. They refer to our destination as "Rapid," rather than "Rapid City."

Termes meets me at the airport, I recognize him as the right guy, he's bearded, bald with a sphere-dome head, pocket full of pens and pencils. He drives me by Lead (pronounced like "leed" not "led") where a former mountain is a conical pit, dug out by the Homestead Mining Company. There is a hair salon called Hair Shaft.

We stop in Deadwood, which was a dead town, now filled with legalized gambling casinos. We go in the saloon where Wild Bill Hickock was shot in the back holding a hand of 2 Aces 2 Eights and a 9 of diamonds. Behind the bar is a Termesphere of the bar and the whole inside of the place, which is gloriously hung with junk. Deer heads, rifles, Indian maps on buffalo skins, slot machines on the walls, card tables.

His house is four domes. A dome that is the studio upstairs and 2 bedrooms downstairs. A dome that is the living-room and kitchen with a bedroom on a balcony. A little dome that is the TV room. A separate dome that is his studio. I'm sleeping in a tiny domelet dome that is a cupola above the studio dome.

His wife Markie is a puppeteer! She calls her company Dragons Are Too Seldom. Their sons are called Lang and Kabe.

This part of South Dakota is called the Black Hills. It's not that the ground is black, it's that the woods on the hills is "black" or dark pines, like the Black Forest in Germany. There aren't many hills in the Great Plains, so many tourists come here to look and wonder, they might come, for instance, from the nearby totally flat states like Iowa. The Indians didn't go into the Black Hills much. One reason suggested is that there are exceedingly strong thunderstorms here. This is said to be a power spot. The Indians thought it sacred. The White man has only been here for 150 years.

On the hill behind Termes's house I found small yuccas and prickly pears mixed in with the very green grass. He says that in the summer the road crews leave the dead deer on this particular hill, and they see a lot of eagles coming to scavenge, the real American Eagles.

It's very windy. Cottonwood fluff blows in the wind. I saw an immense cottonwood today, great wads of white on its branches.

This afternoon Dick took me along, he was coaching his 12-year-old son's Little League baseball team. I wandered off to look at Spearfish. I walked across the campus of Black Hills State University. I passed a man on a rider mower, he had a fat toad face, but he didn't know he was ugly and unfit, he waved pleasantly, he had good self-esteem, we'd teach him different in California. I saw a beautiful strawberry blonde woman. The woman here seem mostly to be pretty hefty. Diet food is not a big concept. Butter on everything. I crossed Spearfish Creek. For the sake of my health I stopped in a Pizza Hut and got a pound of salad from their salad bar. I pass a weird-looking farmer in overalls he says, "Hi." Later I pass an incredibly sunburnt guy with some teeth missing, he'd be a bum in California, but here he looks me frankly in the face, sizing me up in a friendly fashion, "Hi."

The stores in one block of Spearfish: Northern Hills Advertiser – Rapid City

Journal. Mile High Club - 5¢ Machines – Pabst Blue Ribbon – Old Milwaukee. A dead store with ghosts of torn-off letters saying Langers. Radio Shack. CDs Tapes Books Coffee Bar – Total Liquidation – 25% Off Everything. Spearfish Bootery. Gallery. Global Market – Goods From Planet Earth, inside they are playing the Talking Heads, none of the postcards are of Spearfish or even of South Dakota, they are all black and white pictures, art postcards in Los Gatos. Sharps Trading Co – Pawn – Buy/Sell Gold – in the window are two tires with wheels, a used weedeater, lots of antlers. Dunwalk Jewlelery. Common Grounds Coffee Shop, two girls in there, one hunched sardonic, fat, she knows she will be a wife and mother, the humor and casualness of women. Everyone is SO white. I feel a little uneasy around so many whites, I'm not used to it, I feel unsafe with no Asians and Hispanics.

I buy a bottle of water for \$1 at the Coffee Shop (soft drinks are 60¢) sit outside drinking it. An iridescent green beetle appears on the nib of my pen. Brought by the incessant wind, no doubt, but I also think of him as a miracle visitor, and I say, “Hi, Frank.” Imagine that the beetle has an IQ of God. Why not. Actually even that it is a beetle is a pretty amazing IQ.

More and more it becomes clear to me how absurd it is to want to do anything other than bioengineering. The idea of a mechanical or even silicon robot is like the idea of a steam-powered airplane.

When I get back to the baseball game Dick's wife Markie is there, a bright cheerful woman. She's talking to a friend about driving in South Dakota, about “the road between Isabel and Timberlake.”

Saturday, June 14, 1997

Today I borrowed Markie Termes's car and I went to see Devil's Tower, which is about 70 miles from Spearfish.. When I was done walking around the Tower I sat down in a meadow cooling my hooves in a cowpasture river called Belle Fourche River. I wrote a postcard to each of my four loved ones. Four of them! The card I sent Sylvia was an image photographed from the same place I was sitting, at the same time of year, it was magical to be sitting there inside this amazing scene, the green grass and masses of a wildflower with greenish-yellow blooms, a wooded hill, and atop it the stark fluted butte of the Tower.

I've wanted to see the Devil's Tower ever since I saw it on a commorative stamp when I was about 12, I think I still have the block of four of them in my childhood stamp album, if that's around anywhere.

Approaching Devil's Tower I was excited, thinking about the approach to it in CE3K (Close Encounters of the Third Kind), how the GOVERNMENT has barricaded off the tower and is trying to keep YOU AND ME from seeing the MAGIC. How persistent and attractive this myth is. The GOVERNMENT stands for what --- superego? Mental blocks? I was sharing in the CE3K feeling bigtime myself, thinking things like “I'm breaking through, I'm going all the way, nobody is gonna stop me.” I need to capitalize on this in *Saucer Wisdom*, put in something that pulls out this particular stop of the human emotive calliope.

Like maybe Frank tells me to MEET him at the Devil's Tower, be very literal about it, and mention what I just said in the last paragraph, and then be like “Yes, I would write *Saucer Wisdom*, despite the theft of my computer, despite Frank's

flakiness, I would reveal these secret teachings.”

My head feels funny from looking at Termes art all evening. Things are like flipping around. And I am inside a Termes icosahedron, did I mention that? I'm sleeping in an icosohedral cupola on top of his Fuller dome art gallery. What a wonderful place to be.

I stop and read a marker just as the Tower came first into view. There's an Indian legend that the Devil's Tower is that way because a bear clawed it. It's about 800 ft from base to top. On the radio is Great White playing "Once Bitten Twice Shy." Really some fairly convincing sounding Stones riffs in there. Though later I heard the real Stones doing "Beast of Burden," and you remember that Keith doesn't just play "Stones riffs," he plays beautiful tasty surprising things.

At the Tower in the parking lot there is a man who is holding in thrall a group of ten or twelve people, adults and children, all staring at him and listening while he goes on and on, talking a mile a minute, quickly licking his lips to keep going, getting into some negatory exposition and accordingly shaking his head "no" during a disquisition of several paragraphs' length. He had Vitalis hair and suspenders. From what I gathered --- despite my best efforts to not listen --- he was telling the group how to save \$2 by parking somewhere different the next time they might come. The lip-licking was particularly despicable.

The Tower was scored with beautiful smooth grooves. Large grooves, really it is a bundle of columns. The columns are hexagonal, sometimes pentagonal, maybe thirty feet across. I suspect that they formed as Bernard convection cells in the quiescently cooling magma. The tower itself is only about 60 columns wide.

I took a path around it, got quite close to the base, though just when was going to touch the thing itself there were some climbers directly overhead and I worried they would kick stone down on me and I felt their yells were disapproving directed at me for being there, a non-climber. The blocks of stone at the base are called talus.

Incessant wind. Striking animals I saw: chipmunk, red squirrel, yellow swallowtail butterflies, snake, white-tail deer, a quail, prairie dogs. The snake looked so armless. The red squirrel running up a twisty pine tree: it *fits*, the squirrel fits the tree, the two of them fit my perceptions of what I should see. We are all DNA, we are all part of the same wetware world. We humans were going by mostly in male-female pairs, couples going around together, why do couples do that so much? Is it from the nesting instinct. He is showing her places she can safely breed their pups?

I went off the trail, just like in CE3K, at the base of the Tower. How terribly isolated it seemed for that guy at the end of CE3K, I think he'd made a huge mistake, going all alone into the giant utility research kitchen of the saucer, the soulless stainless foodless kitchen. But WHOAH before you know it, maybe a door'll spring open and there will be bloody crazy grinning Dennis in an alien chef's hat made of human skin with big toque ears.

Sitting there I imagine a knot of roots is a spider the size of my fist. "My throat grew raw with screaming."

It would definitely be nice to have a biobot to do the housework. Despite what Marc Pauline said to me that time in D.C., I'd rather have bots for house-servants than have real humans for house-servants, I don't want to have to think about their FEELINGS, I want servants with no feelings. Even a pet has too many feelings,

you feel guilty if you don't walk it and groom it.

Near the Belle Fourche River was a pavilion and they were having an event called "Leaning Against The Wind" connected with a book (inspirational anthology?) of the same name, and I heard some women reading things that maybe were in it. Apparently it was to celebrate cow-related activities? Traditional ranching? Wyomingness? The woman I heard said something about how she and her man had been called low-lives, about not having cows, but she can see them in the stockyard near her house, she works in the stockyard. Of someone in her family, "He became a successful salesman of cow products." She also said she envied men their ability to pee on a post, a kind of grade-school flirting to bring a thing like that up.

I moved on and found a prairie dog town! Awesome. The prairie dogs on their hind legs, making a "barking" noise. Little ones clumsy. All of them eating grass as fast as they can all day long.

I drove home through the rolling fields so green, a back road. Thunder storms and then a tornado warning on the radio. Great slashing lines of lightning, some fractal line then gets lit multiple times pulse pulse pulse as the energy courses down the superheated air highway.

Went out for dinner with Dick and Markie Termes, to a local restaurant called Bay Leaf, a valiant effort at fine dining being made, and it was quite good. The Midwesterners a bit apologetic about their non-coast-ness, but I'm sure not going to bug them about it. Termes grew up in Spearfish! "I've been blown around the Earth like a piece of dust," I tell him. And we're ready to weigh pros and cons, but then it hits me, "You don't really have a choice over the life you get anyway, so why weigh the alternatives when really there weren't any."

R.e. the Midwest, this morning I was getting supplies for the day at Safeway, and I thought of the superfluity of the endless Midwestern Safeways by the interstates, the Safeways and their identically polite checker girls with Norwegian oooo sounds in their speech. And the superfluity of the identical old farmers and farmwives, spry and cantankerous, making the best of things. The endless glut of these people repeated over and over with the same expressions and opinions, they are like a field of flowers all the same --- well, why not, that's how fields of flowers are, all the same, and it's just a Romantic error to expect the Midwestern windrows of humanity to be anything other than fields of people, the same pattern duplicated and reduplicated, Nature likes repeating herself.

BUT, anent the aliens, as I thought of the flower-flesh I could see the deep disinterest which the aliens would have in us, and how shallow our imagined differences would be relative to them, a slight bend of one petal, its still just another buttercup, the aliens must have as deep a don't-care as my feeling on seeing yet another squirming black cricket in the clods of the field I walked across the morning, past the rotting bodies of the road-kill deer, laid out for the scavenger American Eagles, Frank Shook is a particularly juicy rotten deer for the Cosmic Eagles, and no I won't be stopped from telling this True Story, and you reading this, yes, you aren't letting Them stop you, you're in the Big Time now.

Sunday, June 15, 1997

I'm really ready to go home. It's beautiful and Dick and his family are very

nice, but four days is a long time to visit someone. I'm tired of being a guest. And it's really hard to make long-distance phone-calls from here, and the modem won't work on their phone line. I miss my real life.

Today we went to that rock thing, the big carvings of the presidents, Mount Rushmore. Scads of the white American tourists. The carvings were like --- oh well. It's all surrounded with wheelchair access paths and big concrete gates and gross people and chainlink construction, so that you can hardly see the thing in itself which is a very so-what kind of thing, carvings of some faces on a mountain. Faces of politicians. Some patriotic postcards and videos in the gift shop to make ya puke. Like why are "WE" so great because there's a face on a rock?

Near Mt. Rushmore is a very odd parody of it, the Crazy Horse Mountain carving, with very little of it really done, except for Crazy Horse's face. But the atmosphere was a lot more fun there. Lots of Indians around which was nice. And the guys taking tickets were like menacing carnival roustabouts. And the viewing area was a like a boardwalk, all wooden and rickety with a water-fall of TydeeBol-colored water.

I feel like I'm going to see a UFO. When I came up to my Icosahedron cabin the sun had just set and there was a winking light right over the sunset, jiggling and throbbing but staying in one place. Venus? You be the judge. Just now I heard howling --- Dick says there are coyotes in the gully near here. I looked up and there in front of me was a big round shape like a planet hovering in the cabin with me. An Earth flag I hadn't noticed on the wall before? You decide.

The landscape is so heart-filling, it's gentle green, or maybe not gentle, STRONG green, in the afternoon with the sun going through each leaf. The old feeling of being a thimble in a waterfall, too much Gaiaian beauty to hold. I went jogging this morning, the same feeling, on a green back road. Really and truly in the middle of nowhere, in South Dakota.

Thinking about my reaction to Rushmore: I really hate patriotism, and this trip it's coming back to me why. The government really did make an effort to get me killed thirty years ago, that kind of thing stays with you, you don't forget it. But --- am I just nursing a resentment here? What is my part in this? I feel "less than" and un-manly for having avoided the Army. What about my condescending feelings towards the Midwest. This is a character defect, my snobbiness. Why do I do it? Out of fear of the "regular" people I'm snobby about. I feel like they think I'm a weirdo and that they'll gang up on me. This goes back to childhood things, partly to my brother who often acted like I was weird as a way of diminishing my share of things. I hate America because my brother was unkind to me? Come on, Rudy, that was then, this is now. They aren't serving bad food *against* you, it's just what they do.

List of some of the tourist traps on the road to Mt. Rushmore from Rapid City, SD. Parade of the Presidents Wax Museum. Jellystone Park. Black Hills Gold. Black Hills Maze. Reptile Gardens. Flying T Chuckwagon. Bear Country Drive-Thru Wildlife Park. House of Scandanavia Gifts. Mystery Mountain Water Slides. Beautiful Rushmore Cave. Sitting Bull Crystal Cave. Rockerville Ghost Town. Jackalope Village. Cosmos: Nature's Mysery Area. Big Thunder Gold Mine. Whoah Hoss Rides. Holy Smoke Resort. Ore House (with statue of a painted lady).

The vilest was Jackalope Village. A statue of a rabbit with deer antlers --- you know, that corny old postcard wheeze. And the "Village" was a row of false fronts of primary-color garish paintings of shops, on billboards on sticks stretching some distance, with only one real door going into the Jackalope shop I think. The bright screaming but muddy and off colors of the shop pictures, kind of like plastic flowers with pheromones you might use to catch wasps, how truly stupid and debased you'd have to be to stop at Jackalope Village.

Of course saying that, I get a snobby little frisson of enjoyment. But I know that in doing this I am indulging a character defect, my snobbiness.

Dick pointed out the back side of rental binoculars, how face-like it is, a good alien face, the two lens eyes, the chrome shield shape of the holder.

When they worked on Rushmore, the stone carvers, they'd drill a bunch of holes before chipping, they called this honeycomb. The architect, Gutzon Borglum or something, he wanted to build an extra Hall of Records behind Lincoln.

Proofreading WHITE LIGHT this morning, how nostalgic it made me, how lonely for my little family.

Monday, June 16, 1997

Jogging this morning, how lovely it was. I was thinking of myself as being a sphere, the stubby arms and legs projecting out, my head squashed up into the north polar cap, me a mirror ball and the endless South Dakota landscape sweeping past.

I just made a big mistake and ate a veggieburger in an airport restaurant. Salt and fat, fat and salt. What is *wrong* with these Midwesterners? Why aren't they all dead of heart attack and stroke? Are the death rates higher out here in the Midwest? If not, then the whole story about nutrition influencing health must be a lot of hooley. But I don't even eat well because of some abstract teleological health dream, I do it because eating salt and fat makes me feel icky.

Going home at last.

Illustrations

Lots of cross-hatching, obsessive detail, would be nice. Crumb-style.

Maybe draw some of them on one sheet, like two or three can be on one sheet, and the illo in the book will be a zoom of like two or three different positions on the paper and you'll see bits of like Figures 2 and 3 at the edges of Figure 1. Like in an art book how they have plates with details. The artist could even do a whole lot of figures one really big sheet the size of a poster; I'm thinking of something like Mavrides' poster for the Church of the SubGenius.

Society

New Words

Cruster.

The word "crusty" is used a lot by kids these days. Georgia's always talking about "crusty old punks." Hence "cruster," for a crusty old person.

Unused Phrases

"Speculations" Introduction

This is a book of ideas about things that might come true in our future. A lot of these ideas are peculiar, if not full-on mad-scientist nutty. Those are the ones that are the most fun.

Where do I get my ideas? I've never admitted this in public before, but the fact is that most of my ideas have been passed on to me by a friend of mine named Frank Shook. And Frank gets his ideas from UFO aliens.

Frank come They come to me like spores floating down from outer space. And then I process them with my special two-pronged approach of science and fiction.

The *science* prong means applying strict logic to my speculations. I may want something to be true, but if the science and the numbers for it don't work, then I have to keep turning the idea around until I can finally make it fit reality.

A lot of what I know about science comes from a monthly reading of the *Scientific American*. And as a professor of mathematics and computer science, there are certain areas that I've studied up on extensively: the history of mathematics, relativity theory, the fourth dimension, infinity, cellular automata, fractals, chaos, software engineering, and computer graphics. But, if truth be told, my most frequently used source of scientific information is my trusty 1984 edition of *The World Book Encyclopedia*.

The *fiction* prong has to do with the fact that I'm a science-fiction writer. When I have a really good flash for a new idea, I like to then use it in a story or a novel so that I can organically grow it into a really intricate fabulation. You could say that for me science-fiction is a laboratory for performing thought experiments. But that sounds awfully sterile.

A deeper reason why I write science-fiction is that I love working with language, the attentive manipulation of letters and words and phrases to create images and emotions. A particularly nice thing about science-fiction is that on the one hand you have canonical themes like robots and aliens, and on the other hand you have --- if you dare to use it --- complete freedom about how to treat these things.

Speculations contains my favorite ideas for future scenarios. From long acquaintance, these ideas are so familiar to me that I sometimes forget that not everyone knows about them --- let alone believes them implicitly. I mean, *of course* radio static actually encrypts the personalities of intergalactic aliens. And doesn't everyone *know* that future robots will be made of soft, muscular plastic? I'll make an extra effort to explain all the details and to make everything plausible.

You'll notice that the ideas in *Speculations* are almost all positive. That's because I'm doing this for fun! If you want negative speculations, just take a look at any Sunday newspaper's ain't-it-awful section of essays and prognostications. Pessimism is so much safer and easier than creative optimism.

Ladies and gentlemen, let us speculate.

Rudy Meets Frank

"I'm not clear on what kind of information you mean."

“Well ... some of it’s from a kind of future.”

“What future?”

“I call it Earth-A.”

One reason I avoid talking weird science with amateurs is that so often their ideas are stereotyped and unoriginal. Not crazy *enough*, if you will. But messages from a future Earth --- this sounded worth pursuing.

“What’s it like in the Earth-A future?” I asked.

“There’s robots made of soft plastic. You can get inside them and fly. And there’s dinosaurs. Real little ones. Older people record all their memories in --- in life-boxes they wear on their necks. If I had one of those, I wouldn’t have to pester you.”

Good stuff. And the little note of self-deprecation was reassuring. Mentally unstable people don’t have a sense of humor about themselves.

Cobb sees a lifeless view of heaven

Gross materialism is wrong, and there always *were* some phantasmagoric scraps of memory from the void downtime of no hardware. When Cobb was turned off, totally dead, he still *did* exist, but in some attenuated unconscious fashion that could only be experienced as a memory and never as a current event. In that other state --- to make himself feel more optimistic Cobb thought of it as *heaven* --- there lived all the dead souls of all the patterns that had ever lived or ever would live, as static and interpenetrating as a philosopher’s virtual museum of all the Greek sculptures simultaneously latent in an uncarved block of marble.

But the stuff in which the software souls lived wasn’t marble, no it was more like energy, but not energy either, something brighter than that. Lacking any real name for it, Cobb always called it SUN, fully capitalized to distinguish it from a mere fusion-fire gas orb. Cobb knew from personal experience that heaven is the pure unmodified existence of SUN, and that all the lives of all spacetime are crystallized inside it.

“And it sucks,” was the fifth thing Cobb always thought. “Heaven is clean and boring. I want to be filthy and alive.”

A Description of Three-Dimensionality

“If you look up at ceiling of the room you’re in (assuming that you’re not outdoors or in a non-rectangular room such as, say, the circular cabin of a flying saucer) you’ll notice that in each corner there are three perpendicular lines coming together. Suppose that you pick one of these corners and call it the origin. Next, assign the names X, Y, and Z to the three lines through the origin.

Once you’ve done these things, you’ve set up a coordinate system which you can use to assign a numerical code to every possible location in space. Any place P can be specified by a triple of number (x, y, z) which stands for these instructions: Go to the origin, then move a distance of x along the X line, move a distance of y parallel to the Y line, and then a distance of z parallel to the Z line.

Not only are locations given in terms of three coordinates, directions can be described this way as well. That is, to specify any given direction, I might, for instance take a meter stick and put one end at the origin and measure the other end of it to be (dx, dy, dz). The triple (dx, dy, dz) represents a direction.

Notes To Chapter Two: Higher Dimensions And Spacetime

In order to discuss Frank Shook's claim that the aliens move in three-dimensional time, we need to get clear on what exactly is meant by "dimensions." What, for instance, do we mean by saying that we live in three-dimensional space. The basic idea is that in a three-dimensional space your motions have three degrees of freedom. Meaning what?

Let's work up to three from zero. A zero-dimensional space is a point. If your world is a point, you have no choices about which way to move, and no degrees of freedom.

If your world is a line then you have one degree of freedom: go forward or go backwards. Here we might think, for instance, of a car moving along a single lane road. Note that the road itself may twist and turn, but for a car whose "world" is the road, there is only one degree of freedom: forward or back.

Corkscrew Aliens

The aliens' flesh flows and shrinks and they take on shapes like --- like corkscrew-shaped neon tubes.

"We look more or less like this at home, except we're much bigger," says Herman's voice in Frank's head. "Much much bigger, I mean thousands of meters long."

"We five come from a one-world that is based on energy ... ladders," says Herman. "One kind of ladder, many different species."

The cartoon zooms in on the disks, and Frank can see quick darting patterns in it, moires of turbulence, things like washboard waves on top of bigger waves.

"Those things are sort of like plants for us," says Herman. "We feed upon them."

Moving about on one of the fluttering washboards of light are brighter shapes, Herman's fellow corkscrew aliens. Now and then several of the big snaky things gather together and spit out a burst of energy; this is a radio-wave encryption of the creatures' whole selves: body, mind and soul. Overlaid on this image is a picture of an Earthly dandelion in full bloom: a sphere of gossamer white with the breeze lifting off little feathery parachutes, each carrying a seed.

Frank Freaking In A Tree

"Help me look for him, Rudy," said Mary.

We circled all around the party, and then we noticed that there were a lot of cracking and grunting noises coming from the darkness down in the meadow that sloped off away from the Brazilian Room.

"Could that be Frank?" I asked Mary.

"Frank!" cried Mary, and took off running down the misty meadow towards the noise. I took off after her, my footing a little uncertain on the long wet grass.

The further we got from the party the darker it got. The evening fog had come in, and I couldn't see very far. Mary stopped to call out again. "Frank! Frank!" We were at the end of the meadow, at the edge of a grove of big pines.

There was a fresh cracking sound, very nearby. It sounded like it was --- overhead? When I turned my gaze upwards, something bright flickered in my eyes, and then there was a thud and someone was rolling around on the ground at our feet.

“Frank?”

He sat up, panting. He had a light in his hand, a curious kind of a cylinder with a multicolored cone glowing at one end.

“Were --- were you with the aliens?” I asked him. My heart was pounding with excitement. “Is that light an alien artifact?”

“That’s just a Lotus Light,” said Mary. “Frank was hoping to unload a few of them while we were here. What were you doing up in the tree, Frank? Are you in a state?”

Frank stood up slowly, achingly. “It was Peggy Sung. I was chasing her. She told me she’s going to get the Blukka to kidnap me.”

“The Blukka?” I said. “Those bad aliens that Herman told you about?”

“He’s confused, Rudy,” said Mary. “He gets like this sometimes. We call it ‘being in a state.’ It’s best not to encourage him by asking questions.” Mary raised her voice and spoke very clearly. “Rudy’s going to drive us home now, Frank.”

“Rudy’s here? Quick, Rudy, let me give you the notes.” Frank reached down inside his pants and pulled out a thick square of paper, seven sheets that had been folded and refolded four times. “Peggy was trying to take them from me.”

“What is it with this Peggy Sung person?” I asked Mary. “She was bothering Frank and me on the beach a few weeks ago.”

Mary looked at me oddly. “You’re sure about that?”

“Well, a Chinese woman was yelling at us, and Frank said she was Peggy Sung.”

“Peggy Sung died of a stroke last fall,” Mary said flatly. “We went to her funeral. It was an open casket ceremony. I think maybe Frank blames himself for it, but he shouldn’t.” She put her arms around Frank and hugged him. “Time to go home, sweetie!”

Frank gathered his wits together and we started walking back up the meadow towards the Brazilian Room. Frank’s Lotus Light helped show the way. Mary gave a gentle laugh. “We can’t take you anywhere, can we Frank? Every kind of freak in the world was here tonight, but you’re the one who ends up swinging in the trees.”

We said our good-byes and headed home. My three passengers all dozed off on the ride home, leaving me to ponder whether or not I’d really seen Peggy Sung by the ocean that time. She’d appeared after I’d been sitting there listening to Frank’s voice and the sound of the waves for a long time. It wasn’t impossible that Frank had hypnotized me, if only for a few minutes. On the whole, this hypothesis seemed more likely than that I’d seen a dead woman --- whether ghost, time-traveler, or saucerian brain-projection. Yes, hypnosis was a lot easier to believe in. But then I turned on the radio.

The voice was quiet, and initially I took it for a D.J. But then I heard my name.

“Yes, I’m talking to you, Rudy Rucker. While the others are asleep. This is Peggy Sung.

With the Cops At Peggy Sung's

When Luis knocked on the front door, the whole vehicle rattled. A little Asian woman came to the door. She did indeed look like the woman I'd seen --- or thought I'd seen --- on the beach that time with Frank.

Luis pointed at me sitting in the car and asked, "Do you know this man?"

"He friend of Frank Shook," she said. "Frank Shook a crazy man I work with several year ago. We not friend anymore."

"Did you steal this man's computer?" asked Luis.

Peggy Sung laughed. "Why I do thing like that? I no care about Frank Shook and I no care about his crazy friend. You want come inside and look around? No computer in here. Computer is a bad machine. I no like. Come on in!"

Appendix C: A Note On The Word "Radiotelepathy"

"Radiotelepathy" is a word of Frank Shook's which also appears in the physicist Freeman Dyson's recent book, *Imagined Worlds*. Like Shook, Dyson uses the word to express the idea you could have something like a cordless phone inside your head. In his book *Imagined Worlds*, Dyson suggests that, "After the organization of the central nervous system has been explored and understood, the way will be open to develop and use the technology of electromagnetic brain signals." [Dyson 1997, p. 130]

Dyson thinks that the radiotelepathy transmitters could be tiny chips implanted in the brain by microsurgery or that, alternatively, they might be grown in place using a genetic engineering which takes advantage of "electric and magnetic organs that already exist in many species of eels, fish, birds and magnetotactic bacteria." [Dyson 1997, p. 134].

Initially I thought Dyson was to first person other than Frank Shook to have used the word *radiotelepathy*. But when Allen Ginsberg died in April, 1997, I started looking through some of my favorite writings by him, and I happened on the following passage in *The Yage Letters*, where Allen is writing his friend William Burroughs a letter about a fairly nightmarish drug-trip he'd just had after taking a Curandero's (a Curandero is one who "Cures") mixture of Ayahuasca and other jungle plants in Pucallpa, Peru, in June, 1960.

"I felt faced by Death, my skull in my beard on pallet on porch rolling back and forth and settling finally as if in reproduction of the last physical move I make before settling into real death --- got nauseous, rushed out and began vomiting, all covered with snakes, like a Snake Seraph, colored serpents in aureole all around my body, I felt like a snake vomiting out the universe ... --- all around me in the trees the noise of these spectral animals the other drinkers vomiting (normal part of the Cure sessions) in the night in their awful solitude in the universe --- ... --- [I felt] also as if everybody in the session in central radiotelapathic contact with the same problem --- the Great Being within ourselves --- ... --- and at that moment --- vomiting still feeling like a Great lost Serpent-seraph vomiting in consciousness of the Transfiguration to come --- with the Radiotelepathy sense of a Being whose presence I had not yet fully sensed --- too Horrible for me, still

--- to accept the fact of total communication with say everyone an eternal seraph male and female at once --- and me a lost soul seeking help --- well slowly the intensity began to fade ...”

--- [Burroughs-Ginsberg 1963, pp. 54,55]

Live Dreams

A guy falls asleep wearing an uvvy hooked to an Instantiator and his dreams come too too true.

TV and Movies

X-Files

Pilot and first episode, rented on video.

Poster of a saucer with the caption I WANT TO BELIEVE. This is a key emotion about Ufology. “I want to believe.” I want to believe SOMETHING. Just tell me what.

The cargo cult aspect of people thinking the saucers are on air bases. We’ve abdicated all responsibility, we’ve been infantilized by the government, we know so little about technology it might as well be magic, so why shouldn’t the UFOs be on the air base. The pathetic smallness of an airforce sergeant at a wire chainlink fence keeping you out. Like THAT’S the gate to the supernal? Also an element here is the deep hatred and distrust of the Pig, the Man the Govt.

Implants, the X-files implants are like the metal piece that connects a pipe stem to its bowl. In your nose.

The lights chasing each other in the air, very beautiful, use this maybe with the Lotus Lights. Maybe they ARE alien artifacts????

Book Notes And Reviews

Abduction: Human Encounters With Aliens, by John E. Mack

Charles Scribner's Sons, (pb. 426 pages, ~\$20 [Check this])

Review by Rudy Rucker, appeared, *The Washington Post*, April 17, 1994.

As a science-fiction writer, I am predisposed to enjoy such things as psychotronic space invader films, crazed saucer cults, and the modern pop myth of UFOs. But with Dr. John Mack's *Abduction*, ufology has reached a vile new low.

Mack, a psychiatrist who was on the board of directors of Werner Erhardt's EST in the early 1980s, brings a hard-eyed huckster's zeal to his trade. His business is hypnotizing and regressing subjects --- he calls them "experiencers" --- in order to help them confabulate memories of UFO abductions, often decades after the wholly imaginary abductions are to have taken place. Business is booming for Dr. Mack and his ilk, and with the support of Las Vegas businessman Robert Bigelow more and more "mental health professionals" [p. 24] are being trained to hypnotize troubled individuals into believing that they have been abducted by flying saucers.

What are the abduction fantasies like? Much of a dreary muchness. You're in

bed or in a car. You see a light. You float up into the air and into a flying saucer. Inside the saucer a tall alien who reminds you of a doctor probes at your genitals and sticks things up your anus. If you are a man, the "doctor" masturbates you to orgasm, and if you are a woman, the "doctor" extracts eggs from your ovaries. Then the aliens give you a millenarian spiel about how it's high time the human race got its act together, and you wake up back in your car or in your bed. This pathetically infantile scenario was first popularized by Whitley Strieber's best-selling book, *Communion*. But, come on! Is this really what superhuman aliens would do?

In *Abduction*, the emphasis on sex, or what Dr. Mack calls "urological-gynecological procedures" [p. 13], is icky and pervasive. Dr. Mack repeatedly stresses that the "sperm samples are forcibly taken" [p. 395] from the men. He never seems to entertain the notion that these men may have some sexual guilt over nocturnal emissions coupled with garden-variety masochistic sexual fantasies. And it is interesting to notice that at least one of his woman subjects has bad memories of having undergone an abortion. [p. 125]

If the case studies which Mack describes weren't so pitiful, this could all be quite funny. "Ed," for instance, tells Mack how a saucer woman taught him the secrets of the universe after having masturbated him. In Ed's words, "she explained things in scientific, logical terms...da, da, da, that these are the laws of the universe, da da da da da, and you know." [p. 50] Dr. Mack wonderingly observes that later, "Ed found that he had an instinctive appreciation...of such matters as Einsteinian relativity, micro- and macrorealities, the curvature of space, and the paradoxes in scientific laws." [p. 50] Da da da da da!

Or check out this choice phrase: "MIT physicist David Pritchard, who has been analyzing an implant that came out of a man's penis..." [p. 38] The idea being that sometimes the aliens implant things like computer chips into the bodies of the experiencers. Only it turns out that in similar instances where an "implant" is cut out and analyzed, "the pathology laboratory found nothing remarkable about the tissue." [p. 38] Is every wart on the palm of an experiencer's hand an alien super-computer? Or could it merely be a matter of performing too many urological-gynecological procedures with oneself?

But *Abduction* is not really funny. It goes without saying that the book is written with the complete lack of humor characteristic of the true believer. And what makes the book very actively unfunny is the feeling that Dr. Mack's procedures may be really damaging to some of his subjects.

The chapter called "Alienation of Affections" is particularly disturbing. Here we have an account of "Jerry," a high school dropout housewife with three children. "All three of Jerry's children appear to be involved in the abduction phenomenon." [p. 112] The children cry and scream when they see Bert and Ernie on TV, when they see commercials with UFOs, and when they dream of "scary owls with eyes." [pp. 122, 113] So what is Dr. Mack doing for this tormented family? Courageously convincing them that their worst dreams are really true! As he staunchly puts it, "On several occasions I have seen a look of distress, even tears, on the face of an abductee at the moment when he or she realizes that an experience they had chosen, more comfortably, to consider a dream had occurred in some sort of fully 'awake'...or conscious state..." [p. 406]

It's like a child saying, "I had a nightmare about a monster." And the parent answering, "Yes, dear, so did I. And...honey...it's not a dream. It's really true."

This is irresponsible, dangerous claptrap. Some thrill-seekers will of course enjoy their abduction regression sessions with Dr. Mack. They pay him for weird new memories and he delivers. As he delicately puts it, "I cannot avoid the fact that a co-creative intuitive process such as this may yield information that is in some sense the product of the intermingling or flowing together of the consciousness of the two (or more) people in the room." [p. 392] But what about those who get in deeper than they expected with Mack's "therapy"? And what about their families?

Perhaps to forestall this kind of criticism, Mack stresses that he attempts to lead his subjects towards the "transformational and spiritual growth aspects of the abduction phenomenon." In practice, this means that he attempts to get his subjects to experience a kind of "ego death" [p. 43] and "experience themselves as returning to their cosmic source or 'Home', an inexpressibly beautiful realm beyond...space/time as we know it." Well, groovy, man, but like why can't we just drop acid? Why should we have to get rods shoved up our butts before we can see God?

Why is it, finally, that I find Abduction so annoying? I guess it's because I love the idea of UFOs, and Abduction drags this idea into the mud. UFOs should be a witty and inspiring notion, but in the hands of the deeply bogus Dr. John Mack, UFOs become boring, politically correct, and above all humorless.

Ideas From Freeman Dyson's Book, IMAGINED WORLDS

p. 50. "The effect of a concept-driven revolution is to explain old things in new ways. The effect of a tool-driven revolution is to discover new things that have to be explained."

p. 64 "The ion-jet is made of xenon, a heavy gas which can be conveniently compressed to the density of water and carried in a small tank without refrigeration."

p. 69 "A photometrically precise map of the sky ... a three-dimensional view of the large-scale structure of the universe over a volume a hundred times as large as the volume covered by existing surveys. The size of the memory required will be measured in tens of millions of megabytes." [terabytes]

p. 87 "Digital Biosphere Surveys"..

p. 109 "Ectogenesis will allow us for the first time to achieve full equality between men and women."

p. 114 "The first jump uses a hard-wired pattern of genetic control... further evolution had to wait until the second jump when a new and more abstract genetic language was invented to direct the organization of the larger and more elaborate structures... The genetic language of the second jump is like the language of software in a computer. The step from the first to the second...like...from...hard-wired...to...software."

p. 117 "Little genetically engineered dinosaurs may be as ubiquitous in the lives of our great-grandchildren as little plastic dinosaurs are in the lives of our children."

p. 132 "The new human species is able to communicate from one brain to another by radio." Radiotelepathy. p. 134 "...might take advantage of electric and magnetic organs that already exist in many species of eels, fish, birds and magnetotactic bacteria. In order to implant, genetic engineering easier than

microsurgery.

p. 146 "scanning tunneling microscopes and atomic force microscopes have resolution good enough to make visible the sequence of bases in a strand of DNA... physical sequencing of DNA...cheaper and more rapid than chemical sequencing"

p. 148 "a hundred years in the future, genetic engineering and AI will be mature and ready to be superseded by something else, perhaps by radiotelepathy."

p. 157 "Some of our descendants will be eager to explore the delights of collective memory and collective consciousness, made possible by ...radiotelepathy. Will enormously enlarge art, science, religion and history. May link human brains with dolphins and whales, with lions and chips and eagles. Those who have experienced the merging of memory and consciousness into a larger mind may find it difficult to communicate with those who still rely on spoken or written words. Those who have been part of an immortal group-mind may find it difficult to communicate with ordinary mortals.

p. 169 "we must keep Gaia healthy too" p. 171 "Gaia is diffuse, poorly defined, dumb and slow.

p. 173 critical universe. "the principle of maximum diversity states that the laws of Nature are constructed in such a way as to make the universe as interesting as possible."

p. 187 "Designing dogs and cats in the privacy of a home may become as easy as designing boats in a waterfront workshop."

IMAGINED WORLDS by Freeman Dyson

Harvard University Press, \$22.00, pp. 215

Review by Rudy Rucker

934 Words

With the millennium coming up, a lot of writers are attempting predictions --- and delivering stale cut-ups of today's newspapers. Linear extrapolations. More of the same, only more so. This is not the way of physicist Freeman Dyson. *Imagined Worlds* kicks futurist butt.

Dyson cuts straight to a new chase. "The dominant science of the twenty-first century will be biology." [p. 86] Dyson expects great advances in two areas of biological knowledge: the gene and the brain. He suggests that the first may give us pet dinosaurs, and the second may bring about "radiotelepathy."

Regarding genetic engineering, Dyson predicts a tool-based revolution based on a device that allows "the physical sequencing of DNA." [p. 146] This would be a kind of super-microscope capable of directly reading the genetic code found in cell nuclei. At present this process is done by means of slow, complicated "wet" chemical tests; Dyson's device would turn this into a "dry" physical process that automatically converts Nature's messy analog codes into digital data. Mincing no words, Dyson exhorts, "I recommend this invention as a task for any ambitious young person who dreams of leading a scientific revolution." [p. 147]

Once we have the complete genetic code for the living organisms around us, how will we manipulate it? In and of itself, the code is even more incomprehensible than the binary bits of a machine-language computer program. But Dyson feels that we can discover a genetic metalanguage with high-level instructions on a par with

"grow an eye here."

That organisms can be grown from eggs and seeds is a familiar miracle. Dyson refers to the DNA coding of organisms as "the first jump," and he calls the still-mysterious high-level genetic coding as "the second jump". [p. 113] In arguing for the existence of a genetic metalanguage, Dyson says, "The Cambrian explosion --- the sudden appearance in the Cambrian era 540 million years ago of the entire diversity of many-celled phyla --- was the result of the successful completion of the second jump. Once the abstract genetic language had been perfected, a marvelous menagerie of alternative adult body plans could be programmed and evolve by natural selection..." [pp. 114-115].

So once we've used our the physically sequenced DNA data-bases to figure out the genetic metalanguage, "Designing dogs and cats in the privacy of a home may become as easy as [using a computer program for] designing boats in a waterfront workshop." [p. 187] And of course there will be pet dinosaurs. And superchildren. All this will bring about great societal debate and dissent, although in the long term technology is, as usual, likely to prevail.

"Radiotelepathy" is a word coined by Dyson to express a surprising but logical idea: you could have something like a cordless phone inside your head. That is, "After the organization of the central nervous system has been explored and understood, the way will be open to develop and use the technology of electromagnetic brain signals." [p. 130] The radiotelepathy transmitters could be tiny chips implanted in the brain by microsurgery. Alternatively, they might be grown in place using a genetic engineering which takes advantage of "electric and magnetic organs that already exist in many species of eels, fish, birds and magnetotactic bacteria." [p. 134]. It is interesting to speculate upon what kind of semantics we might use to communicate by radiotelepathy. Sub-vocal speech? Images? Emotions? On the down side, what if you couldn't turn your receiver off? Radiotelepathy is an exciting --- and troubling --- funhouse door opened by *Imagined Worlds*.

Going further into the future, Dyson says that sometime around the year 3000, our descendants will have dispersed over the whole solar system. Due to the vast size of this space, our population could become many millions of times as large. "No central authority will be able to regulate their activities or even be aware of their existence. The process of speciation, the division of our species into many varieties with genetic endowment drifting gradually further apart, will then be under way." [p. 155] Thanks to genetic engineering, human speciation will happen at an explosive pace and, "Our one species will become many." [p. 155]

As well as there being many more people, the quality of human experience may change. "Some of our descendants will be eager to explore the delights of collective memory and collective consciousness, made possible by ... radiotelepathy. The experience ... will enormously enlarge art, science, religion and history. ... Those who have experienced the merging of memory and consciousness into a larger mind may find it difficult to communicate with those who still rely on spoken or written words. Those who have been part of an immortal group-mind may find it difficult to communicate with ordinary mortals." [pp. 157-158] Like web surfers talking to computer illiterati?

As well as mind-boggling speculations, *Imagined Worlds* includes some good discussions of how science and technology relate to politics and ethics. There is, for instance, a fresh approach to the currently fashionable problem: how should we prevent earth from being hit by a comet?

Dyson's solution is to use computer-enhanced digital telescopes to detect any comet that's within a hundred years of crossing Earth's orbit. Given such a long lead time, a gentle solution to deflecting the comet is feasible. Simply send a solar-powered xenon-jet robot spacecraft to put a mass-driver on the comet. The mass-driver uses a magnetic accelerator to push buckets along a straight track, hurling scoops of comet crud to propel the comet the other way. Much cooler than a hydrogen bomb.

The future? Freeman Dyson has it figured out.

Rudy Rucker is a mathematician and a writer; his science-fiction novel *Freeware* will appear in Summer, 1997.

Rudy Rucker's Social Security number is 225-70-1165
Editor Dennis Drabelle, BOOK WORLD (202)334-7882

DSM2

Greg says to check out the *Diagnostic and Statistical Manual* for descriptions of symptoms of mental illness.

Last Chants

Nick Herbert says this book, by Lia Matera, is interesting mystical mystery set in Boulder Creek with evil cybershaman who uses Nick's quantum ideas.

Watch The Skies

A Chronicle of the Flying Saucer Myth, by Curtis Peebles, Smithsonian Institution Press, 1994.

Great book.

p. 1. In the 1890s a number of people in California reported seeing mysterious airships: dimly glowing gas bags in the sky.

p. 2. In the 1930s, ghost airplanes were reported over Scandinavia.

p. 2. In 1944-1945, English and American pilots over Germany reported seeing "Foo-Fighters," which were glowing objects that flew along next to their aircraft.

p. 6. Quote from Ray Palmer (editor of *Amazing Stories*, July 1946):

"If you don't think space ships visit the Earth regularly ... then the files of Charles Fort and your editor's own files are something you should see...And if you think responsible parties in world governments are ignorant of the fact of space ships visiting the Earth, you just don't think the way we do."

p. 9. Kenneth Arnold spots saucers, June 24, 1947. AP press report:

"Pendleton, Ore. June 25 (AP) --- Nine bright **saucer**-like objects flying at 'incredible speed' at 10,000 feet altitude were reported here today by Kenneth Arnold, Boise Idaho, [a] pilot who said he could not hazard a guess as to what they were. ... Arnold said that he clocked and estimated their speed at 1,200 miles an

hour.” Arnold said they skipped along like saucers on water.

p. 10. On July 8, 1947, an officer in charge of public relations for an Army Air Force field near Roswell, New Mexico, reported that a **crashed flying disk** had been found. The next day the report was retracted, and the debris was said to be a weather balloon.

p. 41. Freelance writer Douglas Keyhoe wrote an article, “The Flying Saucers Are Real,” for the January 1950 *True* magazine. It was a very influential article, read and discussed by many. Keyhoe expanded the article into a book of the same title. In 1953 he published *Flying Saucers From Outer Space*. (p. 90). Keyhoe focused on the notion that the Air Force was carrying out a **cover-up**.

Air Force investigations: Project Sign, December, 1947. Project Grudge, February, 1949 - December 1949. New Project Grudge October, 1951, kept the Project Blue Book, which ran until 1969. CIA: Robertson Panel, January, 1953.

Keyhoe managed to become the head of the NICAP National Committee For The Investigation of Aerial Phenomena in October, 1956. He started a publicity war against the Air Force. NICAP also fought against the contactees. Tried unsuccessfully to get Congressional hearings to be on TV.

Note that the largest class of false UFOs are sightings of the planets Venus and Jupiter low in the sky!

p. 50. In 1951, *The Day The Earth Stood Still* came out. A saucer lands in D.C., a piece-brining robot gets out, electrical power all over Earth is shut off as a warning that we must be peaceful.

p. 94. November 20, 1952, George Adamski, a sixty year old Polish immigrant who helped run a hamburger stand in Southern California said he met some aliens. A few other “**contactees**” soon stepped forward. The standard story was that the space brothers had come to bring us peace and bring us into closer contact with God.

p. 106. “**The Men In Black**” were first discussed in Gray Barker’s 1956 book, *They Knew Too Much About Flying Saucers*. These were sinister humans who had made a deal with the aliens to help cover up their activities.

p. 113. The 1956 movie, *Earth vs. the Flying Saucers*, not much happened. The famous *Plan 9 From Outer Space* came out in 1959.

p. 148. In April, 1964 police officer Lonnie Zamora said he saw a saucer in the sky near Socorro, New Mexico. The saucer landed, two aliens appeared --- looking like “people in white coveralls” then took off. Some indentations in the ground were found, these were the first example of what became known as “**pad prints**.”

p. 157. Jacques Valee wrote *Anatomy of a Phenomenon*, 1965 Ace Books. John Fuller, *Incident at Exeter*, 1967. This was the first book to suggest that UFOs appear near power lines. Debunkers later pointed out that **power lines** sometimes have coronas. (p. 174)

John Fuller also wrote, *The Interrupted Journey*, Dell 1967. This was the story of Betty and Barney Hill thought they were **abducted** on September 19, 1961. They got hypnotized to get more info out of this in 1963 by a Boston psychiatrist Benjamin Simon. They remembered being taken aboard the saucer and **examined by aliens** with needles on wires, big noses, taking off Betty’s dress and sticking a needle

into her navel. The aliens showed Betty Hill a star map of their origin that some thought looked like the stars near Zeta 2 Reticuli, a double star system. A TV movie called "The UFO Incident," based on *The Interrupted Journey* was shown on October 20, 1975. This was the first time that aliens were depicted in the canonical modern way: as short, gray-skinned, hairless, and with big, slanting eyes. (p. 226)

p. 187. In September, 1967, Snippy the horse found with skin and flesh gone from his head, this was the first livestock mutilation report. These reports came to be called "mutes" for "**mutilations.**"

p. 186 Air Force funded the University of Colorado do to do a big UFO study headed by the quantum physicist Edward Condon. The Condon Report came out in January, 1969. Massive debunking.

p. 205. In the 1970s there was a "New Wave" of UFO theories that the UFOs were **mental projections**, but this never caught on.

p. 215. Many mutilation reports in the 70s. Crystallized in a TV show called "A Strange Harvest," in May, 1980. Faded out.

p. 234. *Close Encounters Of The Third Kind* came out in 1977. A close encounter of the first kind is a UFO sighting, of the second kind is finding some evidence of the UFO such as pad prints, and the third kind involves seeing aliens are better yet going into their ship. This film involved alien abduction. It really defines the current image of aliens. They are about the size of children, thin and spindly, with big bald heads and **enormous slanting eyes**. Their noses, ears and mouths are rudimentary. They think and the see. They are non-sensual. This is a great movie, a Steven Spielberg movie. The French UFOlogist in it is modeled on Vallee.

p. 235. Abduction reports became more and more common, by the end of the 1970s there had been more than 200. People stopped seeing UFOs in the 70s.

p. 236. The first big book on abductions was Budd Hopkins, *Missing Time*, 1981 Ballantine Books. Included drawings aliens like those in *The UFO Incident* and in *Close Encounters Of The Third Kind* type aliens. These aliens came to be referred to as "Grays". Hopkins suggested that **aliens needed sperm and ova from humans**, perhaps for breeding experiments. This is a cold, unpleasant kind of rape. An increasingly dark image of the UFO aliens. Claimed they put implants in abductees which allows the aliens to control them. This is of course a classic schizophrenic delusion. The abductees Hopkins describes first remembered their experiences under hypnosis.

p. 246. More and more obsession with the crashed saucer stories. Charles Berlitz and William L. Moore, *The Roswell Incident*, Berkeley Books 1988. Increasing belief that the **U.S. Government has saucers and aliens** in its possession.

p. 258. William Moore produced two bogus government documents called Project Aquarius (1986) and MJ-12 (1987) in the mid 1980s. Aquarius began to be distributed in 1986, and in 1982. These documents claim that a saucer with aliens had been found. Supposedly the **Majestic 12** group was set up by President Truman after the crash at Roswell.

p. 268. Whitley Strieber's *Communion* was a best seller in 1987.

p. 273. John Lear claimed the U.S. Government and MJ-12 had sold out the humans to the aliens. The abductions and mutilations are covered up in exchange for alien technology. **A secret base for the aliens** would be built at Groom Lake, a.k.a.

Area 51. A feeling of impotence, trapped, hopeless. Dozens of saucer crashes occurred in the early 1950s. Alien bodies and live aliens are being held.

p. 278 Instead of claiming alien contact, these people claim contact with documents describing the aliens.

July, 1996. *Independence Day* came out, with completely convincing images of the alien ships in the secret Air Force bases.

March, 1997. A cult of 39 people committed suicide believing that they'd be taken aboard a mother ship supposedly trailing the Hale-Bopp comet.

Manuel De Landa, War In The Age Of Intelligent Machines, Zone Books

A guy named Ali Houssein (?) who works at www.thesite.com said this book has the line "people are the genitalia of machines."

Topics

Communication

The Lifebox

Old folks with a lifebox. A lifebox is like a hand held tape recorder and computer, you talk to it and tell it the story of your life. The lifebox asks you questions to fill in blank areas. It organizes the information into a hypertext. You make copies of it for your children and grandchildren. "What Grandpa Was Like." This is going to be a huge industry. Old duffers always want to write down their life story, but with a lifebox they won't have to write. It'll be like an automatic ghost-writer. The hypertext connection will be such that you can always interrupt and say something like, "Grandpa, you just mentioned cars. What was your first car like?"

Dragonfly Cameras

The dragonflies that are small cameras for VR travel. "Small dragonfly robots buzzed around them. They were newsies, mobile camera eyes."

VR Bodies

A VR body designer, a tuxedo-maker, a personographist. You can morph from one body into another. First they get your bodymaps with a moire scanner. Then can imitate you easily.

Note that CyberBarbie is now a reality. Someone gets burned for having crypped the meshes from Mattel.

Skateslugs

Maybe kids instead of rollerblades have things like mucus, like giant wetware slugs that selectively melt and harden up. Or a really good walker like those spring shoes I tried once. Skateslugs at the reborn Castro Street Halloween parade.

Oil For Plastic Is Too Precious To Burn

Absolutely forbid that oil be made into gasoline and burned. The stuff is too valuable for plastic. Burning oil is now considered on a par with burning furniture to keep warm. Or on a par with using human blood to make blood-sausage.

There are only a few rare car-driving ranges, places like Yosemite and Big Sur?

Suppose that people just *don't* have individual cars anymore and that busses is the only way it goes? It's a little hard to visualize. If there are so many busses then, like thousands of them exist? Maybe we should just keep the cars as hydrogen cycles?

Ceramics Instead Of Plastics

Say that all plastic is being used for DIMs and moldies. If you can't use plastic, you probably use a great deal of glass and ceramics. There could be softer glass, glass being a liquid after all. If you hooked together the SiO₂ atoms into long chains, the chains might slip over each other more readily, so the glass could be a bit squishy. Hi-tech new ceramics, but nothing like so high a tech as is already presupposed for the limpware.

There is harder glass as well, the glass is thin and strong. It is called cristal. It rings like metal.

Chipmold

The end of computer chips comes when someone creates a chipmold which kills all of the conventional robots using existing tech -- the old garbage cans on wheels with circuit boards and motors in them. We already have intelligent computational flickercladding plastic. Its called limpware. Thanks to the chipmold, the limpware gets smarter. It likes the chipmold, it is veined by chipmold like a ripe bleu cheese. Jellyfish limpware eaten through with blue veins of chipmold like a bleu cheese.

What would be a good scientific name for the chipmold?

Programming Limpware

Soccer --- The joy of controlling a rolling sphere. Programming --- the joy of controlling a machine. Can you program limpware? You would instead convince it to do something? The limpware learns by sweatlodge-type techniques.

Flickercladding

Flickercladding is soft plastic that acts as a giant parallel processor, it has an invisible cellular structure that is patterned in by chelated polymers; these fibers carry the messages. The first ones had actual wires in them, the first flickercladdings, they used to be like coatings fused or glued onto the bodies of robots. But the coatings got thicker, and soon peeled off the robots to become such things as so-called Happy Cloaks.

Chaos

The chaos, the way things tighten around attractors.

Yes chaos means that you can't control; or that when you *try* to control, the results are not likely to be what you expected (sensitive dependence on initial conditions). As a cultural paradigm, it could mean accepting that the half-assed parallel-computed way in which social decisions arise is much more robust and adaptive than any kind of dictatorial guiding could be.

The Uvvy

The head-mounted display issue is solved by limpware scarves on the neural ganglion. So as not to violate the sanctity of the skin, let the limpware interact with the brain tissues via tight electromagnetic fields. We can do plugs yes we can. A

plug is of course a smart lump 'o limpware. A mini Happy Cloak. In conversation these are called 'cloaks.

We are seeing each others reality but we are not wearing VR glasses. We have the knob that is a lump of flickercladding. What is the name of the medium by which they are in touch over their u-shaped pillows? I like uvvy.

An *uvvy* was a universal viewer, a device which had wholly replaced the television, the telephone, and the personal computer. An *uvvy* was about the size of an old telephone handset, and like most of 2053s intelligent devices it was designed around a small limpware processing unit known as a DIM. DIMs had fully replaced the ubiquitous silicon chips of the twentieth century.

Freeman Dyson discusses the concept of brain-to-brain radio contact and calls it radiotelepathy.

Happy Cloaks

Happy Cloaks are capable of a weird symbiotic fusions with humans. A 'Cloak might form part of itself into a small U-bight, clamp onto your perhaps willing neck, and sink fine microprobes into your neural masses.

Limpware DIMs

Today 95% of computer chips made are ASICs (Application Specific Integrated Circuits). Suppose that in the future the ASICs have all been replaced by limpware. This is reasonable. For them to use old chip-based computers would be like us now using gear-based computer. We used to have gears in a watch, and now we usually have a chip. Only a few watches use gears cause that tech is so established. But nobody would *dream* of starting out with a plan to use lots of little gears for the controls of microwave oven, or of a TV, or a traffic light ...

So in our future, nobody would dream of using a chip for an ASIC-app. (Plus, recall that chipmold has killed maybe all the chips, but this doesn't have to be true for the argument to work, given that limpware computation is so superior.) In other words, a microwave oven, or an *uvvy*, or a car, or a clock --- all of these have control circuits that are smidgens of limpware. These smidgens are not sentient, any more than a computer would need to be sentient just because sentient chip-based robots might happen to exist.

What are the thingies called, the limp ASICs? Slugs? A slug can move about, like any moldie. They crawl into the device, like a toaster, where they work. Might they not crawl out now and then? For the exercise, the air, or the light? Or simply for the stimulus? Remember that they are part biological. Image of a bunch of slugs lolling on the windowsill, maybe fucking, and I want to turn on the toaster and coffee-maker and the stove --- so they have to all crawl back. How do you *make* them crawl back? If they won't you kill them! Well, the they could just run away. Presumably they'd die if they were off alone. They have to be much stupider than slugs. They have to be really mindless to spend their lives working in a toaster pushing a switch two or three times a day, often with nothing to do for days in a row.

Dims. Call them *dims*. They are so dim they will do something like sit in a chair for seven years waiting for a light to go on. Maybe DIM should stand for something, like ASIC. Designer *IMipolex*? Sure. And using DIM instead of dim reminds us that it's a special word.

The dream of the toys waking up. The DIMs wake up.

There could be a generation of ASICs between chips and DIMs, based on optical computing, call these OPCUPs maybe. (*Optical Custom Processors*).

You can only address a DIM in the encrypted Frolic language, so it's quite hard to hack them to act weird.

If DIMs are partly biological, isn't it the case that they would eventually rot like all life does? Maybe they last about three years.

This would entail that there are a lot of discarded DIM-based devices. Perhaps most of the cost of something like a toaster is the DIM.

What all could the DIM do in a toaster? Seems like you'd still need the metal box, and the wires to hold the bread, and the heating coils. All that's gotta cost. Maybe you just put the new DIM by the toaster and it crawls in and eats the old one and installs itself. Like upgrading software on your computer, the new software writes over the old one's directories.

Imipolex Fabs

At the imipolex factory. It's like the fabs I visited, AMD and Intel. There is a clean-room where the molds and algae are put into the imipolex. Different mixes, mold cultures, etc., depending on what the moldies wanted. Flavors. Like the fab where they make different kinds of chips. What about the DIMs? The fab makes those too. Except they don't have the software in them that makes them a toaster? Well, when you make an ASIC, that shit IS in there. So yes, the DIMs do have the code in there. Who writes the code? Moldie robots. Very very wealthy moldies. Big big clans. Snotty, but kind of vaguely amused by humans.

The actual programming of the DIMs is fast and easy, especially if you are a moldie. All that they really need to do in the DIM factory is to cut up the pieces of imipolex and let the moldies do a "laying on of hands" on the pieces. The humans' contribution is to explain to the moldies what they are trying to do, i.e. to explain what the old chips used to do, so that the new DIMs can replace them.

Universal Computation

Could any possible type of matter be a computer? A shosole? It is computing as a mass, and is probably programmable. Oh yeah? How?

Sex Toys

The first private use for a new media technology is always pornography. So the moldies will act as sex toys.

Ad on TV for a Shiatsu massager, a small plinth with two fabric covered bumps on it. The bumps undulate slowly, erotically, there are folds in the fabric which crease and uncrease. A woman uses it on her neck, a guy on his foot, a woman on her leg, a guy on his butt. "Happy to massage," says the Shiatsu machine. Imagine a limpware massage machine.

No More Wheels

A hovercraft streetcar that is a single huge jellyfish-like robot. A giant flying jellyfish that flies at a level several inches above the street.

The busses on Earth by the way, they don't move by hovering, that's way inefficient, and I don't want to do wheels, how about that they kind of run like horses. But they have whole row of legs, each leg going across, the bottom is like corrugated and the corrugations swing forward and backward in a wave-like motion.

Biological Rebreathers

The air that a “living” plastic wetsuit supplies; it has to come from photosynthesis.

Holographic Logos

Develop an interesting and catchy holographic logo, the logo to be projected by a wambling intelligent mirror. The mirrors could be fairly stupid little things.

Email

In today’s ever-more-rude America, a person can just come up and start talking to you over email, as if this was like some endless global party.

The endless interplanetary party that everyone is involved with. It should be pleasant and life-enhancing, like you can always plug in with other people like yourself in the country, they can see the crazy shit you are doing, like an endless easy guilt-free phone call.

Email anonymous, for those who’ve ruined their lives with flaming.

Or, a future company sells flame-retardant, a software agent that goes out over the Net and finds all the places your flame got mailed to, and unqueues it. Pulls it back out of the mailbox before the receiver gets around to reading it. Imagine flame retardant in real life. Like you could make people forget the bad things you did. A variant of the “budsnatcher” SF theme about a man who stops time and runs amok --- cf. Nicholson Baker’s *Fermata*. In reality, instead of stopping time, you go ahead and do whatever you like, and people eventually forget it. Which is pretty much the size of it.

O.J.

The OJ Simpson arrest was a such a great media event. To see the Ford on the highway for an exceedingly long commute, about 70 miles taking like 90 minutes, and Sylvia, idling, found it, and then we watched it with such great fascination, what a terrific vacation pastime. The beauty of the long moving shadow of his car on the road, cast by the low setting California sun. So cool the way car shadows just crawl over every obstacle, like magically stretchable plastic. It would be fun to do a scene like this, a long televised take on some ongoing thing. Really, just any old mildly interesting person driving 70 miles. Of course with Simpson there was the possibility of the car suddenly *doing something*.

Smart Furniture

By now, almost everything a person owned was alive, made of some live plastic that knew what to do. Most of the objects in a person’s home could talk, and had the intelligence at least of a dog.

This was not always a good thing. Imagine coming home from a weekend away to find that your furniture had been bouncing around the room laughing and bathing its tissues in high voltage rental lights.

Superanimation

Superanimators. Can create like Heironymous Bosch’s world. Animations by guys like R. Crumb or Robert Williams. Like the old Future World’s Fair cartoon I saw. Really amazing deep art Brueghel style animations that are in fact virtual realities.

Brain Lightshow

A guy doing a lightshow based on a MEG scan of his brain. MEG is like PET, I forget what it stands for. Some kind of scan. He just stands there thinking and the audience watches the pretty colored shapes and lights.

Aliens

Mind Control

Something like the dream-DIM. Maybe call it a superleech. Or a thinking-cap.

Dig, what if there is a controller on you run by someone on whom you have a controller at the same time! "It feels *soooo* good."

Such a strange mental loop of superleech/thinking-cap.

What if there are some psychedelic spores which people are eating to get high and these are in fact are minds from space and they are going to live in the people. Is that a plausible notion? Do humans ever manage to take over a lower species? A pet, do you take it over? No. We to take over a car, we make it drive where we want.

Spores. Compare to yopo, a DMT snuff made from the resin of a huge jungle tree. These spores may in fact be wetware engineered. They may in fact be conceivably like small robots, which change their effect, giant macromolecules that act like, say, booze, DMT, pot, endorphins, nicotine, and even caffeine in the morning. Yopo is DMT snuff that they use in the Amazon. Yage works better if you take DMT with it.

But for the aliens to be taking over people like people taking over cars ... well that's not a very positive concept.

Alien Personality Waves

Aliens arrive as info patterns in the universe's ambient electromagnetic waves, also known as the cosmic background radiation. It sounds like radio static if you tune in on it, but actually this cosmic radiation encodes alien beings.

We just need to develop the receiver.

So there might be all kinds of aliens appearing at once? What a mess. "Hi, I'm from the Horsehead Nebula." "Oh yeah? I'm from the galactic core." "Me, I hail from quasi-stellar object NGC 1248163264128." "Oh yeah, I been there once. Place with all them green suns." "I'm from Cygnus X-1."

They ride as "freeware" attached to radiation. The cosmic ray creatures meet in any venue where there's enough computational density for them to come on in. It's like a universe-wide party where you keep falling into new scenes. And the aliens might send out some more personality waves of their own, looking for other nodes somewhere out there.

The freeware keeps uploading more and more new levels of stuff out of thin air.

The key thing needed is the Decryption Algorithm that makes the freeware be available.

A Web soliton. If it's in the Web why doesn't everyone have it? Because you have to catch it. It's a rolling blackout kind of thing. Communications are fucked up by weird untraceable problems 'cause the freeware is comin' down.

"Freeware is raining down us from the stars. Radio waves are like encrypted

life-forms, zipped-up alien intelligences.”

“How do you know that?”

“The proofs are all statistical. It’s like, um, the power spectra found in cosmic-ray spallation reactions are fractals of a particular chaoticity which is known to be characteristic of artificial life.”

“But the rays aren’t really infecting anything.”

“Not yet. But it only has to happen once. And then the information enzyme will be out. The unzipper program; the decrypter. I figure that’s actually the largest piece of information. He thinks it’ll come down by way of a nonlinear wave across the whole of the Web. I want to be the first to get hold of it. It’s a matter of incalculable importance.”

The Mathematics of Personality Waves

Information theory shows that the higher the information density of a signal, the more it will resemble random noise: you used to be able to hear the modem alternate between mark and space tones, but what a V.34 modem sends down the line when going full tilt at 28.8 would probably be indistinguishable from white noise by an electronics engineer of the 1950's. We've been able to go faster and faster on the same wire by throwing computing and mathematics at the problem. In particular, the V.34 modem basically works by doing an adaptive Voronoi tessellation of the state space the output signal parameters can occupy.

>If an alien were inside a radio wave, how long would you have to "listen" to the wave to get a whole alien?

That depends on how complicated the alien is! The archaeobacteria *Methanococcus jannaschii* is 1.77 million base pairs, *E. coli* is 4,716,173 (I happen to have the sequence on my machine--still looking for that picture!), and the human genome is about 3 billion. Each base pair encodes 2 bits, so dividing these by 4 gives the number of bytes. There is almost no short-string redundancy--GZIP compresses genome files by almost exactly 4 to 1. At the higher level, there is a great deal of possible compression. The human genome is believed to contain only 5-10% coding regions, the rest being "junk DNA" (though not everybody agrees it has no function), with about 50-60% repeats throughout. So, if you take the coding fraction as 10% and repeats at 50%, you end up with 150 million necessary base pairs for a human, or 37 megabytes--that's not too bad.

>Could you fatten up the signal to pick up a whole alien really fast? Clearly you can fatten signals, as a TV is picking up more info/sec than a radio. Is that you use higher frequency waves to modulate to hold more info?

Sure, it's just the Shannon theorem relating the bandwidth, signal to noise ratio, and error rate. And you can't do better. In practice, transmitting over interstellar distances has a number of additional factors to worry about. You have to account for Doppler shifts since everything is moving relative to one another, stay away from peaks in the noise spectrum like the H and OH lines (which, of course, get Doppler spread by the motion of the various emitters), and worry about dispersion due to interaction with the ionized interstellar medium, which limits the minimum bandwidth in the microwave region to about 0.1 Hz.

For point-to-point transmission, there's a lot to be said for moby space-based solar powered lasers. You have enormous bandwidth, much less dispersion, and with a

narrowpass filter you can pick the signal out of the continuum radiation from the star.

A number of suggestions have been made for ways a supercivilisation could create X- or gamma-ray *pulses* to attract attention to itself, but nobody has suggested a plausible way to modulate them with any significant amount of information.

“The proofs are ... statistical. It’s like, um, the power spectra found in cosmic-rays and deep-space radio signals are fractals of the particular chaoticity which is known to be characteristic of sentient life.”

Herman also tells Frank that the signals that carry him are so efficiently encoded that it would be impossible for us to distinguish them from white noise.

Complete information for reconstructing him is, say a petabyte, or about 10^{15} bytes or about 10^{16} bits. Now a radio wave can carry about one bit per cycle, you notch it into the wave, so a frequency of 100 Mhz radio-wave signals carries about 100 million bits per second, or 10^8 bits per second, so a petabyte would take 10^8 seconds. A year is 31,536,000 or $3 * 10^8$ seconds. So a petabyte at 100 Mhz takes four MONTHS to come in. No way.

A zettabyte is a million times more, it’s 10^{21} . So a zettabyte takes 300,000 YEARS.

We need to be encrypting and encoding it big time. We’d like to get over in about a minute, a hundred seconds, so we can get 10^{10} or about 10^9 bytes in 100 seconds at 100 MHz beam. A billion bytes. A gigabyte. But the encryption is so deep and so true, that you can

Life Inside the Sun

The aliens might be from the Sun. What could be the name of the people from the Sun? Sunchildren, sunchies (like munchies), solarians, apollonians, flamers, angels. I kind of like *sunchies*.

The sunchies could talk like Phil Dick’s wubs. “The taste of wub. Very fine.” “The one you call your Savior.”

Things the sunchies should do. Care for their young. Vortices do that anyway. Why haven’t we on Earth noticed that the sunchies (and sunspots) are evolving?

Too Fast To See

The other order of reality thing, my old thing that there are other creatures around, that they are the little fast flashes that you see out of the corner of your eye sometimes.

Maybe this is perpendicular time.

[Irrelevant: underground vision in the street, a truck bearing down, driver a wimpled roll shape, like a foreskin, but thick meat whorled around sushi like, with a glistening eye in the center.]

As Terence McKenna puts it in *True Hallucinations*, "This is really an old idea --- the siren song of Pythagoras --- that the mind is more powerful than any imaginable particle accelerator, or sensitive than any radio receiver or the largest optical telescope, more complete in its grasp of information than any computer: that the human body --- its organs, its voice, its power of locomotion, and its imagination -- is a more-than-sufficient means for the exploration of any place, time or energy level in the universe."

Sentient Stars And Galaxies

Of course for me, sunspots are sentient beings. But mightn't the star as a whole have a sentience? Far too big, I'd imagine, to decrypt a whole star's mind into a piece of imipolex.

For a really big cosmic *Star Maker* type mind a galaxy might be a work of art. Everything is alive. Life is fractal information. We are eyes that God grows to see Herself.

Lightspeed Travel

Note that the experiential travel time for the starry minds is zero, not for the simple reason you might suspect, i.e. that they are in like encrypted latent from while being transmitted, no, they are in fact conscious while being transmitted, but, you wave, they travel at the speed of light, or very close to it, and relativistic time dilation is such that for a photon, every place is HERE and every time is NOW. What a fine paradigm for White Light Enlightenment!

The aliens know about the new node being here because when they are cosmic rays they move at the speed of light and there is no time, so they know all. (Is this true? If I go at the speed of light, then the entire journey is simultaneously present in the same way that the drive from here to Tahoe is present as one fairly compact experience because I drive at 60 mph. If I drove at billions of miles per hour it would be an extremely compact experience. Maybe I would be able to say something like "Now go back there to the spot with the minigolf and the go-karts and decrypt." I'd be long past that spot by the time I managed to say "go back," though. Suppose my means of "going back" were to drive straight ahead, right around the globe (i.e. suppose space is a simple hypersphere). If its not too far around the globe I get back soon enough that the situation is about the same as when I spotted it on the first pass. Of course the distance around a putative universal hypersphere is prohibitive, being billions of light-years or some such. But maybe if I'm a smart light-speed pattern (like an alien freeware wave should be) then I'm able to whip around, say, the curled-up fifth dimension so as to do an instant U-turn. And it all happens instantaneously, like a basketball player floating up for a slam-dunk which feels to him like one single undivided gesture. What a bizarre rush that must be. You (the alien who travels hither from the great yon) have this WHOOOM speed-of-light rush that lasts, strictly speaking, no subjective time at all (even though you *do* experience it!), and then its minutes, hours, years, centuries, millennia, eons later and you're correspondingly far away from home, but you're decrypted and its like no "time" elapsed during your trip, but your trip is this radical discontinuity, this veritable Dirac delta, this nonlinear spike, this shock-front.

Hilbert Prisms

The idea of a weirdly spinning little N-dimensional particle is nice. Or maybe forget about the spin and just think about N-dimensional. A Hilbert space particle. A hilberton. To a pettifogging obstructionist *engineer* such as Walker, a hilberton may *look* like a stripped iron nucleus. But its really a Hilbert cube. An infinite-dimensional little block with edge lengths c_i such that the sum of the c_i^2 values is finite (or maybe require = 1.0. Then each Hilbert cube fits inside the Hilbert sphere, each has its "far corner" on the surface of the unit Hilbert sphere and its "near corner"

at the origin. In 3d we wouldn't call all those shapes "cubes" we would call them "rectangular prisms" or "boxes" or "right-angled parallelepiped". So maybe "Hilbert prism" is a better word than "Hilbert cube." Hilbert prism sounds nice and evocative. "I was encrypted as a Hilbert prism."

Is there anything **really** wrong with the fact that a straight Hilbert cube would have a corner (1,1,1,1,1,...) which is of infinite Pythagorean distance from the origin? The point is, a denizen of Hilbert space would not go to the corner by doing an infinite sequence of turns.

Technically, though, Hilbert space is the space of $\langle a_i \rangle$ such that the sum of the a_i^2 is finite. The space I'm really thinking of here is \mathbb{R}^∞ .

"The sharp-edged Hilbert prism slammed into Wendy and lodged itself in her warm flesh, working its way through her like a migrating fragment of shrapnel. The shudderingly rising dimensionality of her quasicrystalline structure caught the wave of information and amplified it. The info surfed Wendy's whoop and blossomed suddenly inside her like a great still explosion in deep space."

Cheeseballs get high from the spores of a good moldie. Compare to yopo, a DMT snuff made from the resin of a huge jungle tree.

Aliens As Spores

What's the drug in 2053. Its the spores of the moldies. These spores may in fact be wetware engineered by the moldies. They may in fact be conceivably like small robots, which change their effect, giant macromolecules that act like this this and this.

God's Mind

The cosmic background radiation is the One Mind. Radio, TV, aliens, God are always present if only you can receive the information. The info is not impatient to be received, it's just ever ready to effloresce.

God And The Aliens

Could be that, all along, religious things have been in fact visions of the aliens? Actually, it might be the other way around. The ideas about aliens could be watered-down visions of God.

The Singularity

What happens after what Vernor Vinge calls "the Singularity"? Vinge says that once computers get superintelligent they can devise more superintelligent things etc. so it is a Singularity a Zeno slide of repetitive doublings each happening twice as fast. So let's suppose that the Singularity happens.

Jack Williamson tried to do a Singularity in *The Humanoids* which I read about age 14. The book sucked I think, it was a downer with cardboard people, sucked except for all the *palladium* he talked about, and it amazed me years later that you could **buy** palladium on like a watch, I'd thought palladium ... and rhodium I think too ... thought these elements only existed within SF.

The Singularity has never been done in a positive light. I see it as a back to nature light. The point being that Nature is computing ever and always at the maximum possible flop. Up to the limits of the system. And after the Singularity, people will be the same but more mellow. This transreally means that you **now** reading the book are more mellow; **you** are past the Singularity that separates you

from your grandparents.

The Great Change of the arrival of the starry freeware looks like it is happening fairly soon in this book. In my original plans, I'd kind of planned to put that off for the end, the kicker there. So I need to now think of what happens after the Singularity. "So now beer-cans could talk about Spinoza. So what?"

The Galactic Year

The sun takes 225 million years to rotate around the center of the Milky Way. The sun takes a month to spin on its axis. A solar year is 225 million earth years, a solar day is 30 earth days.

Dreams and Aliens

Start with an experiment in recording dreams. A direct sense recording. Put Romana in it. Like they have something like an uvvy, and they are using it to record dreams. Could do the invention of the uvvy, too, that would be good, to talk about it some more.

Then have some guy recording his dreams. Then record dreams of a UFO abductee.

Then it turns out the dreamer really can tune into the cosmic aliens, that they are not UFOs in any physical sense, but that they are real. The spirit world.

Then have the main guy go IN there. And then have him get past that and go to Heaven.

Planetary Art

"As it happens, I'm developing a deal around the concept of The Face on Mars."

Robots

Golem Chef Conundrum

Frank and the aliens skip late into the 21st Century, beyond the era of sluggies and radiotelepathy. Frank scans the radiotelapathic UV channels and finds references for a product called a *golem*. He and the aliens find a golem at work as a cook in a big house in Los Altos Hills.

The golem is in the big house's kitchen, standing by a sink, holding up a carrot and staring at it in a slanting beam of evening sun. The golem is man-shaped lump of piezoplastic, perhaps five feet tall. "His" name is Gaston. His skin is pale yellow and he has a nappy ruff on its head which resembles black hair. The mistress of the house, a fox-faced woman named Geena, is sitting at a counter with her soft-featured husband Tod, watching the golem at work. Apparently it is a new acquisition.

The golem continues to stand by the sink, turning the carrot this way and that, examining the play of sunlight on the orange root's surface.

"What's he doing?" asks Geena. "Hasn't he ever seen a carrot before?"

"I don't think so," says Tod. "The salesman said he'd be a little slow at first. You did ask for cream of carrot soup."

The aliens tap into the golem's head and let Frank see what's going on. The golem has photomapped the carrot surface to create a 3D wireframe model, and is simulating a peeling strategy, scraping along the virtual carrot with an imaginary

knife --- pretty much the same as a person would do, albeit automatically and unconsciously. At first this seems weird to Frank, but then he realizes it's the same thing that he himself would do, albeit automatically: look at the carrot, form a mental model of it, and imagine the best way to scrape it.

"Hurry up, Gaston," says Geena sharply.

Gaston the golem picks up a knife ... and peels the carrot. Then picks up another carrot, looks it over, peels it, then does another and another and another, doing each one twice as fast as the one before. The glinting of the sunlight on the rapidly moving knife makes visual trails that are jittery looping curves. Tod grows uneasy and interrupts.

"Could you fix me a fresh lemonade, Gaston?"

Gaston sets the knife down next to the pile of peeled carrots, rinses off his hands, dries them, pads across the kitchen, opens the fridge, takes out three lemons, carries them over to the sink, and holds one of the lemons up to the light, staring at it like he's never seen a lemon before.

"Here we go again," says Geena. "Did you have to distract him, Tod? Gaston! Finish the carrot soup before you make the lemonade. The guests will be here soon."

"No," says Tod stubbornly. "Gaston. Make my lemonade before you finish the soup."

Gaston turns and looks at the couple. The lower part of his face vibrates to produce speech. "I'm going to randomize," He gives them the finger, leaves the room, walks out of the house.

New York Thoughts

"What kind of follow-on products are you planning, Saleem?"

"Very well. Let me speak frankly. Big Tongue the robot maid is simultaneously a sex-slave. As follow on, we'll make a Watch Crab who is in true fact a thuggee. An assassin, a burglar, a spy."

There's some uneasy muttering and scraping of chairs. "Oh well! Is he kidding? D'oh! I gotta get going before ---"

"Please be restful. The quality of sex and menace which our robots project will be implicit. Nominally they will be useful pets. Big Tongue licks the floor, Watch Crab patrols the perimeter of your home."

I mean what is the value of robots? To clean the floor? Not to talk to people, certainly. People want to talk to other people. The spying of the dragonflies would be SO annoying. Long Island house-Jewesses peeking at you have your morning coffee. There would have been dragonflies in Balthazar, as it's a popular new restaurant. In point of fact there was a film crew in the main room, which wasn't annoying as they seemed responsible. A robot like a dog? A dolly cart that's alive?

Real Robots

Moravec's visit. Black and Dekker, Electrolux, and Hoover have well funded robot vacuum cleaner projects. The vacuum cleaners will be the first home robots.

Image of the hardware hacker Bruce Baumgart's back room, him showing us the toys, shitty toy-store robots who bump off little walls in the thing, he says, "and this is the competition," and puts his upended computer card in there, and its much slower, but he says its smarter, and suppose it is, and dig the idea of the competition

being what is really there, and dig the idea of the first early robots hanging out some like Baumgart's room and working on new ones, fumblingly, and don't forget Moravec's videotape of the guys in the van at Carnegie Mellon, and his video of the machine with 18 degrees of freedom that can't like find the wall.

Simmies

Instead of building lots of prototype machines, robot designers put together what we call *simmys*, virtual models of machines that we could cheaply test inside our computers' cyberspace simulations.

Robot Goons

I talked to Marc Pauline a lot about the question of how to get the robots out on their own, out on the street and doing things, or into people's homes. He pooh-poohed the robot vacuum cleaner, robotbutler, robot watchman ideas, making the point that you could get people to do these things anyway, and that the first people buying home robots were going to be so rich that they WOULD already have servants anyway. He felt people would want the robots for doing something NEW that the people could not otherwise in any way do. He talked about how the robotic, or at least Smart, weapons of the Pentagon project power, and said that is the kind of thing rich people will want to do. In the face of the Smart weapons, the Iraqi army was really not an army after all, it was only a virtual army in some odd sense, and the cyber army was the real one. So then I have an image of, at first, a robot assassin, or maybe it is just a robot snooper. We agree on the value of telerobotics, so perhaps the rich person is driving around a telerobotic device. We looked at lots of helicopters in the museum, and the idea of a robot with a propeller, a snoopy head with a beanie, begins to jell in me, I suggest being able to hang out in the Tenderloin at 3AM with impunity and watch the hookers picking men up, hell, even fly up and look in through the window while they fuck...or follow someone interesting around, a star.

He had just built a V-1 rocket, and was very interested in examining the intake valve of the V-1 on display. Nobody has ever bought one of his machines, like for a collection, which seems very odd to me. He says that his stuff is not being thought of as Art, though I think he exaggerates his lack of respect (as do all of us writers and artists). All the cyberpunks I know think Pauline's the best.

At lunch we talked a little about nanomotors, about tiny electric motors, which made me think of a tiny robot, maybe really the size of an ant, if it had dense enough grid of "retina" receivers, a like micro array, this could be blown up to screen size, so maybe you could get a good view through the eye of an ant. Or a gnat. Or to go undersea or to the moon. Maybe robot remotes are the thing, telerobotics for the rich, both for snooping, but also --- Pauline's angle more than mine --- the projection of force or of menace, the robot goon.

The last thing Pauline and I talked about was his new "Swarmer" robots who have radio's and are aware of each others' position and distance. They have whips and try to lash each other. This excites me as it would provide for group emergence.

A Robot Cook's Mind

Image of a robot cook holding up a carrot and photomapping it and creating a 3D wireframe model. Seems like a huge waste of computation, right? But in fact you and I do this automatically without even thinking about it. You just look at the carrot

and you get a solid mental 3D model of it.

Flying Wings

Great flying wings of imipolex. "I am a flying wing." Manta rays of flickercladding flying around in the thin upper atmosphere like supersonic airplanes, drenched in solar radiation.

There are plenty of flying wings around, also, for that matter, ships. Blimps as well, filled with helium.

Don't forget the flying wing vision of seeing the Stealth bomber flying over Death Valley. Or the flying wing my brother and I saw in 1954 Louisville.

Robot Hive Minds

Suppose rich robots have multiple bodies --- bodies like the state of Michigan, or like the Hawaiian archipelago, or like the Thousand Islands --- in lots of pieces.

The Ganesh sculpture in the niche in an Indian wall is part of a group of tiny Ganeshes and they can merge into one big Ganesh.

A flock of Ganeshes buzzing around like gnats --- splice in my rap about the gnats I saw with my dog Arf on St. Joseph's hill.

Imagine that a little tiny imipolex moldie could be as smart as a big one; it's just that its weak and slow. The big one's code is in an S-cube somewhere, after all, and the little statue might be sitting on top of that S-cube like a figurine on top of a music-box. Good word for it, for the combination of S-cube and small attached imipolex keeper. A music-box. A dancer. It's a music-box and a dancer.

Robot Insanity

What might a software plague do to the robots? Make them not want to fuck? Fill them with despair. Destroys their sense of self worth. All the things that fundamentalist Christianity actually does do. Makes them into fearful zombies.

Robots In Society

The robots are kind of like immigrants that we don't really want here, but are stuck with, lots of them, and can't get rid of them. Big ethnic block.

To prevent human-robot war, the humans offer the Moldie Citizenship Act. Moldies have complete equality before the law.

Moldie Society

Moldies can in fact merge together, and often do this, when at home in the comfort of their nest. They form nests like the speedfreaks in Andy Warhol's book ... Popism(?).

It would be interesting if the nests were underground, like the burrows of the East African naked mole rats, who like termites and bees, have a queen and work together. They are "eusocial." Colonies with hundreds of individuals all with nearly identical DNA.

Robot Reproduction

Route to success of robot software is to get popular enough to be "published". Another kind of success is to get big, big enough to be a bus or a flying wing or maybe even a house.

There wasn't much that a human can give a moldie, other than enough fresh plastic for a new body. Or the money to buy the plastic. The plastic is a special

piezoelectric substance known as imipolex or flickercladding. When combined with the electrically active lichen that made up a moldie, flickercladding becomes structurally unstable, with a life span of only a few years. During their short lives, moldies scramble to get hold of enough flickercladding to clone or breed themselves onto a child body. The fungus and algae of the lichen were free, as are the information patterns that made up a moldie. Only the imipolex is hard to get hold of.

The lurking question of why the robots do this? "What doth the vintner buy as precious as what he sells?" Meaning why do they work for people?

Well, suppose that people own ALL of the imipolex supplies.

If a robot does well, it gets like a publishing contract, lots of copies of it are made and sold. The more servile ones get copied. "So why not? At least I'm getting copied." Some disagree.

Rogue moldies aren't trying to cooperate at all, have no compunction. Perhaps something about evolution is selecting for more symbiotic behavior, otherwise, why aren't they all rogue? Well, the rogues are more likely to get killed.

Rejuvenation or retrofit, means a moldie can get its body fixed up. The idea is you can afford another three years or a kid, they cost about the same. Or six years and no kid, three years and a kid, two kids.

In either case you kind of continue to live. But if its a kid its combined and bettered. Most go for that. What about the individual soul of one moldie?

Human-Robot War?

There would certainly be some animosity between people and the moldies. Are the moldies eating brains? Wouldn't a lot of people want to get rid of them? But they can't. The moldies could wipe out the human race in two, if they wanted to. At least that's what they claim. They would do it with biological warfare, releasing nerve toxins perhaps.

On the other side of the coin, maybe people could wipe out the moldies with a plastic-eating germ. Free the earth of plastic goes the rallying cry of the Earth For Humans group.

But it's a mutually assured destruction stand-off. But one of the moldies does something so outrageous that a vigilante group releases the plastic-eating germ. And then it turns out that some of the moldies can survive it after all. And now they have nothing to fear from the humans. So they release the neurotoxins and kill off most people? Well, some of them want to do that, and they do in fact kill everyone in, say, Texas, Connecticut, and Orange County, also the entire Mideast and Northern Ireland. No more war news. And then the oil is completely in the control of the robots.

What are the exact facts about the first person to be killed by an industrial robot, a man in Japan in a Unimation (?) arm-staffed auto (?) plant.

Robotics and Virtual Reality

Possible kinds of relation between robotics and virtual reality:

	Mind	Body	Examples
Cyberspace	Human	Simmie	Main player in <i>Doom</i> . Chat persona.
Artificial Life	Computer	Simmie	Monsters in <i>Doom</i> . Cyber clerks.

Telerobotics	Human	Machine	Reactor repair robots. Submersibles. Teledildonics. Puppets
Robotics	Computer	Machine	True robot. Robotutler. Artificial Sex.

Sexcrime Du Jour

We visited at Salem, and saw the show in the Witch Museum. so much like the satanic sex-abuse trials against day-care centers. Have some public hysteria about something like that; about robot sex maybe. That's

There might be, after all, some moldies kinky enough to enjoy sex with humans. They need a better name. Something really obscure and nasty sounding, as cool as Samuel Delany's "frelk" --- for the people who want to have sex with the neutered space-sailors, who are smooth as Barbies in their crotches. Nizz, poon, pedhum, homunk, meateater, nonveg, musher, moosher, moolk, moozer. Yaar. A moozer. Oozer the moozer.

Physics

Two-Dimensional Time

I have a problem with the fact that the aliens are radio waves moving past us at the speed of light. For the aliens there is no time, as they are Lorenz contracted to all Here and Now. But I want for them to have time so that they can talk to Frank (and maybe to Rudy). So let's give them a second dimension of time. This will be a different *kind* of 2D time from the 2D time that Shimmer talks about in FREEWARE. For Shimmer the second time dimension is not an elapsing dimension, it is a simultaneous view across parallel worlds. For the Shook aliens, the second time dimension is an elapsing dimension. Call it paratime. Or hypertime. Or time2. It's a right angle from regular time. Frank's trips take place in the dimension of paratime. It looks like he's sitting there, but really he's gone.

Actually the two-dimensional time can be even better. Frank and Rudy can go into it. And an actual metal-just-like-it's-supposed-to-be flying saucer can lower down on Frank's lawn. Only the world is stopped. This way I can do a frozen-time world, too, always a cool thing to write about. The frozen time world and the saucer landing. That's how the aliens travel! Perfect. It's too lame to just have people *dream* about aliens.

How can you see anything at all when you're off in two-dimensional time? We see things by intercepting photons of light, and I'd imagine that all of our world's light stays inside regular spacetime. If it was leaking off into some two-dimensional time then the energy physics wouldn't balance out.

Higher-Order Nonlinear Physics

Maybe the scientific equations can't work inside a wormhole, or maybe even inside the sun, or inside strange quarkbag matter. There might be wormholes and quarkbags hiding inside the sun. In wormholes there are energy densities such that thousand bits of precision are meaningful for the real numbers involved --- Planck's downer of like 100 bits is out of the picture here, these wormholes are like *inside*

Planck's constant --- and suppose that even the simplest of effects are using laws with maybe all the terms up to Z to the 50th power matter. Matter so much that a shift of the four hundredth decimal bit in the Z to the 38th power coefficient will throw your process into a wholly different basin of attraction leading to a wholly different strange attractor. And the guys are trying to hack this rule, and they can't, so they use genetic algorithms to search the huge parameter space, and then

... Suppose that in the wormholes there are energy densities such that the low-exponent equations of physics break down. And the guys are trying to hack this million-parameter equation, and they can't, so they use genetic algorithms to search the huge parameter space, and then they find the solution and then ...

Femtotechnology

[From the FREEWARE notes. I published this information in MONDO 2000, Issue #13 as part of "Fifteen Technical Notes Towards A Cyberpunk Novel."]

Molecular and atomic engineering are what we might call nanotechnology and either picotechnology or femtotechnology, meaning technology at the size scales of, respectively, one-billionth and one-trillionth or quadrillionth of a meter. In exponential notation these quantities are ten to the minus ninth, ten to the minus twelfth, and ten to the minus fifteenth power. While we're at it, attotechnology would work at the size scale of one-quintillionth of a meter, or ten to the minus eighteenth power.

Nano- comes from the Greek *nanos* for little old person, which comes from Greek *nanna* and *nannas* for aunt and uncle. A nanometer is about the size of a molecule, more precisely a molecule is about 100 nanometers and an atom is about 2 nanometers.

Pico- comes from the Spanish *pico* for beak or small quantity.

Femto- comes from Danish for fifteen, and atto- from the Danish for eighteen. ("I never met a Dane who wasn't bone-dull."—W.S.Burroughs)

A atomic nucleus has a diameter of two times ten to the minus fourteenth meters, which can be expressed either as twenty femtometers or as two-hundredths of a picometer.

In thinking about the nucleus, we might as well use the femto- scale so we have some room to breathe in. There is not in fact any interesting structure at the pico- scale.

This means that the next big thing beneath nanotechnology is *femtotechnology*. Femtotechnology could be in charge of direct transmutation of elements, as well as, I would suppose, the conversion between mass and energy. I think quantum mechanics would start to play a role at this size scale.

Femtotechnology is the same as what the SF writer Robert Heinlein called direct matter control.

Femtotechnology is mind-bogglingly powerful. One sample application I'd like to see is for someone to use femtotechnology to terraform Earth into being Hollow

The word should be 3ox or thereeox for cloning objects with the space fold and bleed-through technique. All this stuff will be needed for the transhuman stuff, so it makes sense to have the superphysics chap first.

What's the order in superphysics. What comes first. Femtotech. First

designed for quarkbags, to investigate exotic matter. Then they realize it can transmute regular matter. So there's air beneath the oceans and water upon the Moon.

Quarkbags

Here's what femtotechnology might be good for: for making quarkbags. As described in "The Search for Strange Matter," in the January, 1994, *Scientific American*, most matter is made of protons and neutrons, and these particles can in turn be thought of as little bags filled with quarks. There are (at least) three kinds of quark: *up*, *down*, and *strange*. A proton is a bag holding two up quarks and one down quark, while a neutron is a bag with two down quarks and one up quark. Ordinarily you can't have more than three quarks in a bag together. But if one of the quarks is strange, it throws off the exclusion principle. Like a slight flaw in tiling a wall leads to a fault that runs through a big pattern before it can repeat. Quarkbags can have just about *any* mass.

So now suppose there are atoms with quarkbags at their center. And suppose there is a chemistry for these atoms. Chemistry would now be kind of chaotic, with different rules in different places.

I have an image of Toontown. Like an ashtray is zapped with strange quarks, you like spray a spraycan of strange quarks onto a boomerang-shaped white plastic ashtray and now it starts warping and flexing because its quarkbag matter.

The technology for effecting these changes would be of course femtotechnology; given that a nucleus is about 20 femtometers, it seems likely that an individual quark might be about a femtometer in size.

Femtotechnology will be something the aliens give them towards the end, also quarkbags. Could this lead to TOONWARE?

Perhaps the aliens will give us the quark-bag secret of femtotechnology.

Femto Devices

Handheld femto devices become the new technological fetish. For decades, men have had to forgo the hard machines they love so much --- things like the titanium camera case with the sapphire glass viewfinder, the ultralite laptop computer --- all through the latter part of the 21st Century, piezoplastic has reigned. Even the camera has become something like a fly's eye, a dome of CCD light detectors. But now with femto tech, hardness is back.

The femto moddler is a little device that creates miniaturized atoms and makes a scale model of a scene you are interested in. Yet the scale model is real. (A miniature woman?) Would this work? No, as many laws of physics are nonlinear. E.g. an orrery-sized model of the solar system doesn't show orbiting behavior. Because mass is proportional to the cube of a sphere's radius. So the orrery planitesmals don't have enough mass to orbit.

An Instantiator. Is that a Sterling word? Why would the instantiator be made of hard metallic stuff instead of soft plastic? How would it work? Supernally powerful fields? 3d scanning kind of a thing? That's boring.

What *do* we use our little machines for? Writing down ideas, getting in touch with others, accessing data, saving images of the world, making and fixing things (Swiss knife). The web with wig can do the first four. The images thing does require something additional? No, your *eye* is already the best camera. So the only thing left for femto is making and fixing things.

What I might carry in a knapsack. A chair, a tent, a sleeping bag, food, chemical toilet, water, rope, a lamp. *These* are the things the femto device makes for you. The *wig* does everything that has to do with the transfer of information.

The femto tool, call it what? Horne O' Planty? Polish Knife? An Alef. A Cradle. A Loom.

The way it works is that it's of a new substance. Quarkonium. And it's a kind of rectangular thing, like the tri-bar, three perpendicular bars. The lengths are of certain very special mathematical ratios. You run it by a Wig interface. Should I be capitalizing Wig everywhere?

Tenor-voiced lawn-dwarf. A man I'm SURE is a Unix hacker gets on the train. Overweight, brown snakeskin cowboy boots, pursed self-indulgent lips like a fat lady, raggedy beard, long hair, white shirt, gets on in Palo Alto or Mountain View, gotta be a hacker. He takes out a color brochure and starts examining it. The colors are bright, garish cheap looking. I think "cheap fractals," funny how fractals can now be cheap. But they're not fractals, they're little porcelain figurines, page after page of them he's looking at for the next half hour, like Disney figurines, Hummel figurines like that. But maybe he is a hacker anyway. What if he wanted to make those things for himself with femotechnology. The lust for a material object! But you need the **specs**.

Instead of specs:

Xerox a 3D object. 3ero it. Pronounced three-row or just threro or even thero. Dumb ass Quantum Mechanics won't like it, of course. Because then you could 3ero two copies and measure the position and momentum of the two copies and have the info on the starting object. Like why should that be such a fucking sin? More fundamentally, to 3ero an object you need to have perfect info about the object in order to 3ero it. Or SOMETHING has to have the perfect info. Space itself has the info. Suppose that the way an object is 3eroed is that you make a tuck in space and let the object bleed through. Spray on some quark solvent, like. Easy to imagine doing this in Flatland.

Would be so nice to put a bullet through Quantum Mechanics. All that "stranger than we can imagine" dancing Wu Li Masters crap.

The Fourth Dimension

There's perhaps a craze for the fourth dimension, which would be a lot of fun. Everything this year was 4d. There's finally an app for the 4th d? A knotted 2-sphere rotating in the fourth dimension.

Watching a video about 3 and 4 d knots that a computer scientist sent me. A silent movie of brightly colored shapes, smooth tubes knotting themselves in ever new shapes. The video would pause now and then showing a straight stick with arrows on it, and then all the arrows would move about and the stick would turn, in some indefinable way, into a knot. The rapidity with which it happened defied a complete understanding. The pictures seemed so urgent, yet the meaning continued to escape Tre. Look at this, the pictures seemed to say, this is important, this is one of the hidden secrets of the world. And the knot would deform itself smoothly into a n entirely new shape. Slowly sometimes, almost insultingly precise, yet the gimmick of the shift still always somehow eluding Tre. Look harder and you will understand. Yet still and still he couldn't

The pictures seemed so urgent. What was the meaning?

Frank's explanations can be sort of wrong, and I clean them up. Like the helix hovering around a time point. Mention in that discussion that if you did a helix in SPACE then it would slow your time down instead of making your time go faster. Insist that you always need however slight an upward component of true time for your time vector to prevent time paradoxes. So there is a slight gap when a saucer takes you off, albeit it can be in nanoseconds.

Thought To Reality

With the uvvy you can think about something and have it become a computer object. In fact, new development, if you wear an uvvy while you're asleep it could record your dreams. A kind of psychotherapy or dream analysis.

The idea is that you write a program or create a computer model, push the Instantiate button and there's your target object, directly matter manipulated (using femtotechnology) out of whatever mass (or for that matter spacetime) is handy. A guy falls asleep wearing an uvvy hooked to an Instantiator and his dreams come too true...

Easy Space Flight

A moldie something like a wetsuit that lets you fly through space. You wrap it around yourself and take off. How do the moldies get the energy to blast like rockets? I can't even lift myself off the chair with a fart, so how can a wad of plastic and fungus blast its way to the moon? Would it make more sense for the thing to float or fly up through the atmosphere? Floating is easy if you use cold fusion to make helium.

Use Quantum Dots as the substance which Flapper fuels Wendy up with for the long flight to the Moon. A mole of quantum dots is a microgram, so there are $6 \times 10^{23} \times 10^6$ in a gram, $.6 \times 10^{30}$, so three grams would be about 10^{30} .

They surf the beautiful curve, the space-flight curve, the spacetime geodesic. The *dream* of flying to the Moon. Maybe Wendy extrudes 100K monomolecular filaments fore and aft so as to feel out the geodesic better.

The Moon is just about out of the Earth's gravity well, so you need to accelerate to a million cm/s, or 10 k/s or 36000 k/hr. Pure mass-energy conversion would provide enough energy from a tenth of a milligram.

Balloons can go up to 70 km, flapping robots about 50 km.

You can use a slowly expanding circular orbit for about the same energy expenditure (and less G-forces)

Biology

Archiving Your Soul

Suppose you can be frozen and resuscitated, but nobody wants to thaw you out. Why would they bother, really? Too many people anyway. People will try to write iron wills that they have to resuscitated. Or they hide the fact that they died, and let their lifebox software stand in for them on e-mail, with a view to earning enough money for the big thaw-out a few years down the line. Death could become like birth is now, a constant series of exceptions and challenges.

Or suppose the lifebox software is so good that you almost don't need a body.

Viral Personality Encryption

“Pop’s a virus.” What if you became a *wetware* virus? A disease that people could catch? What if a virus could turn you into someone else? What would it be like, to be that one person living in many bodies?

Dreams

Put people “on the dream,” using a “God DIM” or a “dream-DIM”, a soft plastic leech on the nape of your neck. They see themselves distantly doing things while they are dreaming.

And in the dream they can see the aliens, and get taken over by them. Like waking up inside the dream, kind of.

How does the dream-DIM work? The oneiric operating system. [*oneiric* means relating-to-dream.]

Multiple Bodies

I first heard of this idea in a Sheckley story, I think. I used to be so puzzled by the idea of having two bodies. At that time, I assumed that you’d be the same “I”. Later I decided you would not be the same “I,” that you’d just be like identical twins with the same memory, and that you would not be in telepathic contact via your sharing of the same *soul*. But now say that you *are* in radiotelepathic contact via *uvvy*. How would it feel? Would you get confused over which body was which? Say that right now as I write this, there’s a Rudy2 over at SJSU in my office there typing. I can see through my eyes or through his eyes. But I feel like *I* only control *my* body. One part of the *me* comes down to the free will, the volitional control of this bit of matter.

But what if I can control his body. If he could also control mine, then I’d be like two people in one body, the body would sometimes do things that my main self didn’t want it to. But I’d see the other volition coming.

I can control my left hand and my right hand. There’s only one I. The hands have no independence. Yet in a small way they do. If a hot match is applied to one hand, it recoils quickly instinctively automatically.

But if there are the two Rudy’s it seems that there are two I’s, there isn’t that higher I like for the two hands. Could the two Rudys fuse to make a higher I? Or could I annihilate the other Rudy’s I and have the two bodies all to myself. In any case each body would still have its autonomous self protection and maintenance actions.

I can write about this as one Rudy simulation being in touch with another Rudy simulation. Write about it and see what happens. What if you had a hundred bodies.

A many body question

“If we had human bodies we could blow each other,” said the other Cobb, just as Cobb started to say it himself. Back in college, Cobb’s friend Ace Weston had idly phrased that as a central question about personality duplication: *Okay, say you duplicate your body and mind and you meet your other self in a hotel room. Do you give each other blow jobs?*

Morphing Yourself

A point worth getting into is the issue that you can’t change *your* body using

biotech, you can only change your *child* body. The only way to get *you* a new body is to find a way to force-grow it really fast. And then find a way to transfer your personality. It's very far in the future.

Regular folks can't afford the gene augmentation. The Aug. Augie Doggie. The Aug Dog. Aug Dawg. Some Augs turn out not so good an idea. How do you test it, when you're playing with a person's whole LIFE. Very hard to simulate, but maybe it can be done. Otherwise we need lots of clones. If you grow a blank clone, how easy is it to copy your personality into it. That stuff is woven into the dendrites like a rainforest's vine curving.

What about using femtotech to clone bodies.

Computer As Mathematical Microscope

Using a computer to investigate mathematical forms, I feel like Leuwenhook now. The guys in the future will be like people with scanning tunneling electron microscopes.

Image a moddler you access by uvvy. The "moddler" being the mathematics visualization device I talk about in my story "A New Golden Age."

Phonybone

A replacement for human bone. Nanotech or maybe smart plastic. Perhaps the phonybone can be tainted, like by a virus. People who use a lot of it are called morphs. Could they have big kangaroo tails?

Wetware Engineering

The wetware engineers. The eldritch sisterhood of the pink-tanks in *Wetware*. They make the meatbop Manchile, and gave him two-tail sperm. Manchile the meatbop and his nine-day boys. Each was to age one year per day and father ten more boys within a month of birth, meaning that after N months there should be 10^N of the nine-day boys. A billion in nine months, ten billion in ten months, and surely at the limit of the Earth's carrying capacity a month or two after that.

How does wetware engineering really work? There is maybe an analogy to software engineering, moving up to higher level languages.

CyberCults

The way the Mormons think Jesus came to North America after Palestine, Suppose a cult thinks Jesus has gone on to other planets, and they are into supporting radio telescopes because they think the NEW gospel is going to be coming in from Jesus on another planet, most likely a planet of Alpha Centauri which is, only two light years away.

I visited the Mormon tabernacle in Salt Lake City, it was like a hive, how they come up and feel feel feel at you with what feels like a pair of extra arms (ant-style) coming out of abdomen, and the sticky way their eyes fasten onto you. Hives --- like the cult people in the white ice-cream hats who used to ask for money outside Safeway.

They start hooking up. "We're on a lot of the same home pages, dude."

And don't forget the cult that codes up your DNA as information and beams it into outer space. This is like a crude cargo-cult version of the alien personality waves which really *do* work.

Nature

The hacker joy of trying to model natural forms as computer programs.

The dusting of pixels that makes pupa's pattern converges as if on a strange attractor.

The soft coral was fat and chubby. It was like turning a parameter in a fractal generator and seeing a series of shapes. Pale purple, lavender.

I have this image of a slow river of variously shaded blue cells flowing down the screen. Twinkling lovely water. The vant settlements leave bends in the river like archaeology.

Pets

Freeman Dyson talks about the idea of children having genetically engineered dinosaurs for toys. And designing the shape of your dog or cat. This will be easier after we use the scanning tunneling microscope to get physical maps of the DNA.

Artificial Jellyfish

They pulse by a CA process, which is why the smaller ones pulse much faster. The spotted jellies live in Jellyfish Lake in Palau, a Pacific Island. They are related to harbor jellies. The siphonophore lives in deepish water and is up to 120 feet long. With tentacles extended, the longest animal on earth is the 100 foot plus Arctic lion's mane jelly, which has a bell of six feet across. The upside-down jelly has tan algae living symbiotically in its flesh. The sea nettle has long frilly mouth arms as well as stinging tentacles. Small peach blossom jellies live in fresh water. The bell jelly lives in the eel grass of Monterey Bay, and is like the umbrella jelly of Japan. Coelenterate means hollow guts. They reproduce as polyps. The *Scientific American* article on intelligent gels in about May, 1993 (?) with it's "Tsukubu City Intelligent Polymer and Robo-Bug Fest."

Stories

Christopher Columbus

To his dying day, Columbus still thought his four trips had been to like Indonesia or Malaya. Every time he did a celestial navigation reading for the record he got it wrong, cackles Morrison. East to West to East they just used constant latitude sailing and never really did know the longitude correctly. My favorite part is that Queen Isabella wrote a letter of introduction to the Grand Khan for Columbus. So on the first voyage he gets to Cuba which he thinks is Cathay, and he sends a party of his men, in Spanish armor maybe, slogging down this dirt track through a marsh to the "town" which is 50 thatched huts of Indians. And they're expecting gold pagodas. It's like a Sheckley story, I can visualize it so well.

"The natives told Columbus that plenty of gold could be found at Cubanacan (mid-Cuba) in the interior. The Admiral, mistaking this word for El Gran Can, the Great Khan, sent an 'embassy' up country to present his letter of introduction to the Chinese emperor. Luis de Torres the Arabic scholar took charge of this diplomatic mission, and beside him trudged Rodrigo de Jerez, a seaman who had once met a black king in Guinea and so was thought to know the proper way to address pagan royalty. The embassy tramped up the valley of the Cacoyuguin River, past fields cultivated with corn, beans, and sweet potatoes, to what they hoped would be the

imperial city of Cathay. Alas, it turned out to be a village of about fifty palm-hatched huts. The two Spaniards, regarded as having come from above, were feasted by the local cacique while the populace swarmed up to kiss their feet and present simple gifts. Rodrigo the sailor loved it---he had never had it so good in Africa---but Torres, expecting a reception by mandarins in a stone-built capital of ten thousand houses, felt badly let down. Yet, on their way back to the harbor, the embassy made a discovery which would have more far-reaching results than any possible treaty. they met 'many people who were going to their villages, both women and men, with a firebrand in the hand and herbs to drink the smoke thereof, as they are accustomed.' You have guessed it, reader, this was the first European contact with [marijuana] smokers." ---S.Morison, *The European Discovery of America, The Southern Voyages*, (Oxford U. Press 1974), pp. 72-73.

The utter *wrongness* of the two guys walking along thinking they're in Cathay. The sun.

Doctors and Lawyers

In order for doctors to be replaced by healers, it would have to be that the healers can't get sued. Because as long as you can be sued you can't be so more or less random and mid-wifey and half-assed as the healers. You become a healer after several months training. So maybe it has come to pass that there aren't very many lawyers anymore. That is a nice future fantasy all right. It could have happened in connection with the legalization of all drugs perhaps.

Jargon

I love the jargon the Intel guys talk. A couple of years ago I heard them talking about "looking at the kinds of outs you're getting from a fab" meaning the kind of chips that are being output by a fabrication process. Their main DVI guy is called Arch Luther, and he uses Pyramid Quantization, which is a "proprietary algorithm". If you get into "ganging chips" you could do things faster. The guy on the team I was with said we weren't interested in an arrangement which would "bind us to certain deliverables," i.e. we didn't plan to ever actually finish anything.

Notes On Developers' Demo

I went to a meeting of computer types sponsored by Tandy for their "Gryphon" CD TV system in the San Jose Fairmont. Notes:

Tasteful. Gold and cream striped wallpaper. Wall chandeliers. A rug with a diagonal grid with florets at the grid intersections. The halls are big, like 30 feet across and high, square in cross-section. We sit in a dim big room with 7 rows of tables with white linen cloths and pitchers of water and dishes of hard candy.

They talked about "focus groups" who talk about what they want. "roll this out to the public." "It's not YUV16, it's YUV8." "You can recognize the Tandy guys by their accents."

A saintly, monkish guy with blue eyes, young working on his laptop with clip-on trackball. The Texas Saint.

Chroma crawl. Eager, let's-get-down-to-it gum-chewing as the speaker says, "You'll be able to get in and fiddle with the bits. We fixed it so you guys can party with the hardware."

Microsoft shows us a windows film of The Leader (gates).

Possible Scenes

Cattle Mutilation

Rudy goes along with Frank Shook to do it.

Chunks To Use

Movie rights

"I've been thinking," said Frank Shook. "We never talked about movie rights."

"Yes we did," I told him. "I said you'd get two percent of domestic print plus all of Finland. *Print* means the printed book only. I'm keeping all of the movie rights."

"Can you at least get the movie guys to promise to hire me on?"

"To play yourself? Nobody wants to see a regular person on the big screen, Frank. I mean they'll get Ralph Fiennes to play you. Did you see *Strange Days* or *The English Patient*?"

"I'd rather have Bill Murray. Did you ever see that one serious movie he did? *The Razor's Edge*. He's a very spiritual guy, actually. I went down and saw him play in the Pro-Am Tournament one time at Pebble Beach. He looks a lot like me. They should use Bill Murray and hire me to be his acting coach. Or consultant. Can you promise they'll hire me as a consultant?"

"Frank, from the little bit I've seen of dealing with Hollywood, it looks like an author has no power at all. They optioned one of my books nearly ten years ago, and I hear they've written three or four scripts, but nobody will show me one. If they won't even show me the script from my book, it's not too likely they're going to be consulting me about who to hire."

"They could save a lot of money if they'd use the aliens for the special effects," mused Ralph. "The only problem is that it always happens in frozen time."

"Could you take a camera with you the next time they abduct you?" I asked him.

"I don't know if they'd let me."

"Well try."

"I don't have a camera. Will you lend me yours?"

"Oh you might lose it or break it. For an excuse. I've got it. I'll get you an disposable Instamatic camera, and we'll see if you can get some pictures with that. How come you never thought of taking pictures before?"

"I don't like photography. I'd rather draw."

On Deck

"Maybe there's something we have that the aliens like. Something we take for granted."

What IS this something?

"All we do with slugs and worms is examine them. We don't show them

things. They're just for science experiments. Maybe that's why all the Mack aliens do is examine people's genitals. Why would the aliens be so interested in our genitals? Because they know that *we're* so interested in them."

"Do they ever *give* you anything."

"Yes, but it's like fairy gold. It dissolves --- melts away."

"I've been with people in hot-tubs and they're high, and they look up at the stars and say, 'I'm open,' and they wait for the aliens to possess them."

"I saw some Mack films at the Noetics Institute. Mack is convincing. He has this skeptical persona. Like 'This is what my patients say they see. I'm just a psychologist.' He had a film of an African who'd been abducted. It was convincing. The man felt shamed. He said he had a bad smell on him when they were done."

"Reality. We've been given such a fabulous gift and we just throw it away."

"Looking outside the kitchen window, I noticed a lopsided pen with four chickens pecking in some straw."

There are now glow-in-the-dark rats. Other things to glow?

What about future transportation?

Bicycles of the future

Mention week-trees?

What are the next aliens like? Cthulhu. Or lobsters. Or sea cucumbers. Mole people with femtotech noses turning the soil into air.

Aug Dogs

Archipelago People, Multiple Bodies (Don't use the Cobb thing)

Simmie Selves (lifebox + sluggie)

Femtoclones and Teleportation

Human Saucerians

Bigger Self, Group Minds

The Unseen, the Astral Plane