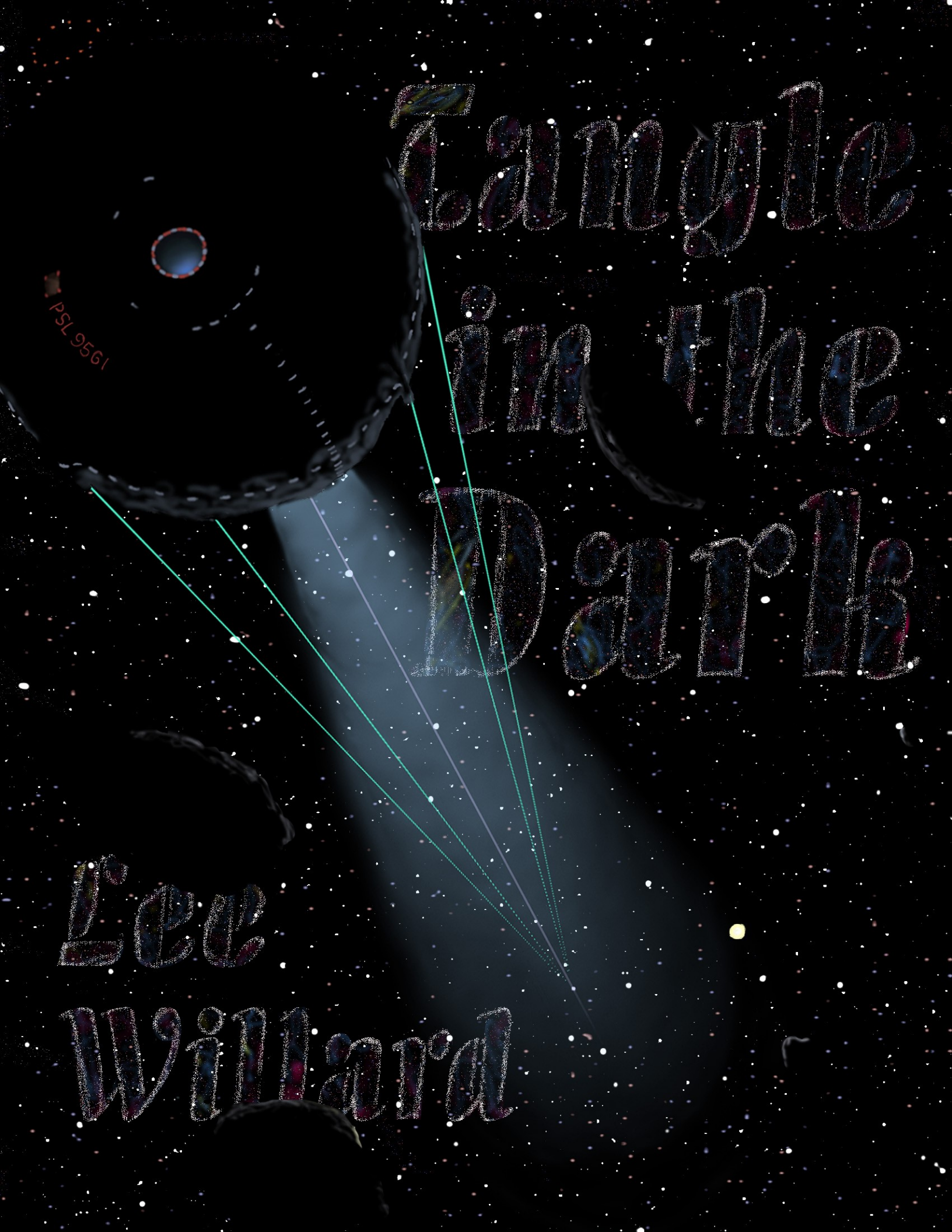


Tangle
in the
Dark

Lee
Willard



Tangle

In

The

Dark

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The fictional world of Kassidor at 61Cygni and the premise that the 'hippy' culture of the 1960's originated there is a creation of Lee Willard.

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This work is dedicated to all the physicists in the world who are gaining the knowledge that inspired these speculations and also to the image-processing software engineers who are developing the software these characters live in.

Background information on the planet Kassidor and other stories by Lee Willard can be found at www.kassidor.com

Cover by Lee Willard.

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Tangle in the Dark

The Christial starship Gordon's Lamp had been away on a failed seedship mission for two hundred and ten years. They left a young nation that was leading Angel civilization into a thriving future. They returned to an Angel nation fighting for survival, its source of souls threatened by the illicit medical advances of the Brazilians, its very survival threatened by a Brazilian doomsday system in deep space.

But as they are braking into the environs of Sol, Thom and Ava detect an even greater threat to their way of life, an enemy determined to win the souls of the dead even if it takes the extermination of all Angels to do so.

Book I.	The Ava Affair	Alan Larkin
Book II.	Signals in the Dark	Thom Husband
Book III.	The Captain's War	Kelvin M'Kintre
Book IV.	Survival of the Species	Ava Bancour

Please note that there are no flesh and blood characters anywhere in this story. It is referred to only as an abstract concept, as a source of souls, as a prize to be defended.

Book I.

The Ava Affair

4:11pm Sat. Nov. 12, 2383

“I wish you didn’t have to do this,” Alan said to Desa's pretty curls and back as she cinched the strap holding the yandrille crate to the cart.

She turned, her face was just as pretty as ever, even in her anger and hurt. “Alan, we’re not going around this again. I got an invite to play in Zhindu, in a major band, I’m not passing this up. You’ve grown attached to the house and don’t want to move.”

“I can’t move, I’m under sentence.”

“You can, you just won’t be able to get back to that Eye again. It’s just like when you threw out the pocket eye on the Lhar. You can get on this cart, leave that desk eye behind and see them when we get back in a decade or two.”

“I can’t do that, you know that, this isn’t a game any more.”

“Alan, yes it is, you’ve simply forgotten that.” She hopped onto the cart and waved to the keda. He was one they knew well because he grazed in their field. Her field actually. They were off. She looked back a couple times but her expression was stern. It was hard for a face that cute to look stern, but she did it.

He was left with the home and the land. The house and land that this cherub had created when he ran her from veron space. The land he argued could be so much more successful if they devoted a little more effort to it. She and Chatuum were of the opinion that if it is successful enough...

‘Are you hungry?’ Chatuum had asked in one of those discussions.

‘No,’ Desa had said rhetorically.

‘Me neither,’ Dara had added.

...so he was now left with the whole three acres and as much time as he wanted to make it as successful as he wanted. And it was even more futile than that, because it was all a simulation, one that he was stuck in. For his crime of faking the data from the second expedition to 61 Cygni, he was sentenced to live in three-d reality in his faked data.

This turn of events could only mean that he was no longer being granted the cheron allocation to run the Desa cherub. It was one of the largest and most autonomous cherubs in the expedition’s cheron banks and there had been a lot of resistance to allowing it to a prisoner under sentence. Ava had helped him with it for the whole forty one years it took to build it, but it seemed like she had not been able to overcome the political pressure, and the magnificent piece of software that was Desa, could no longer find space to run in the cheron space allotted to him. He knew what it was like when you forced a cherub you couldn’t afford to stay. They got slower and jerkier in their movements as the system rendering

degraded. In a sense it would be like torturing her to death.

Little by little the rules of three-d reality seemed to tighten on him. Decades ago he'd been allowed to have his front door anywhere he wandered in his universe, he just couldn't use any magic once he was inside his universe. But since 2319 they had permanently set his door here in the lime-wort reinforced stone of this Dwarf-built barn from the 35th century of the history he imagined. This structure was known as 'Desa's House' to all the cherubs around here. A structure that he might start to think of as his prison cell without Desa here.

At times he thought about going back to his criminal ways. He could hack in the space he needed to run her, he could keep it off the logs if he devoted the effort to it. With the preparations for re-entering the Sol system under way he might even be able to hack her thru into veron space again. She was an even better companion when run from there. But Ava watched what he did now and with his sentence in effect, she would have taps on every outgoing interface his Angel soul had. She would take it up with him before bringing it to the crew when she caught him, back before he figured out how futile it was to try.

Ava was still his friend, in spite of the fact that she was the only one who could really enforce his sentence. She only took what the Captain or Theology demanded, and still continued to train and employ him in the parts of system's work they would allow. Colonel Heymon Kruger of

Engineering wouldn't approve of him doing anything where he had any real control, but he could be employed doing testing and indexing, as long as at least two senior officers could understand his reports.

Ava was his personal friend, in spite of her marriage. She had even participated in the Kassidorian custom of 'sexual variety' while visiting, when Desa hadn't claimed him. Since Desa ran in cheron space, she would always 'find variety' of her own when Ava, Greta or just about any female crew member came over in a reasonably entertaining personification.

He had encounters with other souls, he shouldn't take the loss of a cherub so hard. He shouldn't, but he stood here watching that cart until it was three bends down the path. This was so silly, but he was so stuck here. His universe had to be played out just as it would be in base simulation. He could go back in the house, he didn't have to watch it. But he would still have to duck his head in the five foot, three inch doorway with four stone steps leading down inside it. The hardness of the stone that door was set in and the roughness of it's erosion were simulated in exhaustive detail.

9:09 pm Fri. Jan. 6, 2384

He was allowed to keep what he'd invented during his crime, when he made the data from the study planet into what

he wished it had been. He wished it was the world all the great fantasies came from, not a biodisaster that had eaten his android immobile in eleven local diurnal cycles. In his own universe he was sentenced to the eighty four hour and thirty nine minute cycle of light and dark of the study planet. It was now twenty four weeks by the local calender and number system, eight weeks on Gordon's Lamp, that he'd been without cheron space for Desa.

He couldn't run the Desa cherub any more, but he could still use the music system. He was still sleeping in her bed and keeping her farm in his universe. He couldn't run Desa, but he had been seeing a lot more of Ava lately, the last couple weeks it was almost regularly. He knew an affair with Ava would relieve a lot of the tedium of his sentence, because she made it clear from the very beginning that she was not under sentence of three-d reality in and about his universe, only he was. He was troubled that the affair was illicit. Ava was a lite colonel now and a powerful person on the ship, he could take a very hard fall if she had to save herself.

He wondered if Ava had motives of her own for shortening his cheron space? She had been on his doorstep almost as soon as Desa was out of sight. She had been quite amorous right from the start, but she complained of Thom's distractions to the point of distraction, to the point where he might have preferred to spend the evening with Desa. And that was the problem wasn't it? He was so wrapped up in that creation of his own, that he would pass up an opportunity

with one of the most important officers on the ship to play with a cherub. The fact that she maintained a personification almost as attractive as Desa shouldn't be overlooked.

When it was the light part of his week, he and Ava often met in his universe. Most of what his universe had to offer was available within walking distance of this property except a major city or the threat of a serious carnivore. In his universe the food you ate practically grew itself in your garden and the meat you needed got ensnared in your traps trying to steal it. Your house grew, unless it was a thirty five hundred year old retrofitted stone thing like this one, but even this was planted over with limewort to make up for the erosion of the stone.

The property had a stream with a beach around a keda field they tenanted out, a beautiful view of mountains, perfect weather, but all set on base, three-d reality. It was about the best that three-d reality could provide, but entirely magic-free. In spite of that, it was also free of biting insects, something he would have to contend with if he was sentenced to three-d reality in an Earth biosphere.

But this three-d reality was so real and so locked to the study planet that there were over forty hour stretches of absolute darkness. The natives had a candle or two and a fireplace to relieve it. A moon a quarter the size of Earth's went around the sky once during the dark and again during the light. Alan had put in a methane system at Desa's house. By hand. Ava wasn't afraid to visit his universe during those

hours, but she would much prefer her own. Kortrax was not down in a technical sense, not below the horizon yet, but he was behind the mountain flank Yoonbarla Vale was carved into, and the blue of the sky was slowly deepening.

Ava's universe is a Caribbean Paradise, she was normal enough to have an Earth-normal backdrop, instead of being like him and spending years lost in himself making up a whole biosphere that might have existed before the bio-disaster at the study planet. Ava was allowed magic in her universe, though she rarely used very much, but the sun was in the sky wherever she wanted it to be. She had just called him and told him she was going to the closet. That was her code for her back door. He had her back door key, in his universe he wasn't allowed a back door, so he used her key on the front door, the limewort and stone framed one that's a foot and an inch too short for him at the top of four steep stone steps that are two thirds the length of his foot.

He found their timing was perfect because Ava was just stepping out of the cabana when Alan stepped thru that door and bumped into her from behind. "Uoop," she said, then "Mmm, I like those habits you picked up in your world," when he wrapped his arms around her and caressed her.

He knew she'd set her jugs a bit bigger since they'd started seeing each other, but she was still not what what one would call top heavy. "I guess that means I was self-taught," he said. His brief mortal life had been spent as the only flesh and blood human on the expedition, spawned when life was

first detected, left alone once there was evidence of an existing civilization. They tried raising him with androids, but he was only sixteen when he discovered their control software. That was when the expedition had just discovered the civilization was in ruins.

“So you would tend toward the most primitive instincts,” she said, and roused those instincts.

From this side the inter-universe portal looked like there was just a little cabana of weathered plank out here on these miles of deserted, palm-lined, soft-sand beach. That cabana went thru to both their homes, or anywhere else they cared to go, as long as Ava was driving. By himself he could only get to that stone door on the south path of Yoonbarla Vale. Of course she could turn up the magic level of her universe and make teleportation available to anywhere in her universe and that of any friends who were authorized an equivalent or greater magic level setting in their universes. She hadn't altered most of the data the expedition collected while they were at 61 Cygni, so she was under no punishment regime. In fact she was a direct report to the captain and the Systems Administrator of the whole expedition. “How long do you think you have?” Alan asked as they walked the few steps to the beach.

“A couple hours,” she said, “No need to rush, but here we can be nude.” As she said that, she used a one-sided screen to remove their clothing from the rendering input to the sensory

buses, and it vanished.

“As it was in my world,” Alan still retained the privilege of nudity in his universe, a modicum of privacy from the censors of the church. Though in his universe to get nude one had to physically remove one's clothing by hand as a mortal would, or remove each other's. Ava did have the power to make their clothing vanish in his universe also, but would not reveal that to the crew. Alan knew that because he also had some knowledge of the underpinnings of their universes.

“Why don't we go there?” she asked. She set the background scene to someplace in his universe for a few seconds. It is really different details in the trees, styles in the architecture, a different color to the sunlight. It was somewhere in his universe, which really consisted of a model of just that one planet. The spot she picked was a wilderness, like that at her beach, a river instead of a lagoon, with a very red sun, but then it all dropped back to her world after three seconds.

“Your beaches are as free of biting insects as mine,” he said, “so it doesn't really matter. It's each other that matters, not the scenes we project around us.”

With an arch of an eyebrow and a single finger on an invisible keyboard, she toggled scene generators back to his world for a few more three-quarter-second flashes. He could see a nude couple strolling toward them on the beach by the second flash, but after that she left the universe she rendered alone and said, “That is what is essential about any universe,

without other souls, it is essentially an animated painting.”

They had walked to the water by now, stood together in the warm spume. He caressed her body, but he could tell she was tense and distracted. He pried her back and shoulders for the time being. He could ask what was bothering her, but she would get to it anyway.

“It’s a good thing we’re here where I can say that,” she said. “On Gordon’s Lamp I can be sure we’re free from prying ears. When we get back into the League, I won’t be able to guarantee that and what we were saying sounds too Nihilist for them. They say that feeling comes from overusing magic til we’re bored with it.”

“I wouldn’t know,” he said, but left it at that. She was worried about politics it seems. She spoke with Brigadier Arthur O’Connor, bishop and saint, at least weekly. They had only a year left of decel now and mail took less than four days to Sol and back. In a year they’d be docking in the Kuiper Belt. He already knew that because of the war, they had been diverted to look for the enemy in the Kuiper Belt and possibly take military action; if the doomsday system didn’t stop them. Alan knew Gordon’s Lamp was unarmed and could take no significant action. “I’ve been watching the transmissions,” he said, if she wanted to talk about war news. “The war is not going as well as they expected, Laurentia and Oregon have sided with Brasil so it’s life against Afterlife now.” He knew those nations didn’t mean much because they had no space forces. All they had was more territory to bomb.

“And Talstan?” Ava asked rhetorically. “Mortal Talstan I mean.”

“I know,” he sighed, that news was all over the ship by now. “Mortal Talstan is fighting for the Angels.” They stood together in the sunset. “The sun at that world was real, I think even you have to admit that was prettier than Sol and that obviously has precedent in reality.”

“Thom wouldn’t want to change it. We could put this beach in your universe,” she said and did that, at a spot he had detailed out only a few thousand miles up-river of Trenst. That shore appeared off her shore, the water was obviously the Karedarzin and not the Caribbean. It was dawn there instead of dusk but the air was only a bit cool. It was heavy and close compared to Ava’s world, being over four miles below sea level. “Just because the cherubs are simple cherubs again doesn’t make it any different than here.”

“All the animal life,” he said. “I drew them all and the system took over, those life forms don’t really exist. We never actually retrieved anything bigger than bugs from that planet.”

“Thanks to you,” she said. She was one of the few who defended him when she discovered his crime, but she also didn’t completely forgive him and was still sore that he had put it over on her all those years.

“No, they weren’t there, I drew that their ops attack for the first probe using Megascape and Virtual Meat 4.21. I Paintbrushed the dust myself. There was nothing there we

didn't retrieve." Alan had made what amends he could for his crimes, she said nothing more about it. He was the only one who could understand her own world however, the world of the circuitry that made all of the Afterlife possible. She changed the subject, "Where did the personalities come from?" Ava asked. "I understand how you stole the veron cycles, I just don't understand where you got the souls to use them?"

"I don't either," Alan said, but knew they were real, no simple cherub could design the environment he lived in, or create original music. "I just took those cherubs and closed off their interface panels and set them to run in veron space. It just happened. We don't know how souls form in the first place unless you actually believe the church."

"God will bless a group of neurons in a fetus with a soul," she said, probably her own belief. "Or if you prefer, the being is blessed with its soul when God selects the sperm that will enter the egg." That was Christial doctrine.

How much doctrine she actually believed, he wasn't sure. He probably believed less of it than her. While he was perpetrating his fantasy, he really felt those cherubs had 'come to life' and been imbued by the Creator with a soul. "What if a soul is no more than a property of a group of neurons subjected to stimulus?" Alan asked, "If that's true, a group of verons subjected to stimulus should function as well. Or if it takes an act of God, how would God really know the difference between neurons in flesh and verons in silicon

when they are functionally equivalent?”

“So you are saying any sufficiently large collection of verons will form a consciousness?”

“Or be imbued with a consciousness,” he said, “if we go according to doctrine.”

“I KNOW we are free from censors here,” Ava said. “Once we’re back in the League, all bets are off, but right now all of us are safe in our own universes.”

“Unless there’s someone else like me around,” he said.

“You never invaded anyone’s universe,” she said.

“I never really tried, but someone who put their mind to it...”

“I could feel you,” she said, “I knew there was something going on. That’s how I caught you. That feeling’s gone now. I would know.”

“So we don’t need to worry about church doctrine, but I still don’t know where their souls came from. Maybe I was fooling myself then, I just don’t know.” There were some who claimed writing music could be done by software and none had witnessed anything else she had done, so they could just deny it. “All I know is, you now have a soul and now they do not.” He had to say that, but how sure was he? He had developed a free-running cherub the year before he ‘went to the surface’ using random numbers and a self-preservation filter. It worked pretty well but chewed up a lot of cheron cycles. He told her a little more that she wanted to hear, something that he wasn’t completely sure of himself. “They

may not be under direct control, but now that they're running cherons instead of verons, they obviously are a collection of random numbers and response databases without souls of their own."

"They're very pretty cherubs even so, better than any Morg had."

"Yes, Delos wanted copies, but right now, you're prettier because you do have a soul."

"I've had to work on my personification to keep up with them."

Since she started visiting his universe, she paid particular attention to her personification. The one she used in his universe had a native look to her, a tall and elegant example of the Northern Wood Elf ethnicity. The change was subtle, but effective. "You've done an excellent job," he said about her personification.

"So let's enjoy."

They lay on the sand and talked little after that. He liked the gravity better here. She had it set only a bit more than half of what he did, but he was sentenced to mimic the study planet and that was fourteen percent *higher* than Earth. They used the lighter gravity to advantage and did things he didn't have the strength to do in his home gravity.

"How long can this last?" Alan asked when they lay back down beside each other in the sand, still a little breathless.

Ava's magic setting assured that they never had to clean

up after. “I was just thinking it might be time to stop this,” she said.

His face fell as he was stabbed in the heart. He managed to say, “I will enjoy the memory in that case, but it will forever remain between us alone.” He meant it too. He respected her, though this was hurting him as much as when he had to take Kuthra/Desa off the veron bus. He wondered if he would get his cheron space back when she was thru with him.

“Stop the charade, stop sneaking around. Thom knows I’m seeing someone, he might even know it’s you. I’ve done this before.”

“And broken it off before and he’s taken you back before.” He wasn’t going to allow himself to fall for this. The line, ‘I’m going to leave him,’ had been used before.

“But this time,” she said, “I think it is time I understood that the thing with Thom has gone on long enough. It’s been longer than any mortal marriage ever lasted. We’ve been drifting apart since turn-over, there’s no spark in our life any more. Yeah we still have our annual get-together and still manage to make it look like we’re still doing great, but we’re not.”

“What’s come between you?” he asked. He would no doubt turn into their marriage councilor now. He watched the seagulls picking at flotsam like beach-hoppers did in his universe. The visual rendering was very good, he wondered if his was really as good.

“The church is one,” Ava sighed. “He’s been getting more hard-line as we get closer. Now that we’re only light-weeks out, he’s got several mail conversations going with old friends back there who are involved in the war effort. They’re playing rally-round-the-cross now that the war is going so badly and they’re pulling each other to fundamentalism.”

“I can understand it,” he said, “especially since we’re allied with Talstan. I disagree with a lot of church doctrine but they are our people, the Angels that survive had better stick together. What do we have to come home to without them?”

“You’re right,” she sighed.

“They would get more support if they showed us more of the freedom we are supposedly fighting for.”

“Yeah,” she said, “but groups do tend to be more unified when under external stress. I don’t see too many of the crew interested in much freedom, they seem to want direction, especially with this war. What’s happening aboard Gordon’s Lamp is more evidence for the duress theory of civilization.”

They re-hashed the destruction of New Dallas early in the war when ground-based mortal technology was destroyed. They always agreed that the New Dallas administration was stupid to bomb Brasil so it was safe ground to go over.

“So what is the second thing that’s come between you?” he asked once he recognized the pause. No doubt she was as sick of worrying about the war as he was. Alan felt no great kinship to the League, he felt more kin to his own universe,

even though he knew it was nothing more than a software package in the silicon of Gordon's Lamp. They probably shouldn't have let him keep it.

"These observations he's been working on," Ava answered his question. "He's made some condensate and exposed it to the tangler beam. He claims he's got it entangled with condensates in some of the iceballs we're passing."

"So he diverted the tangler beam?" Alan asked. It was an important component of the bussard scoop. Alan hoped he had approval from Engineering.

"No, we're always irradiating bodies too massive to collect. They don't divert, but they have been exposed to paired photons."

"Yeah?" Alan asked. He could see that, he could even believe there was naturally occurring condensate in the hearts of some of those iceballs. There were many atoms in all of them that had given up their last quantum of heat.

"Anyway, he thinks he's found signals in those condensates. He says there are way too many state changes. He's trying to come up with a theory of how a naturally occurring condensate could radiate this much information."

"How much is it?" Alan wondered.

"He's talking multi-layer quantum computing, condensed entangled magnons and stuff like that."

Alan had reached his limit in theoretical physics with this discussion, and answered, "OK?"

"Well, he seems to think that two thirds of the information

transfer in the galaxy is happening out here in the dark matter.”

"There once was a theory that most of the mass of the galaxy would be converted to computing engines, computronium I think it was called."

"That was part of the singularity theory and it was supposed to be human circuitry that would do it."

Alan laughed at that part of it, in reality, as humans became unable to understand their technology, progress slowed to the speed of natural selection. He didn't need to tell her that, but said. "He sounds like he's saying he found it."

"I guess he thinks he has."

7:15pm Wed. Jan. 11, 2384

If he didn't see anyone for awhile it was too easy to get on the schedule of his own universe, so it was nice when the times lined up. This let him get off of work when there were cooks out for noonmeal in his local area. He grabbed enough parberry from his garden to trade for the meal. He was so firmly sentenced to three-d reality that he had to do that or even his scenery cherubs wouldn't trade with him.

He was pretty sure Tellow was actually one of the crewmen playing in his universe. He couldn't really tell who he was, but he had some suspicions. He was careful to stay in character with him, but because he was probably run by a real

soul, he was much more interesting to talk to than a regular cherub.

Quite a few of the crew members that came to his universe didn't want that fact to be public knowledge. Almost all of them used their magic to visit parts of his universe thousands of miles from him, and hopefully each other. They were able to bring their own cheron allotments with them, and use them to run cherubs stylized as the inhabitants of Alan's universe. There were probably some who ran Desa often in the clubs of the city and he knew she would never remain celibate. That burned him, because they wouldn't have this universe to play in if it wasn't for him.

He still had cheron allotments enough to support any casual encounters he wanted to have and knew enough about the logging system to prevent the remainder of the expedition from finding out how much use he made of that. He knew Colonel Kruger and Morgan Evans made the most use of his cherubs, but Morg was at least open about it and they sometimes played with them together in this village and used both bedrooms in his, actually Desa's, house.

By the time of Noonmeal it was pleasantly summery this Venurat and Tellow was there, set up under a dense wild archwood between the public path and this bend in the brook. There's a rope bridge across the brook here that connects to a path that goes between a few plots on this bend of the brook, before getting to the rim walk that Desa's house is on. He used that about half the time, used the kayak or waded to get

here the rest of the time. It's a bend and a half down the brook from her place and takes ten minutes any way you go. Late summer noonmeal was a great time for a wade on the way back.

“So; you get your eyework done?” Tellow asked as Alan leaned up on his counter. This was how he knew Tellow was really a crewman. A native Kassidorian would never suspect anyone in this neighborhood would have a personal data connection when the public room in Hazorpean was only a day's stroll from here.

“Yep, finished up a little ahead of schedule,” Alan said. “So who caught what that's tasty?”

“Mordain caught an axio,” He held it down with a forked stick while lifting the lid of the basket to show him. His big forearms knotted with the effort of keeping it pinned. It was a nice big axio, a light blue-grey in color, with twenty four little legs that were three quarters claw and six developed eyes, all with evil stares. “I'm waiting for enough folks to show up to cleave him. He'll still be good this dusk, and maybe not quite so feisty.”

“You'll have to give him water, but yeah I see what you mean. You could loose a little blood, butchering him right now if you weren't skilled.”

“I wouldn't want any of it to be wasted,” Tellow said, “And I want an iron for him, or I'll try my luck with duskmeal.”

“You'll get your iron for him,” Alan said, “as well as this

parberry." He could take enough iron home in his pockets, by accident, from duty he had to stand in other universes, to spend it freely here, even without magic. Whoever Tellow really was, he couldn't lodge a complaint about that. This was still Alan's universe and even under sentence he still had some rights. "I still wouldn't want any of it to go to waste. I couldn't get down more than three chops out of that beastie."

"What you gonna do with the hide?" Alan asked, to see if this person really thought about conservation.

"I can get almost another iron for that in the city," Tellow said, meaning Hazorpean.

That made Alan even more sure he was a crewman. A native Kassidorian would have talked about so and so needs a coat or using it as part of a new night quilt. There were certain members of the crew who wouldn't be able to resist the next hook Alan threw. "So what does scripture tell you about a noon like this?"

"I don't read much sacred writing," Tellow said, "So I don't know, I suppose it depends on which one. In any holy week, it's usually the duskmeal that's most sacred ain't it?" He recited the right lines, but he didn't look at Alan like he was speaking Mythra. He was just ready for that tack. Whoever he is, he had studied the culture of this land.

"I'm sorry, I meant to say literature," Alan said.

"What's special about noonmeal?"

"It's usually the celebration of the work is done isn't it?" Most of the locals did their garden work on Morningday,

hung out on Afternoonday and partied on Nightday.

“You know I cook twice a week,” Tellow said.

“What happens when I’m not here?” Alan asked, wondering if this crewman came to play here without him.

“It seems the women are raunchier when you’re not around.”

That was probably an admission of being a soul that might stand up in court. “That makes me feel great,” Alan said sarcastically.

“It’s because you’re too easy, you just take the first one who comes onto you and don’t make them work for it. Most guys demand a feel or a show or both.”

“We all know each other here. If she came in saying she’s got something new to show or feel, that might make some sense, but we’ve all seen every square inch of skin within miles of here.” Should he talk about they were only animated dolls? Should he talk about their entertainment settings? Some in the church are offended by such talk, for some it is their main interest in life. Tellow had never actually strayed outside the bounds of a casual cherub cook so Alan really had to stay in character.

Tengine and D’mark strolled up to his rail. Tengine was really Light Major Imogene Tengine, the mechanic's stores administrator. She was in a personification she never used anywhere but his universe, and swore him to secrecy about her identity. Alan was *pretty* sure D’mark was her cherub but now and then he said something that made him question that.

Tengine's rank and education didn't allow her the magic to put herself anywhere in his universe that she wanted, but she could catch a tourist coach for Hazorpean from the end of this main street. He did not know if she recognized Tellow as a fellow crewman, for all Alan knew they could be conversing on a side channel outside their current personification.

“So you've all met?” Tellow asked.

“Oh yeah,” Tengine said, “I moved into the place eight houses up the third path on the other side of the coach road.” That was outside the Vale and an excuse for not being here all the time. Actually, with her magic permissions and Alan's sentence, Major Tengine had to dial his front door and then walk the path from there, but she probably didn't have time to play here more than a few times a month, and if she was using this personification he wouldn't send her down the path that often.

Alan would have liked to pull up a little one-sided diagnostic screen and see who these players really were, but in his universe he was denied all data connection but that crystal ball on his desk.

“And D'mark?” Tellow asked.

“Has been staying with me since then,” Tengine said.

No doubt Tellow, whoever he was, could see thru all of this without difficulty. Using her last name as her name was no disguise. Her local personification was somewhat scandalous by the standards of Gordon's Lamp but she never came in that to a business meeting. This personification and

her official one were as unlike as the species boundary allowed. “Ah, so you’re not on the prowl this evening?” Tellow said.

“Depends,” she said, “now that I see Alan is here I might have to change my mind.”

You would never know it from her persona on Gordon’s Lamp, but Imogene had gotten into the spirit of his fantasy with a vengeance and used her wild native body on him in ways that he wished she wouldn’t let Tellow report on. Alan figured it was just because she was recently divorced. He didn’t want Ava seeing it however, even if Ava thought this was the toy cherub she appeared to be.

“I think Alan might already be taken this evening,” Tellow said, “from the way he’s looking at you.”

“I assure you I am not,” Alan said, knowing that Tellow was saying more to Alan than to Major Tengine. He wasn’t sure, but he was afraid Tellow might have seen Ava here.

“I’m just thinking about D’mark,” Alan said, too hot with denial, and knowing it was his lack of access to his med panel that was letting his stress hormones betray him.

“Oh we agreed on noonmeal and didn’t say anything about Noonsleep,” D’mark said, “but I assure you she can empty both of us completely.”

Tengine flashed him a very mischievous smile as he said that.

Alan could figure out where this was going.

After noonmeal Imogene prattled about the things the three of them were going to do all the way back to Desa's house. She made him wish he hadn't set the sexual standards of his universe the way he had. Her personification was enhanced to the limits of this universe's advanced biological science in three-d reality.

"I hope you remember not to tell anyone about my visits."

"You didn't know Tellow was a crewman?"

"That cook? I thought he was one of your cherubs."

"He's none I've got a panel for," Alan said. "I don't know who's behind him either."

"Oh great," Imogene said, the surprise causing her to revert to her duty-hours personification. The contrast was just too great and Alan involuntarily recoiled like he was suddenly walking with a dead hyena, but in less than a second she pulled herself together and re-generated the personification she was using here.

They were at the door to Desa's house by now. He opened it and ducked in, they followed. As soon as he came inside, he saw there was a message on his eye. He went to it quickly, saw it was from Ava. He quickly deleted it as Imogene and her cherub looked around the room. They looked to him as he finished.

He grinned, "Listen, make yourselves comfortable, I have to step out just for a minute," Alan lied. "I just have to remind someone that I'm off duty right now."

"Duty shift ended hours ago," Imogene said.

Alan, said, “yes I know,” as he went back up the steps. “Help yourself to that cask of gold I’ve got going,” he said, using his body to keep them from seeing the coordinates in diagnostic space he was keying in on the carvings of the doorframe. Then he popped thru the door and left them.

Ava turned, “What the!... oh it’s you. You shouldn’t come in here, I can be right over.”

“I got your message,” Alan said, “and I had to delete it, there is someone there.”

Ava immediately put thru a diagnostic tap into the scene generator that fed his universe before he could say anything more. “You’re going to tell me I can’t come over because you’re playing with a cherub?”

“That’s no cherub.”

“Sure looks like one, she looks more extreme than you usually set them.” But as she said that she pulled up its execution profile and saw this personification was indeed running in veron space. “How dare you try that again!”

“Ava, she doesn’t want the crew to know she plays here,” Alan said.

It was too late, Ava already had her account info up. “Humm, well, she certainly changed her decor,” Ava said, seeing who it was. The standard personnel file usually contained a nude representation of the crew member’s standard personification. “Light Major Imogene Tengine.”

“She doesn’t want anyone to know.”

“But at least she’s legal,” Ava said. “Lose her.”

“Major Tengine is in the process of raping me,” Alan said, “and might be rather hard to lose at the moment. And just to let you know, there’s been someone in the crew pretending to be a cook in my universe. I don’t know who it is, but I think he knows.”

“I’ll find out who that is,” Ava said. “What name does he use?”

“Tellow.”

“Good, I’ll track him down. And don’t you *dare* have too much fun with Major Tendine.”

“Even she can make things difficult for me,” Alan said. Ava gave him an evil grin but didn’t say anything. She was going to wait til Alan was gone to look up Tellow. “I’m sorry, I’d much rather be with you...”

“Go, I understand, we can’t stand a scandal. I know just what you mean and thanks for the warning.”

But he was very worried that this was going to be the end of their relationship.

Alan went back to Desa’s and tried very hard not to have too much fun with Imogene, but even in a virtual universe stuck in three-d reality, yaag and booze can take you places you wouldn’t have gone. He knew Ava could put in a diagnostic tap to see, hear, smell and taste everything each of them did. At least Ava could turn the diagnostic tap off when she’d had enough, he was sentenced to three-d reality and didn’t have that option.

“It’s just a nice old-fashioned office lunch,” Alan said a week later, hoping her jealousy over Imogene had run its course.

“But this isn’t a nice old fashioned office.” They were in the midst of the plumbing that provides the perfect magic that Angels all take for granted. “I gave you this address for emergency use only.”

He had come into her laboratory, a zero-gee mass of gauges and read-outs representing all the buses and diagnostic taps in Gordon's Lamp's systems. “It’s not like driving the ship, can’t you take a few minutes off?” he asked.

“Shall we go to some public place also?”

“I’d like to take you to lunch in a little place above a secondary channel of the Karedarzin in Trenst. It’s just about dusk there and they’ll be an acoustic trio doing some lazy twisty-whistle and loose-drum swamp tunes, they’ve got a crooner and three guys groaning. It’s very public, but no one there will be getting back to anyone here, and none of them will be very interested in us. We’ll be just another pair of tourist lovers to them, they’ll smile and wink and not say much more.” He needed her to over-ride his magic limitations to get there, the cultural event was designed to tease her. By commercial transportation in his universe, it would take at least an Earth year to get there.

“Sounds very romantic,” she said. She had overridden his

strictures before, it wasn't an issue for her. "To what do I owe the honor?"

"I'd like to continue a discussion we started last week."

"Which one as that?" She swam out of the control room. That opened to her gathering room next to the kitchen where there was a full length mirror. She examined her personification to see if she wanted to make any adjustments before leaving home.

Her front door would now open onto that side street that was just a plankwalk where they were going. He thanked her for the magic with his hands, but with his mouth said, "The one where you said the charade can't keep going on."

"Ah," she knew that had been interrupted.

In the region of his universe where they were going, women generally wore only wrapskirts of clingy lame. She flashed into one, lifted her breasts a little and darkened her nipples.

"Shall I go as far as the Major?" she gibed.

"Please don't," he said, "and please don't start acting like her."

"She gets what she wants."

"And you don't?" Alan asked.

"I think I want more than a dalliance."

She had been to his second largest city before. She adjusted her size to the native standard. She presented herself as six foot one among the crew, but five-four would not stand

out in a Trenst crowd and would even out the gravity some. He was sentenced, blah, blah, blah as you well know, stuck at five ten where he towered above the crowd. People in Trenst look especially young so he felt a little like he was at a junior high event.

Her front door now fronted on two massive tree-trunks with a door between them, across a plank-walk street. There were floors with railings above, from which pretty young people waved to them. This was a busy street on the back side of Pamule Island in The Ring. He could design out this place in his universe user interface, but without Ava's help he could not get his personification here in less than a year. Earth year, in his universe the year was stuck at the sixty four and something days of the study planet back at 61 Cygni. Part of his sentence was, he didn't have access rights to change it.

“This culture's finest division of time is before lunch, after lunch and evening,” Alan said as they crossed the street and entered between those trunks. Actually that was true only of the masses, the professionals wore bionic digital watches on their fingers.

The door entered the front end of the dining room. The stage was on the balcony at the far end, the performers were background music for most of the length of the dining room. Beyond them and down some steps was a little wooden dock on lon-choked water with their gear-raft tied up. Because it was his universe, he was the owner's boyhood friend and everyone on the serving staff knew him personally from 'the

old days'.

It might be lunch on Earth in Ava's universe, but it was the beginning of duskmeal in far-away Trenst, from the day before. There was a warm up act announcing their last song. "I really should be back in an hour and I can't get buzzed on yaag right now."

Alan only raised an eyebrow. She was always the first to order a cup, but he didn't say anything. "We can be done in an hour. We buy the plate here, the food is practically free. They give us more than half back for the dirty plate." They were just getting to the short line at the serving counter.

"I've been in Trenst before, and you wouldn't have been if it wasn't for me. She flashed him back to his room at Desa's in the middle of Noonsleep for a few time slices a couple times just to rub it in his face.

"I know, and I thank you, but how's life with Thom?"

"What Thom?" she said. "The one who's trying to convince the captain that his work has military significance? He's in his lab, I'm in mine. It's the same door in our house, but it leads to different places for each of us. It's because I'm System Administrator and he's a knob-turner in Signals. He's in there most of the time. It's not like I can't get in there with him. I do, I try pretty hard I think, I'm still trying, but I've talked more with you on the way here than I have with him lately."

They reached the counter where a big guy was slicing karga loaf onto coarse bread and taking a tenner for the both

of them. Prices are higher in the Ring. They had to visit other tables for their fruits and vegetables. Almost all are eaten raw in Trenst unless you go to an ethnic place. They have hundreds of kinds of fruit however and Alan always tried a new one each time he was here. He never knew how the flavor algorithm he came up with over a hundred years ago could generate so many different variations. He didn't remember how he coded it and could no longer find the source.

“But what is he finding?” Alan asked once they were out of the line and searching for a table.

“He’s found that an entangled state change cannot be transmitted without a bit of information to convey. He’s theorizing that these condensate quantum computers cannot function without information to convey. They carry no mass or energy, only information, quantum information that can neither be created nor destroyed. He’s finding more and more atomic states in use for information transfer. He doesn’t believe they are bound by the speed of light.”

“But is he on to something or delusional?” Alan asked. “I thought that translight information transfer was proven false in the microprocessor age?”

“Oh we haven’t got to the delusional part yet,” Ava said.

They found a table overlooking the purpling waters of a Karedarzin bayou. The busy traffic of the harbor was on the other side of the island, their table overlooked a little slough of lon with quite a bit of plank-up a few hundred feet away in

the trees of the far shore. “What’s that?” he asked about the delusions as he slid into a chair against the rail.

“Please, I don’t want to be a tattler. Please wait til after the hearing,” Ava said.

“What hearing?”

“The captain wants a presentation from him on his signals, the captain wants to know how it will effect the war effort.”

“The war effort?” Alan questioned.

“You’ll see for yourself at that hearing.”

He would get nothing more from her on that for the remainder of the meal. He grew more and more sure she had watched every move he and Imogene made because she began to repeat some of the actions. Still, here in this dining room with the most stylish folks in Trenst all around them, they could not repeat many of the actions he and Imogene took that sleep, but she could repeat enough for him to get the message.

After the food, she settled back against the rail with a cup of something as dark as the time of the week here in Trenst, not the lunch hour it was in the duty section of Gordon’s Lamp. She was really making the most of his arm, the styles of Trenst, and the more pronounced setting on her breast for this trip.

“You sure you only have an hour?” he asked, because he was going to want to find a room if they did much more of

this.

“Oh you’re right!” she said and pulled a pocket eye out of her wrist-bag. She looked at it, went “Huhhhh!” and blinked out of existence.

He was left there in that perfect three-d reality. Late in the dusk of a sultry evening along the Karedarzin. Their plates sat in front of him along with two nearly full house cups of green. The deposit on them was his whole net worth right now wasn’t it? He had forty four in Hazorpean pennies on him. Within a twenty minute walk of here someone might have an atlas on which Hazorpean would show. That was only because this was the heart of the swamp city of Trenst. You might have to go thru twelve miles of questionable swamp/city without benefit of a torn scrap of reading material between here and the shore. Here in the Ring it was up to seventy stories of city. This was the back side of one of the islands in the Ring. It was only six or ten stories of grown housing above the story or two of commercial along the waterfront here. One could get a kayak thru the lon on this water. It was starting to get pretty dark now. Most people remaining were moving down toward the band.

He turned in the plates and one of the cups by pouring them together and chugging what didn't fit. He had an iron and twelve in his pouch now. And forty four pennies that were worthless for at least twelve thousand miles. He had no special skill in Trenst, but he’d be able to find work. He might

even be able to stay in this neighborhood. He might save up for a home some day.

He'd orbited the planet for so many years, he knew where he was on the model and he knew the model would enforce every mile of that distance. He'd be within spitting distance of home once he got to Zhlindu, only a local year to go. The Tduun pass and sea were both dangerous crossings, and he'd have to work his way. Borlunth wasn't reputed to be all sweetness and light either, that was only a year away, once you got past the swamp. Then again, he never really needed to leave this island, several million people had lived here all their lives.

He drifted down toward the band also, stunned at what had happened to him. What would Ava do when she realized she'd left him? She should have popped right back to get him, but it was at least an hour now. The music was pretty drifty and she'd left him with quite a bit of her cup, as well as his own. He wasn't about to let it go to waste. There was quite a crowd and nowhere to sit. He was swaying back and forth with the music. He might as well not bother worrying about his situation until the show was over and he came down off this buzz.

It was a pretty decent looking girl that asked him, "Can we lean on each other?" She was darker and more rounded than Tengine, but still as maxed as anyone ever set a cherub. She was a bit more muscular than he liked in a woman but nowhere near someone to say 'no' to. Her face was nothing

special but she sported a major pair.

“Why of course,” he said and let his arm go around her. He didn’t remember actually setting up this cherub, she certainly wasn’t set to his defaults, but he’d go ahead and play with her anyway. He had nothing better to do til he came down from the yaag and she was quite well built, his hand was already enjoying the curve of her hip and the play of her muscles as she swayed to the music.

She came in close, as these cherubs are programmed to do, pressing her curves against his side and grabbing his ass also. It was nice play and everyone did it, most people got most of their sexual relief from cherubs. “You’re not from around here are you?” she asked.

“How do you know?” he asked in response. That line was in one of the databases.

“Your skin isn’t as smooth as we keep it in Trenst,” she said. That line wasn’t in one of the databases he’d set up. The usual reply was to say something about his height or coloring.

Of course lately he was keeping his personification more like a resident of his universe and less like a mortal from Earth, and he was five ten instead of six two like his mortal body had been stuck with. No doubt someone would pass a law that he was sentenced to that again, but for now he would enjoy meshing with the native women. Because her response was unexpected, he almost didn’t know what to say in response, “Everyone does look so young here.” She should have no response for that.

“But we’re not,” she said, “We’re all ages, just like anywhere, we just have geneticists very good at skin is all.”

“Where are you from?” he asked.

“I’ve got a place in East Danger Beard,” she said, naming a neighborhood of the city a week’s paddle away, “but I’m staying in the Ring this year. And you?”

“I’m from Wescarp, you’ve probably never heard of it.”

“What basin?” she asked.

“Zhlindu,” he replied.

“I’ve heard of that,” she said, “but never been there. How did you get here? It must have taken you years.”

“Yeah, it was quite a trip,” he tried to sound exhausted from it.

“Why’d you come all this way?” she asked.

“I was with someone.”

“Oh? Didn’t work out?”

“Let’s just say she vanished from my life,” Alan said.

She laughed a bit and squeezed him a little tighter. “I know what you mean,” she said, “I’ve had relationships like that myself. What do you think ended it?”

He felt like saying, ‘you’re awfully inquisitive for a cherub,’ but then their default programming was to get a guy to talk about himself. “It was her work I think,” he said as musingly as he could. “She’s deep into Yingolian crystals and just couldn’t spare the time.”

“Where’s she working now?” the girl asked.

“She’s got a pocket eye and can work from anywhere, but

I'd guess she's still at her office?"

"Where's that?"

"Her job is confidential, I don't even know where it is. I might even be a security risk for her, that might be part of the reason she's gone."

"Do you have a past?" she asked.

"Nothing big enough to hear about all the way over here. I did a little network tinkering back in Wescarp that made a company committee unhappy." It was close enough to the truth for the amount of detail.

"Yeah? can you tap me in?"

"If you've got a device?" Alan responded.

"Uuuh."

"If you've got a device it will connect automatically," Alan told her, "either broadband or fiber."

"I'm about fourteen irons short of a device."

Meaning she possessed two or three irons. "I had one, back there. It's probably still on my desk and probably pretty dusty by now," pretending it was years instead of a hundred eighteen minutes since he was last at his desk. This cherub might be sent by someone else letting a cherub free-run. Alan thought about following the time accounting on this cherub and seeing where that went, but if he got caught doing that it could be even worse for him, and he knew Ava had all the remote-hosted cherubs trapped, all the way to their grant lines.

The other thing he should think about is; this could be

Ava's cherub testing how committed he is to her. He noticed that he was going after her pretty heavy and getting a lot of response. He pulled back, but she turned in his arms to put his upper arm across her chest and he was suddenly very conscious of the fact that women are topless in Trenst. He was very conscious that she was full and very eager with her points. "Want a little cuddling?" she asked.

That would mean here and now. "I don't think this house wants me raising one for you here."

"You can't keep it down?" she asked.

"Not if I was petting you out on this dance floor."

"We're not actually on the *dance* floor, it's the same surface I guess but we're deep in the 'standing room only' here."

"This is about as dance as I do," Alan said, "until we're in the bedroom."

"Ah," she said. "And me, I'm not going to carry these around without enjoying them."

That meant she was going to leave if he didn't work her jugs. He would have to make her hide his condition. "So just stand in front of me and don't work it too hard."

"I'll try not to," she said, like she already knew she couldn't resist. He stood behind her and kneaded her. She leaned into it and shuffled him deeper into the crowd until they were on the edge of the dance floor. It was two songs before she said anything and that was, "Pinch me gently in time with this next part here."

He really hoped it wasn't Ava who sent this cherub because he did what she asked. Ava wouldn't have set even a cherub to do that here in the dance floor, so it had to be one of the guys in the office. He wondered if it was Thom. If Thom knew about him and Ava, he might very well have programmed this cherub. He might even be driving it. Alan was ridiculously embarrassed by that thought, and got beet red since he had no med panel access to get his blushing under control.

Whoever sent that cherub, he played with it for all it was worth and wound up high on a tower far above the city for Dusksleep. They could see across the back of the island on one side, on the other they were on the edge of the vertical jungle of the Ring.

He couldn't call up her control panel, but she was as ready for any thing, any way, any time as all the major sex toy brands on the market. Not only that, but when he was completely used up, she was warm to sleep with.

She went thru the ritual of breakfast like she really was a girl trying to make ends meet on a tower in Trenst. She lived on the thirty seventh floor but kindled a little wood fire in a tiny ceramic stove to cook. She took ingredients from big crockery jars and mixed them with a few potions from bottles on the shelf above. The pan she used was made of smoked glass with a handle wrapped in many layers of leather strap pulled very tightly. The stuff looked like fried vomit, but it

tasted great.

Before she started her Nightday she wanted to sit and pet once more. The jungle of the city was very steamy this dark and the thirty seventh floor is nowhere near the top of this structure, but it is high enough that neighboring islands can be seen as ghostly green light under the fronds. The plenitude of lanterns said it was Nightday. He was now late for duty.

He had to start thinking about that. His connection to the expedition was an Earth year away. He could remain with this cherub as long as he wanted to play with it. If it was run by someone of the expedition, they might even step in to animate its personification from veron space when they had the time. It came with quite a nice residence, but he liked the home in the Vale better.

He wondered what would happen when he came up missing? He imagined the captain would call Ava in to track him down. She would probably lead them to all the places he could have gotten to by now. He wondered if she would be called to explain why she couldn't find him. 'It's a big world he's got, he could have run to a floater and gotten past us. He could have altered his personification and be hiding among the cherubs.' He hoped she wasn't called to task about it.

"You never got my name," the cherub said. That was standard cherub speak for 'I can see you're growing bored with me, so if you want to call up these settings again...' "It's Yellelle," she said, pronounced as three syllables with rolled l's. It was a name he'd never used in his universe before.

He wanted to ask her what language that was from but that would be out of character. “Very nice,” he said. It was time to go, where was he going to go? What would happen if he asked to stay here? He would soon discover the limits of this cherub’s programming is what would happen. Did he have any choice but to begin the journey back to Desa’s house? Not really. He should get up, but this cherub sure was fun to do finger workouts on. He settled back and did some more of that. If it's going to take an Earth year, what's a few more minutes. He even started thinking of getting one more orgasm out of this cherub when he heard footsteps.

“Alan, let’s go,” Ava said from behind them.

He jumped up and turned around. She also got up and turned around. Neither of them had gotten dressed, early Nightday was seldom cold in Trenst. “You’re back!” Alan shouted, losing his hard.

“Who is this?” the cherub asked. Someone had been thorough. The cherub’s normal reaction is to play the lover caught by the wife in a situation like this and protest that ‘they hadn’t done anything.’ Instead the cherub said a very un-cherub-like “And how did you get in here? That door’s still bolted.”

Ava didn’t care if her behavior was un-cherub-like or not and ignored her as she did most cherubs. “But you’re not! Why’d you go off and hide? Do you know how much diagnostic work I had to do to find you? It took me the whole damn night to find you, and when I find you, where do I find

you? Holed up with a cherub slut!”

“You left me a year from contact!” Alan yelled back. He wanted to call her a liar because she could have found him in the grant list in a matter of minutes. She'd probably forgotten she'd left him here til he was reported AWOL. But this cherub might have someone behind it and Ava trusted him with that knowledge whether or not they were lovers. She was probably only saying that to cover herself.

“I ain't no Cherub!” Yellelle yelled.

Ava turned her attention squarely on her. Alan knew she turned a lot of diagnostic taps on her also because he could see her fingers moving on invisible keyboards while she looked thru Yellelle at invisible screens. Ava was afraid of no one on the crew, not even Glayet or the captain himself. “Then who are you?” Ava asked, with steeled pleasantness.

“None of your business,” Yellelle said, and winked out of existence.

“You insolent bitch!” Ava yelled at the empty space Yellelle's personification had occupied the previous time slice. She threw her invisible screen down in frustration and dragged him back to duty.

9:44pm Fri. Jan. 20, 2384

It was a cinch he wasn't going to see Ava this week. It was well into dusksleep here in Yoonbarla Vale. He hadn't

gone to the off-duty lounge, he knew who hung out there and the cherubs of Yoonbarla Vale were lots more fun and sometimes provided more stimulating conversation. At least the cherubs had something to talk about besides ship politics. He hadn't gone to see either one this evening. He could always summon a cherub up, he kept a few in the houses within shouting range, but it was more fun to pretend they had some autonomy.

There were seven single women on the crew and only one personified herself very attractively during duty hours, and she wasn't really single. She was openly cohabiting the space of Morgan Evans and causing the church to grumble. The others were usually insufferable. He hadn't found Ava to be the only case of marital infidelity on Gordon's Lamp and he still kept the others confidential. He might have to try and see one again.

He couldn't blame Ava for laying low. Any one of the cherubs around them could be plants. Tellow was still around. That could either mean he didn't know the affair with Ava was off, or it could be that he was remaining in character in case Alan was going to slip up later and talk about it, or he could be just what he thought, a parole officer.

He didn't hurt any less than any of the previous affairs with married women. He probably hurt more. He didn't want to say that because he always thinks this one is the worst hurt. He wouldn't put it past Greta Barnes or even Colonel Samrova to set up that cherub for him. He wouldn't put it past

Greta to drive it. He couldn't bear the thought of Colonel Samrova driving it, he wouldn't let his mind go there. Then there's the chance that Thom did it. He didn't know what to think if that had happened. He knew he was in over his head trying to figure this out.

All he knew was Ava came back for him and she was lost because of a tricked-out cherub. He knew that if she wasn't the one who put him twelve thousand miles across three-d reality from his home, she would have prosecuted him for violating his sentence. She threatened to do that anyway as she brought him back home. That was the last he'd seen of her.

A very stupid move on his part. He would go from boinking a direct report to the captain, back to prisoner under sentence. He had to admit, his sentence had been a lot lighter once he started seeing Ava. No doubt his sentence was going to be enforced with zeal now and he would be forced to do work on the sewage system of Desa's house.

It wasn't that late, for a Friday night. He would have to light the lantern to run his desk-eye, but that was his only contact with any other universe. He found a message, strangely, it was from Yellelle. No cherub had the initiative to send mail on it's own, so someone was definitely running her.

-Hi,

It will probably be a long time til you get this, if ever, because the only address I could find for you was in Wescarp. If you get this, I hope you remember the fun we had. I wish it could continue. I hope your journey went well.

Yellelle-

Two can play at this game he thought, and composed a reply. It was possible whoever was playing this didn't know that he would know immediately someone had to be behind that cherub. Ava knew how to track where it really went. Alan didn't, especially from here. But he might find out where it went in other ways.

-Dear Yellelle,

It took me much less time to get home than I thought. It was like magic, four days and I was home. I thought it would take four days just to get out of Trenst.

I had a wonderful time that Dusksleep and would be delighted to repeat it any time you're in the Wescarp area.

Love, Alan -

What was he getting into here, a mail affair with a secret admirer's cherub? Who would that message actually route to? If he ever saw Ava again, he would try and convince her to find out.

There was nothing else new to bother with. He could stare at war news for hours if he wanted, it was only days old now. The rate of loss was such that there might be no outpost of the League or any other simulate station by the time they docked at Sol. He chose not to lose himself in that. He took the lantern down from the reflector and turned it down. It wasn't cold enough to light the fire, but he would have to put the mats down. Here it was birds that were attracted to the light, some of them big enough to hurt when they flew into you. That took a few minutes, before he was done there was a voice at the door. He recognized it.

“Hi,” Yellelle said. “It must be magic, all I had to do was dial up your address on my door and it took me here.”

That pretty much confirmed that this personification was actually being run by a soul, or did someone cycle it thru and program it to say that? “Wow?” was all he could say. Even more he wished he knew who this was. Greta was his best guess. If this was her alter ego, she sure was altered. She was in a tight and shiny blue dress today, custom-weave fitted to her exact shape. He couldn't imagine Greta doing this. Maybe Mrs. Rendellyn. The second bishop's wife was said by some

to have repressions needing to be freed. He hadn't dared free any of them, but if this was her incognito, he would grind her once again, especially in this body.

He would have been much happier with Ava, not just for her status but because they could talk about so much. They were the only ones who knew they were really the first and second most powerful people on the expedition. They were the only ones who knew how it really worked. He was the only one who knew that all Ava really had to do to track him down was find his veron accounting handle and cross it with his sensory stream source to find the address he was really at. Whoever this was could be a fun romp and might actually have something to talk about if she wasn't pretending to be a cherub any more. But if she brought up church doctrine or mission politics, Alan would push her personification out that Dwarven stone door physically, monumental hooters and all.

No, she wanted to talk about Thom's signals and speculate wildly about them. "Have you heard about the signals Major Husband's been discovering?" was her first question.

"Yes," Alan said. "I've been following them almost as much as the war," he admitted truthfully. It was senseless to ask who she was, if she was going to reveal her identity she wouldn't have come in this personification. She would remain Yellelle, but he was going to have to be careful what he said.

"So what do you think they mean?" she asked.

“What does the light given off by a star mean?” Alan said. He could speculate with Ava a lot more freely than some unknown member of the crew.

“I heard there’s data in it?” she asked.

“There’s lots of data in the light given off by a star. We can learn it’s temperature and chemical composition, magnetic state, all kinds of things. I imagine we’ll find out a lot more about condensates and superconductivity as we study these signals.”

“Intelligent data,” she said.

This was the first Alan had heard of that. He wondered if that was what Ava wanted him to wait til the hearing to find out. “You must be talking to someone who’s software is more advanced than mine. I’ve run filters on the data that’s public,” ‘and some that wasn’t,’ he didn’t say, “and found nothing I could pin down as a transfer protocol or anything like that.”

“Is it in bursts?” she asked.

“More like noise bursts, but lots of natural phenomenon are bursty, lightning for instance.”

“I think it would be fun if there was something out here. Do you think intelligent life could form in a condensate?”

To look at her, you wouldn’t think she could say that, more evidence that someone was driving her. “You’re actually Ava in disguise aren’t you?”

“Who’s Ava?” she asked.

“She didn’t really introduce herself, but you’ve met her.”

“That bitch who caught us last week?” Yellelle asked.

“I’m not going to have her described that way in my presence,” Alan said, afraid she might be Ava in disguise.

“Well I ain’t her and if you keep up this act I’ll call you pussy-whipped.”

“By yours,” Alan retorted.

“You mean she’s not your bitch?”

“She’s up my chain of command,” Alan said with the conviction of perfect truth.

“Sucks to pull that duty,” she said. “Why would you confuse me with her?”

“She’d ask very intellectual questions like this.”

“So you thought I was only tits and ass?”

“I’m glad to see I was wrong,” Alan said.

“You are pussy whipped.”

“By you,” Alan retorted.

“Do you want me to leave?” she asked.

“No, I’m glad to have an intellectual discussion.”

“Could you have it if we got close?” she asked.

“I created this fantasy, so I guess I could play the part.”
Served him right for creating his universe while he was still an adolescent.

“You seemed to play it pretty well last week.”

“I didn’t know who you were then,” Alan said, meaning he thought she was a cherub.

“You don’t know who I am now,” she said. “There are only so many to pick from and you can’t figure it out.”

“No, but I have some guesses.” He listed them to watch

which one she reacted to. “Greta Barnes,” Nothing, he kept going, “Glenelle Mason, Leslie Adams,” still nothing, he dreaded saying it, “Glayet Samrova,” whew, still no reaction, “Adele Rendellyn,” no, “Thom Husband,” whew, no reaction there either, “Reggie Whitebush...” he found himself out of guesses.

“I didn’t ask you to guess, I know you won’t get it.”

“Morgan Evans?” Alan tried.

“Might as well give it up.”

“Victoria? Mom?”

“You’re getting colder,”

He stopped playing. She stopped also.

“So do you think there could be something alive?” she asked. She was leaning back on him now and letting him hold her. This was something the natives spent a lot of time doing, especially in the basins with a lot of Elvish or Megnor influence, though her ethnicity was neither of them.

“If it is, I doubt it would be something we could relate to. It certainly won’t be protoplasm.”

“Neither are we,” she said, proving she was really one of the more educated members of the crew. She was right, physically Gordon’s Lamp looked more like those lumps of ice than a human being. He’d seen camera views of the logic plates as they were shuttled and blown. He’d seen it from a spacesuit as a young mortal. There had been only one biopod in the ship, and it certainly didn’t house the crew. It was abandoned at 61 Cygni anyway. “It only matters how they

think, don't you think?" she asked.

"If we can establish a common worldspace environment with them," Alan said, "we could visit." He was getting really close to classified information. This could be a test of what he would divulge over the pillow couldn't it?

"Wouldn't that be great?" Yellelle asked.

"I doubt it would be as great as having you visit. You had to spend some time with the details of three-d reality to come up with a dress that feels as sensuous as this."

"I bought it in Trenst, seriously. Your universe is detailed enough to generate a shop on the side of the street selling dresses. Everyone encouraged me to try it on. I took it, and got them to watch me take it back off also. It renders great everywhere I go and works just as sensuously a few other places I've visited in the last few weeks. I brought it here with me tonight, but I didn't really intend to keep it on."

Then she took off her dress and straddled him, he gave up trying to figure out who she was. They didn't talk much more anyway, a little about cryoslicers between bouts, but he knew only the basics. He didn't think Greta was that intellectual, this was probably that frump that Delos had dated awhile, gone wild. Or maybe some nun in theology? Were they testing his adherence to doctrine? Whoever she was, she probably had a lot more to lose than he did. If he was caught screwing the second Bishop's or some Colonel's wife, the record shows he made a good-faith attempt to learn her identity.

For awhile he even entertained the notion that Ava had given him back Desa, but with enhancements he'd never given her. She had straighter hair, but twice the tits and half again the ass. Yellelle wasn't as streamlined or cute however, but she was just as fit and strong. Whatever Desa had been, she'd held conversations like that with him. He went to sleep wondering if pursuing Ava was even worth the risk now that Yellelle was around. Then again, he wondered if he could be giving up a direct report to the captain for a cherub.

It was a dilemma he never had to face. When he woke up, she was gone, no trace of her but the beautiful blue dress remained. He really wanted to keep that going now that the Ava thing seemed to be over, so a couple days later, he wrote her another thank-you note thru the mail system. It would never be answered. Whoever that was used him twice, then cast him aside before she could be found out.

7:45pm Tue. Jan. 24, 2384

He was just getting up for Nightday. The only lantern in the house was still the one over the eye, and he had just lit it. In this three-d reality, one has to stumble by feel from the bedroom to the lantern on Nightday. If he was going to have any duty in the main expedition, this was the time to have it, no this was a Tuesday evening. The lantern was in a pretty

central location, right next to the front door. He had his quilt around him because it was getting pretty cool. He didn't have a fire going yet, he was just about to decide whether to do that first, or pee. Yup, that's how strict his sentence was.

“Alan, I haven't got much time,” Ava's voice called from outside. He didn't know what to do now. He hadn't brushed his teeth yet and had sort of drowned his sorrows with a small cask the evening before and went to bed when he noticed himself staring into the galaxy in black darkness. She was going to just come back like nothing had happened at all. “Are you even up? That clock app you gave me says it should be Nightday now. He reached up the stairs with his foot on the second one and opened the door. The quilt slipped when he did so and the boner he woke up with was looking right at her. “Ever the savage,” she said and breezed down the steps, “but that's good.” She grabbed his wrist on the way by and headed for the bedroom.

Ava was a healthy and deliberate woman but Alan, three-d reality sentence and all, made sure his arm didn't budge any more than the railpost, which was rooted into mortared stone. “I have to pee first, and brush my teeth.”

“Comb your hair too,” she said. “But I only have half an hour.”

“It's nice to see you again too,” Alan called from the bathroom. In no other universe in all of Gordon's Lamp would one have to do this. He would have appeared before her as he wished to present himself, not as the base simulation

presented him after a hard night of drinking.

“I’m sorry. I was pissed about that bimbo, and there’s been a lot of people asking around. There’s too many disguises and too many driven cherubs around your place for me right now.”

“Yellelle admitted to being one of the crew. I couldn’t figure out who, but she admitted that much.”

“You saw her again?”

“Friday night.”

“I’ll look into it,” Ava said.

“So you’re still married to Thom, but I have to remain faithful to you?”

“I’m risking a lot here. You’re under sentence you know, your hack could have been the spark that lit this war. If I was caught with the Captain or Heymon that’s one thing, but to be caught here with you, if that doesn’t prove how special you are to me, I don’t know what could.”

By then he had the toothbrush in his mouth and couldn’t respond. He wished he had the coordination to brush his hair at the same time. He could write machine control software that could easily do it, but he had none within him.

She was sitting on the end of the bed when he came out, chin in her hands, elbows on her knees. She was in a sheath the color of her hair, but not as shiny. “It is good to see you again,” Alan said.

“It’s good to see you too, outside of work I mean. Look, we can talk there, I really don’t have time here. Sorry it’s

such short notice but you didn't have your comm on."

"It's dark," Alan replied, "but if I focus the lantern on it I can run it and get out to every universe but mine. That connection won't work til light returns."

"I know what you're sentenced to," Ava said. "I'm sorry, I was willing to let you have all the magic you want in it."

"But you're right," Alan said, "I did trigger the war."

"Heavenly Talstan was looking for any excuse."

"I can see them doing this to me just for faking the data, even if it had no other effect. You know I have no idea how that hack took over the Brazilian expedition," Alan said, trying to make excuses for the war.

She went along with his sentence and removed her dress as he stretched out on the bed with her. While she did that she said, "I don't see any way it could have been prevented. They wouldn't have expected a thing, the pod looks like it could have been a natural object and it's in such a convenient docking point. As soon as they opened an EVA contact channel they would have been had. They never had any idea what signals went out their hi-gain transmit antenna, and we have no idea what that expedition actually input to that antenna's amplifier. But like I said, we can have this conversation at work." Then she came at him in a way that made him think Yellelle was really her after all.

8:01am Thu. Jan. 26, 2384

It was bright and early on the first Morningday of year 1001103 in Alan's universe, mid winter, but the seasons were mild in Yoonbarla Vale and he could have done a bit in the gardens if he didn't have this appointment. He had to be up early today for it, and it wasn't one he was looking forward to, because he had been called before Colonel Samrova of Security.

Glayet Samrova kept her office as severe as she was. It was a plain cubic room. She sat behind a metal desk, in front of metal file cabinets. Her screen was decorated to look like an ancient LCD panel and her keyboard was rendered for all to see. She presented herself as late middle aged with an iron-grey flat top and beefy arms of Polish pink. She wore a short sleeved khaki uniform several sizes too big with only a name tag over the left pocket and the colonel's bars on the collar.

There was one metal folding chair facing her desk and she pointed to it without a word. She continued to look at her screen for awhile. There was one sheet of paper and a pen on her desk. There were no pictures on the walls but a diagram of the chain of command on the back of the door.

"I understand you had a visitor last Friday." Up until now he was afraid this was about Ava, but he hadn't seen her until yesterday.

"Yes ma'am."

"Who was it?"

"She wouldn't tell me, ma'am."

"She must have given you some name."

"She used the name Yellelle."

The colonel looked at her notes, made a check mark.

"What transpired," she asked.

"Ma'am, you're probably aware that much of the crew uses my universe for sex play."

"Unfortunately, I am. I'm also aware that there is such a thing as pillow talk. It is the pillow talk I'm interested in and not the details of your personification's simulations of bodily functions."

"She had to be one of the better educated members of the crew because she spent a lot of time talking about Thom's quantum information signals and cryoslicers."

"What did you tell her?"

"Ma'am?"

"What did you tell her?"

"She wanted to speculate about them being caused by some form of life and carrying some form of data."

"What did you tell her?"

"That I hadn't heard anything about them carrying data and that I thought they were a natural phenomenon."

"Why?" the colonel asked.

"Because I was being honest."

"You have also been investigating those signals have you not?"

He wondered where this was leading. Yeah, he'd poked

into a little data that wasn't really public, but hardly something to get dragged before the colonel about. "I'm interested in the technology he's using."

"How much of that did you discuss with your visitor?"

"None, we didn't talk about anything but what was in the public releases ma'am. I still have no idea who she was, she pretended to be a cherub at first. Even after she admitted to being one of the crew, she wouldn't tell me who and because of my sentence, I have no way to find out. I didn't know what clearance she has."

She made a tight smile over that, like she didn't believe any of it. "Some say you are willfully cooperating with the enemy."

"What enemy? Brasil, the Kassikan, what?"

"Brasil, you can't seriously think we are fighting your imagination."

"I've never met or spoken with a Brazilian in my life," Alan said. "I've never even exchanged mail with one."

The colonel clearly wanted to say something, but checked herself. That meant there was something going on that he didn't know about. He wondered how much Ava would let him find out? He wondered how much Ava knew? No one on the expedition could keep anything from Ava if she knew it was there and wanted to look at it. But if she didn't suspect it was there, she would have no reason to go looking for it.

Glayet consulted her screen for a time. In keeping with the way her office was rendered, the reverse side of her

screen was modeled to look like a material object instead of letting his line of sight thru to the next layer like a normal one-sided screen. "Where were you the night of January seventeenth?"

"Last Tuesday?"

"The night before you didn't report for duty?"

"I was too far away in my universe. You took away my rights to move my portal before turn-over. I got too far away in the three-d reality of my universe and could not make it back in time."

"Where in your universe?" the colonel asked.

"You probably know better than I do," Alan said. He really wished Ava had told him what she told them about picking him up, if she had, he could back her up. This way they were going to leave a trail.

"I know Colonel Bancour had to bring you in."

"She probably filed a report with all the pertinent data," Alan said, not wanting to say anything.

"How did you get to where she found you?"

"I took a hike and got lost," he said, hoping for the best.

"Specialist Larkin, I am familiar with your sentence and I know something of what conditions are like in your embellishment of the study planet. You were found seventy two hundred miles from where your portal and data feed are parked." She leaned back in her chair and folded her arms as she told him that little tidbit. The chair was rendered well enough to squeak.

"What!?" Alan exclaimed, almost jumping up from his seat, "Impossible!" He knew it was much farther than that. That must be the air route straight over the pole.

"Are you saying the colonel is lying in her report?" Glayet was almost gloating now.

"No, of course not. It must be a fault in the simulation." Glayet herself didn't have clearance for more technical detail than that.

"Why don't you tell me exactly how it was from your point of view," she asked. She knew she wouldn't understand much of it if she was to pursue the technical detail of the situation. "Start with when you left duty last Tuesday."

"I grabbed a chunk of vedn-cake and a skin of blue and went for a hike. I went up the falls stairways to the first hillpath and was going to walk down thru the woods. I brought a nyobba stick just in case, but I didn't really expect to see one. I went down a different valley than I usually take. It was a couple hours later and it got pretty dark." He proceeded to describe how a geodata mapping fault would appear to the user. "Once I got to flat ground I got onto lots of crooked paths and it was cloudy so I couldn't see the stars. I started to worry when I couldn't get directions to Hazorpean, but most of the cherubs I encountered were stoned so I pressed on as best I could. In a couple hours I came to denser habitation. I thought I was on the back side of Hazorpean," Alan kept narrating. Glayet's keys were simulated with enough reality that they clattered as she looked up Hazorpean.

"I found a dinner club that I thought I had been in before. I was hungry, the food was good, I was pretty sure I knew where I was and intended to get a coach in the morning."

"Then what?"

"I met the crewman who visited me last Friday."

He saw Glayet try to hide it, but he could see that speared her in the gut.

9:21am Sat. Feb. 4, 2384

Like every good Angel, Alan had duty, and his was in substrate testing. Because he was sentenced to three-d reality for the duration, he had the choice of leaving home to pull his duty, or use the data systems allowed in his universe. Since the 2370's, data service is available in his universe at a price much lower than Earth, but ten times as much as people have in his universe. At least he's allowed to be rich enough to purchase and maintain his own 'eye'. It looks like a crystal ball connected to a holey piece of wood with a piece of monofilament. He had nice, big, eight-inch crystal ball.

Now that he had it, he could use it for more than just duty, and it allowed a standard connection to the datasphere. With his technician codes, he could get into diagnostic space and look at anything Ava didn't protect. While he was looking at this from within his own space, he was another layer of protection removed from the network and could take a look

around without some people knowing about it. He looked over Thom's results by following his user path to them right in public space.

Today he was looking for the details of the instruments that were detecting the signals he was analyzing. Thom had designed the equipment purely at the user level, it was all standard packages connected to one another. There were antimatter traps, nondestructive quantum-state sensors, particle sources and a magneto-cancellation chiller, all aimed at a vacuum chamber no bigger than a pea.

Whatever the theory was behind this, it wasn't something Alan was familiar with. He looked up the control software and found it was pretty deeply buried. He finally found it and couldn't figure out what it was doing because most of it was abstract mathematical operations with no documentation. He smacked his fingers on the board in frustration. It has little plastic dots bulging out of the holes. They were solid plastic and didn't move at all and didn't feel a thing. He did.

He could find no notes connecting Thom's device to any theory of physics. Either he kept that in his head, or his notes were well hidden. Without that connection, Alan had no way to verify any of the data Thom was collecting. We have to know the truth, are these state changes conducting information or just random noise like energy produces? Or was Thom doing just what he had done, generating a false universe and pretending it is real data? Or was he generating a false universe and believing it was real data? Without

understanding how those signals actually originated, there was no way to tell.

“Yo Alan,” someone called at his door. Most of the ship did not know he had data access in his three-d reality confinement. It was a voice he recognized but didn’t place right away. Just in case, he got all of this minimized and hidden before he went to the door.

It was Tellow. First thing to note, this is total confirmation that Tellow is a crewman. A cherub cannot initiate an action like this. At the very least someone would have had to hack into his space and be playing with it’s panel. “Hey, hope I’m not interrupting?”

“Can’t interrupt much on a Nightday,” Alan said. He could afford a lantern to keep his eye lit on this end. In his universe there wasn’t enough metal to run wires between chips, only optical energy was transmitted. The natives were so desperate for metal they went down in seven hundred feet of water with nothing but hand pumps and re-floated the crashed shuttlecraft to scavenge it.

“You got any leshin in?” Tellow asked him.

“No, but I’ll pick some if you hold the lantern.”

“I don’t want to put you to trouble...”

“Please, I’m sedentary, I could use the circulation,” Alan said. “So what are you cooking?”

“A small karga, hardly half grown. It’s for that witch family down third street that’s having a birthing party.”

“Yeah, I was thinking of going but afraid I might get stuck

cleaning up.”

“I made sure I got that clear with them this time,” Tellow said. “I also made it clear I wasn’t cooking up the afterbirth. They can be some mean pussies, but they gave me iron up front and said the kid would be out before I could get back.”

“Well, we won’t dawdle,” Alan said.

Tellow had already seen the Eye and knew why the lantern was next to it. They didn’t need to discuss it. It was all a big charade. He was now pretty sure Tellow was his parole officer, sent by Theology to make sure he was following doctrine. Technically he was, within the bounds of three-d reality he can shine a lantern on that native eye and it can pick up the network. It was interesting that he didn’t casually ask what he was doing this time of Nightday, but that wasn’t part of his cover. Tellow noted and didn’t ask.

Alan led him into the garden. The rows were a little narrow and Nightday is very dark. No candle in a window is as bright as Kunae in the sky, 61 Cygni B, a much brighter star than any in Earth’s sky, even Venus, but nothing compared to the full moon of Narrulla, which gave only a quarter the light of Earth’s. There was one more lantern, actually more likely a candle, in a field across the stream. There was a camp fire going around the bend in the brook and they could hear voices. Other than that, the Nightday was dark and silent. The rain clouds were only starting to build over the valley floor. Even the lumins were still on what might be the coldest dark of the year.

“You ought’a come down to the party,” Tellow said, “I’m going to need some help after and it won’t be cleaning up. Kozike won’t be wanting any after giving birth, but I’m sure the other three will and I can’t do them all myself. Besides, this young karga is going to be a treat.”

Alan would be quite a contrast to a big barrel chested guy like Tellow. “When will it be ready?” Alan asked.

“Won’t be for an hour, but we have to give them time to coo over the newborn.” They heard shrieking from across the brook. “That must be him now.”

“I guess,” It was excited girls voices. Those girls weren’t very popular because their only topic of conversation was supernatural forces, but by obsessing on a subject, you could give a cherub some semblance of a personality with only a few G of data base space, and by sharing it between four of them, he was able to get conversation he didn’t already know with enough personality to fool a casual observer. He also thought that Jimina Valdez hid behind one of them now and then. She would enjoy their conversation more than he did, as a nun she couldn’t voice her spiritualism without a good disguise. “So they know it’s a boy?”

“They think so.”

“Poor kid,” Alan said. Not that it mattered. Cherubs could reproduce, so long as he had the allocation to run it. He would have rather run the Desa or Kuthra cherub, but they took five Q each while an infant with most defaults selected can run in less than a G.

“Oh them cunts aren’t that bad,” Tellow said. “He’ll get all the love he needs.”

By the whooping going on over there, they must have guessed right. Shouts went back and forth between them and the people at the campfire. They heard the “Kozike had a boy,” echo across the neighborhood in the still of dark.

Alan had most of the bag filled already. “You can stop there,” Tellow said. “What do I owe you?”

“I thought the invite to the party was payment.”

“I’d almost pay you extra for that, that way my peter won’t be so sore tomorrow.”

“In that case this meal and one more,” Alan said. He *had* gotten a little carried away with it when he programmed up those witches.

6:22pm Tue. Feb. 7, 2384

Alan had just started on his supper, a leshin and trap with breaded mooliuk as the trap. They were better than the calimari the restaurants in most universes served and richer than standard garden pest bits. As part of his sentence, he was not confined to his universe and could have gone out. He could have gone out within his own universe. But he remembered what a great cook the cherub Chatuum had been, the one who was the partner of Desa’s son Dara. She had taught him a lot about cooking, and he wasn’t up for acting

with cherubs this evening. It had been a tense day, Thom had given his presentation, and been terribly distracted while he did. He did claim the entangled states being exchanged were information. But the big news was, he was given permission to have Engineering turn the tangler beam on one of the bodies heading toward Sol and found the pulses of state changes were coming from there also. On top of that, instrumentation had discovered another ship paralleling their course and Alan had to re-check the data on the blanks all that instrumentation was blown into.

Ava did not call at the door or otherwise announce herself. She popped thru the door and danced down the steps. He turned from the fire to see her toss her bag on the counter and hop onto the first stool. “Well hi!” he said, but wondered what he would feed her, he only had seven mooliuks and that’s not a large feast for one.

“Well it’s done,” she said.

“Supper’s not, I just started it. I’m going to have to throw some brined rock-worm in it to go with these mooliuks.” The two were no more closely related than he and Ava were to peas, but the flavor and texture wasn’t that different.”

“Don’t worry about me, besides, we should go out and celebrate.”

“What did you get done?” he asked.

“I told Thom,” she said.

“About us!” Alan was floored.

“Don’t be silly. I told him I’m starting proceedings.”

“Ah,” Alan said. “How’d he take it?”

“Oh he whined and said he didn’t have time for it, which is my whole point. He also can’t forgive me for the times I’ve stepped out on him, but all he wants is for me to be dedicated to his project like he is.”

By now Alan had a bunch of rock-worm chops in the breeding bowl, “Want me to keep them separate or do you mind-rock worm in yours?”

“Alan, I’m not under sentence, I don’t have to eat anything. I only do it for the social value.”

“Eating is one of the parts of my sentence I enjoy the most.”

“That and your cherubs,” Ava said.

“You’ve learned a lot from them.”

“A lot more fun things than having to eat.”

“Oh the eating’s fine,” Alan said. “My sentence includes both ends of the alimentary canal.”

“All I can do is say I’m sorry.”

He got the rock worm chopped in the pan with the mooliuk. He turned them, then turned back to her. “It’s the universe I created,” he said, “at least I won’t be erased after twenty decades.”

“You did sentence your population to eternity in three-d reality, not just the duration of this mission.”

“Yeah, but I think it’s a better three-d reality than mortals faced on Earth.” He put the onion slivers in the pan.

“True,” she agreed. She watched him for a few seconds,

he was not a natural chef and had to concentrate on the pan.

"You know what he said when I told him?"

"No?" He had to stir that in. He should go get a few more shoots of onion with her here.

"This was the second worst news he'd gotten today."

"The signals coming from the objects impacting our home worlds would be the worst in that case."

"You got it." She leaned forward over her elbows and sniffed toward the little fireplace where they did their cooking. He was still thinking in 'we' wasn't he? Desa was still his partner and Ava his variety in his mind. He had to overcome that, especially if she was going to be single. "You like yoolin also I see."

"You have yoolin in your cooking?" he asked.

"Oregano's close enough," she said.

"So what do you make of the fact that he's picking up signals from the impactors?" Alan asked, once all he had to do was stir.

"That the impactors are guided, I think we knew that already, and that if these devices are Brazilian, they possess a lot of science that the home worlds either didn't know about, or didn't want to tell us about."

"Why wouldn't they tell us?" Alan asked.

"They haven't told us anything yet. You can't really believe progress stood still in the two hundred years we were gone? We've been told none of it."

"They sent those quantum mechanics texts that Thom fell

into,” he said, “so they must have made some progress. All the fabricator programming for his instrumentation was in that package.”

“Right, it could be that this whole phenomenon he's picking up is part of a self-replicating network that was released by Brasil a hundred years after we left. Think about it," she said, "If one guy, Thom, by himself while on expedition, can detect them as a hobbyist, what have the remainder of mankind's universities, governments and corporations discovered in the two hundred years they've been working on it full time with teams and budgets?"

7:07pm Thu. Mar. 1, 2384

After weeks of work, Alan finally figured out what Thom was doing. It was just an antimatter trap with ultra high speed quantum state analyzers. Thom had tried the tangler at various angles, aimed in various directions with files full of results. Alan got lost in those files for a long time, trying to make sense of it. He had to remember that every bit they took was destroyed, so it was like every channel tapped was broken. He had to remember not to do this while Ava was around or she would soon leave him for the same reason she left Thom.

There definitely seemed to be some sort of information content. It was pulse code, the frequency and duty cycle

varied over time. There were quantum information sources in all the bodies larger than a boulder out here. That meant there were a lot more condensates than previously believed. More of the helium in the universe had to be in this state than was previously believed, and even all the helium in the universe couldn't account for all of it. Magnon condensates had to play a large role, maybe even a major role.

There was a call at his door. That's how it worked in his universe. He could let his door answer from the native style crystal ball he used. It was Elmore calling, he got the diagnostics off the screen, not that Elmore would understand them anyway, but he might well believe he was violating his sentence just from seeing a system-level screen.

Elmore also had to duck to come down the steps. His pleasantries were strained. "How well do you know Thom?" was the first meaningful thing he asked.

"Husband?" Alan asked, not sure where Elmore would be coming from in this.

"Ava's," Elmore said, telling him exactly where he was coming from.

Alan sidestepped, "I've followed up on his discoveries since his report. Very interesting."

"How's Ava taking it?"

Alan paused. The Eye was on the table in the room where Desa used to keep the yandrille. He had no other need for the space without that yandrille. This room was an excellent

office, but not the place to sit and chat. He lead Elmore down three steps to the stand-cushions against the ancient lime-worted stone walls of this house. It was sunny here and day-bloom crowded the larorlie along their front wall. “She’s feeling abandoned,” Alan sighed as they sank into the stand-cushions.

“And she’s coming to you about it?”

“We work together, she’s vented a little, nothing to worry about.” Alan went over his personification. Stuck in three-d reality like he was, he didn’t even have a med panel he could access, and his sweat could actually give him away. He turned it around and asked, “How well do you know Thom?”

“Better than most commanding officers three steps up the chain of command do. We were mortal together, we swam the Ohio together.” That meant they had both escaped from America to Laurentia.

Alan knew he swallowed, he didn’t have enough voluntary control of his personification to prevent it. “So he confides in you a lot?”

“Maybe more than he should.” Elmore stood up. The room was twelve feet high here, at least thirty feet long. He paced only a short way. Alan had no doubt where his difficulties lay. In spite of all Alan had done, Colonel Elmore Bovok still tried to maintain a friendship. Alan’s foster father, Alfred McReady, was one of Elmore’s best friends on the expedition.

“I wasn’t mortal with you,” Alan said. “I can never be that

close to you. Even at that, you've been almost as much a father to me as Alfred has. I think you can say what you have to say to me." Alan remained on the stand-cushion but leaned forward with his elbows on his knees.

Elmore paced a couple more times. "I'll get right to the heart of it," he said, "because I just can't think of the right way to get into it."

"It's about me and Ava," Alan laid it out for him.

Elmore curled his lips in and leaned back with his hands clasped behind him. He rocked back and forth. "Thom followed Ava into the closet a couple nights ago," was all he would say at first.

That would have been Nightday here. Ava took him to a club in Yondure where the fashions were straight out of a carnival samba troupe. Many couples discreetly had sex on the dance floor, but Ava did not. He wondered how much Thom followed. He could have been at the taps all evening and neither of them would have noticed because Ava's magic could take them years of travel away in his three-d reality box. They thought their hiding place was totally secure. "He's left her alone a lot," was all he could say.

"He saw her run into your arms, he saw you go off into the crowd together before her door closed."

So it wasn't that bad, he hadn't followed them to the beach for instance or to the bedroom. "I did show her around my universe a little that evening."

"Alan, I need to know how it really is, I'm an old friend

of Thom's, I have to protect him, not fight his battles, but protect him. I need to know, is it over between Ava and Thom?"

If they were that close, Thom would have mentioned that Ava had initiated separation proceedings. Why hadn't he mentioned that? Probably because he was more concerned with him and Ava than Ava and Thom. "He's so wrapped up in those signals," Alan told him. He got up and stood with Elmore, near the halfway point of the path he paced.

"Not so wrapped up that he didn't notice Ava spending an awful lot of time in her closet."

"He'll spend time with her, but all he'll talk about is those signals he's studying," Alan said in her defense.

"He thinks they're that important," Elmore said, "and I'm beginning to think he might be right." He started walking out into their patio. Elmore had never been here before and he was looking around, but said nothing about the view.

"Why?" Alan asked. No doubt because of the impactors.

"Separate discussion," Elmore said. "It's one I'd love to have with you, but it's not the one I need to have with you now."

"What details do you need to know?" Alan asked, a little resignedly.

"Not times, places, and positions, if that's what you think I'm asking, I never even visit this flesh pit you've dreamed up," he said as his eyes took in the forested sides of the vale.

"That bothers you doesn't it?" Alan asked him.

“I don’t know of anyone who’s universe is so dominated by sex as yours.”

“Elissa’s,” Alan said, knowing what he was talking about on this. “If you think mine is sex dominated you’d better not go visit her.”

“But she doesn’t pretend it’s three-d reality.”

“I don’t *pretend*,” Alan said, “I’m sentenced to it remember.”

“Except when you take a lover who can break the rules.”

“What?” Alan asked and stopped at the edge of the patio.

“He couldn’t have seen you go to a club in Yondure, if she didn’t violate your sentence,” Elmore said. “I think you should know that I know that.”

“So will you report Ava to the captain?” Alan asked, “or use it to extort me to stop seeing her?”

“I didn’t say I would fight his battles. If Ava wants you and not him, there is nothing either of us can do about that. All I want to know is the truth, has Ava chosen you over him?”

If Elmore wasn't going to discuss the proceedings, Alan was going to pretend Ava had never told him. “I think I’m just someone to play with while he’s lost in those signals if you want the truth. I’m not saying that’s what she says, but maybe she’s too close to it to see what she’s really doing. I’m treating it like that.”

“What if these signals lead to something?”

“You mean what if he never pays attention to her again?”

“Is that how she sees it?” Elmore asked.

They had come to the garden fence. It was strung with bluebeans that were blooming just now. They could look out over the little brook that wound thru the flat of Yoonbarla Vale. This house was above the floodplain now. When it was built, the brook ran to the edge of the patio stones, so it had dropped at least three feet in the three and a half thousand years this house had stood here. “She feels abandoned. She has a lot to worry about herself. I’m one of the few who can understand anything of what she’s talking about.”

“Thom can understand her. He wonders why she can’t understand him.”

“I think she does,” Alan said.

“Then you don’t think he’s on to something important?”

“Ava’s pretty important and he’s been onto her a lot more times than I have.”

“Spoken just like someone born at 61 Cygni,” Elmore spat.

“You’re the voyeur here,” Alan said, “I never came and waved any of this in your face.”

“Thom had to turn somewhere,” Elmore said.

“So what more do you want?” Alan asked.

“I want to know what can I do for him?”

“Tell him to come back out of those condensates now and then,” was Alan’s advice. “He’s got a woman who’s pretty special.”

“Stock advice, stock phrase.” He was silent again for

awhile. Alan didn't want to say anything to make this worse, it was bad enough already so he kept quiet. "You do know there's a war on?" Elmore asked.

"Of course, there's no way I could not. I've been trying to keep up on it," his guilt made sure of that.

"Who's side are you on?" Elmore asked.

"The Kassikan's," Alan chuckled with gallows humor.

"In other words, you mean to wipe out humanity."

Alan drew a deep breath. This was his real crime wasn't it? It wasn't just faking data from the whole expedition. No, the crystal contaminated by his hack that had been left behind at 61 Cygni had somehow taken over the Brazilian expedition when they arrived. They claimed to have transmitted the code to the virus that stopped mortals from aging back to Brasil. Lead by Heavenly Talstan, the Angels of Sol went to war to prevent that virus from being produced. So his hack of the expedition's data system lead to the war that was close to wiping out Angel civilization and most mortal civilization in the process. "It is not my fault the most exalted minds in the solar system couldn't find the patience to wait a generation and see if that output from my hack actually worked."

"This war was overdue," Elmore said. "Stop blaming yourself for that, we all know any spark could have set it off and no one considers your hack the real cause of this war. Genus Homo has never allowed more than one species in the long run. Sooner or later, Homo Electronicus had to slough off the less advanced species in the niche."

“We’ve made them into domestic animals. We raise them for their souls.”

“The captain should have never allowed you to keep that universe,” Elmore muttered.

“I’ve often thought the same,” Alan confessed. “It’s not just that I want magic, I can do without that, even here.” To indicate the way he lived, he pointed to the shower, a long black hose in the sun over the patio, coming from a hand-pumped tank on the roof.

“I’m sure once we get back to Sol...”

“Oh I fully expect to be zeroed out.” That was the correct term for deleted with all backups.

“Maybe if you contributed to the war effort, became a part of the church...”

“I was excommunicated for desertion remember?”

He must not have, no doubt that had been a painful time for him. “You can at least help with the war.”

“How?” Alan asked.

“By not siding with the Kassikan for one.”

“Elmore, the Kassikan doesn’t exist, remember? I think I just use them as a symbol for life. I side with life. I side with the mortals.”

“Do you think humanity should be stuck in that phase of evolution forever?”

“There would be no Homo Electronicus without Homo Sapiens.”

“Just like there would be no Homo Sapiens without Homo

Erectus.”

“In more ways than one,” Alan said. “Homo Electronicus still cannot reproduce, except by cloning.”

“A technical issue that will undoubtedly be solved.”

“If any Homo Electronicus survive.”

He was silent again, looking at the meadow and the rugged mountains on the far side. They were surviving. They may not be increasing in number, but they were not diminishing either. In fact Gordon’s Lamp had gained a soul on the voyage, his. They could raise more zygotes. “Did you clone yourself?” Elmore asked.

“I often dream I left my flesh body behind on the surface.”

“No, I mean into that abandoned instrument pod. The Victoria McReady Station that we left behind. That would explain how the Brazilian expedition was taken over.”

“They were flesh,” Alan pointed out. “They probably all went to the surface and died. Their suits were a generation less advanced than my android. That crystal was so contaminated, I honestly don’t know how all the stuff I made worked. Ava doesn’t even know. I just cross connected things and it worked.”

“It’s holding up well,” Elmore said, looking around at Yoonbarla Vale, the Central Wescarp Valley and the Central Wescarp range beyond that. They were all visible thru the mouth of Yoonbarla Vale from here at the garden fence on the edge of Desa’s patio. Elmore could see all that, and see the

size of both the valley and the mountain range thirty miles away. “The rendering is fine.”

“It’s all base simulation, nothing is suppressed. Nothing of the real work I did remains.” Those souls in illegal veron space that seemed to have lives of their own. Those souls were gone now, but the programming one of them did to these scene generators remained.

“You didn’t really answer my question.”

“No I did not clone myself,” Alan said. “To the best of my knowledge nothing of my soul remains behind on that base. There is more to the body on the surface than a soul on that base.” Alan knew Elmore didn’t have anywhere near enough understanding of how the virtual universe is actually constructed. That base has recordings of all the souls of the expedition. He tried to explain what he could. “Physically, all souls are cloned every time they take a backup, it is only legal issues that keep those clones from running. If anyone remained on that base, that soul could resurrect the whole expedition and nothing could stop them. As long as you have a veron store large enough to support a consciousness vector, you can run as many souls as you have data for. All of us have back-ups on that base, but I did not install a veron store on that base or set one running.”

“By whatever means it is done,” Elmore said.

“Actually,” Alan said, “It is Ava that holds those controls,” Elmore looked at him funny but Alan didn’t respond to that, it was too deep a systems discussion for him.

“It’s all about whatever she left installed and running over there.”

“Standard remote instrumentation stuff,” Elmore said, staying at the user interface level. “But what control does Ava have? I mean over this expedition?”

“She is the Systems Administrator, only she can load people in and out of the veron store.”

“But the captain...”

“Would never know that he never got his next timeslice,” Alan said.

6:42pm Tue. Mar. 6, 2384

“It’s so majestic the way it gets dark in your universe,” Ava said. She was well into what she liked the most about his universe, the country blue be brewed. She was on her third cup of it since she dropped by after work. “It is so beautiful here that it is no punishment.”

“If I could get the time off I could get to Hazorpean and back, but why bother if I can’t even run a few decent cherubs?”

“I’m the only soul who dares visit you here?”

“You’re the one I care about,” Alan answered. The others might have been entertaining but they were such minor players on the expedition that Alan wouldn’t get any relief from his sentence. Two of the other three women who had

visited here for more than a sightseeing tour since he first saw Ava were also under sentence to three-d reality when here, so they did him no good at all other than someone to practice conversation and personification with. The sexual relief with another soul was rewarding in it's way, but no better than Ava when she was in the mood.

“So there are others?”

“You’ve been with Thom more than with me in the last few weeks alone.”

“Oh no I haven’t,” Ava replied. “I may have been at the address, but I haven’t had more than two conversations this long with him in the past few weeks.”

“Well he IS on to something,” Alan said, “There is something out there.”

“I know, and I’m worried too,” Ava said, “But he won’t even include me on that. He doesn’t have time to clue me in right now, it’s too important for the captain, it’s for the war effort.”

“There is one thing you can be sure of, there are far too many of these signals to be coming from any Brazilian planted device, even if it was self reproducing and even if the Presidente Lula spewed them on it’s way out.”

“So this is a natural phenomenon,” Ava concluded.

“Or someone else's technology,” Alan speculated.

She laughed her tinkling laugh. “Are you looking for a new fantasy?” she asked.

“I would think it was more along your lines. Information

theory and simulation structure. Like you keep saying, it's just another processor model, like a neuron or a veron."

"If that's true we have no way to distinguish any signal from noise."

"Right, we would have to sample all of them," Alan said, "every entangled particle in every condensate..."

"On every rock out here," she finished the thought. She turned languidly toward him, "So we need ten billion or so rocks."

"We've passed that many ourselves."

"How do you suppose they got here?" she asked.

"Self-replicating devices of an older civilization? Maybe from Kassidor's Energy Age," he teased. At least he hoped she knew he was teasing from his tone of voice.

She looked at him sharply but chuckled once. "You don't think they could have evolved naturally?"

"I don't know," he answered. "It wouldn't be my first guess, but these are beyond Kuiper belt objects, these objects are an order of magnitude colder. We don't know what properties condensates have in bulk. They could very well think no natural life could occur in an environment where natural superfluidity and superconductivity is impossible."

"Yeah," she sighed, "so we can imagine whatever we want."

Her office wear was disappearing piece by piece as they cuddled together. They were on a rope-seat, a type of hammock, that had a tendency to roll them together. He

caressed her and she made the rest of her clothing disappear and replaced it with a short dress made of as open a mesh as the hammock so his fingers went thru to her skin everywhere. "I imagine you want some loving."

"Answering the question of whether they are devices or natural evolution of some kind will have to wait til we have a sample."

They were still hurtling by these bodies at almost two thousand miles per second giving them millions of miles of berth so there was no way they could pick up a sample. "If we could even tell if we had one," Alan said, while starting to run his fingers over the smooth, soft curves of her skin.

"It's dark enough that no one can see us," she said, and made his clothing disappear, a thin, sleeveless, legless worker.

As easy as it was to put his fingers thru her mesh slipover, it was easier still to push it aside.

Afterwards, she made him dinner. They talked about what the menu would have in the best restaurant he could imagine on his planet. They were still wrapped around each other and dry again, but she was still dressed only in that open net. He was so distracted by that he couldn't think of anything better than a little bread-crock of crossed stew and some rolls of fresh lon and braised red-tail. She had it hot from the cauldron and on the table on fine dinnerware by the time they mounted the three steps to the kitchen. He gave her a look. "I'm not under sentence," she said, and sat down at her plate.

He noticed her cup was full again also, then saw that his was too, even though it had been only halfway to the bottom.

"Elmore was asking about us," he said when they were most of the way thru the meal but had only dented the cups.

"Uhhhh, you really know how to kill a buzz you know that?"

"I had to confirm what he knew," Alan said.

"Which is?"

"He saw us enter the Hypryapus Ball in Yondure."

"Is that all?" she asked. "There's nothing illegal in that."

"That's all he said. He said Thom followed us to your closet but did not go thru the gate."

"If you believe him, then he has nothing."

"He knows about us."

"We work together, we can be seen together, those papers are on their way, he's going need more than that to stop them."

"I'm more worried about how it effects my relationship with Elmore than I am about the paper work."

"Easy for you to say," Ava said, "it's not your separation."

"But Elmore, what should I tell him?"

"I'll tell him," Ava said.

"What?"

"The truth."

"He means a lot to me," Alan said, "So does Alfred, in spite of everything."

"And Vic?" Ava asked.

"Of course."

"And am I important enough to you to be part of their lives also? I am already after all. You and I belong together more than Thom and I ever did. You know that too, and so does Elmore, so do your parents."

As it probably would have been if he hadn't made that hack but just ascended when they found they would not be seeding the planet. "He said they swam the Ohio together."

"Over a million and a half crossed the Ohio in my generation, I would have swum the Potomac if I lived that long." That had been part of the Laurentian border also at the time.

"He knows we were together before the papers came thru."

Ava swung around in her stool and spread her screens out, began seriously keying at a couple of them. Some of them he could see from this side, the ones she was looking at were private to her. She put most of them away and swung back around, "He does not have proof of intercourse. He doesn't have tonight either for that matter."

"If you tell him the truth he will have proof of intercourse."

"I will retain legal deniability."

"Good luck."

"No luck involved, I know calls that bypass his file's permission bits entirely."

"I wish we didn't have to hurt them."

"Thom and Elmore?"

"Elmore and Alfred at least."

"They should be grown men by now, they've both seen divorces before, Elmore's had one."

Alan knew about that, "And lost a wife to a republican soldier as a mortal," he also knew.

"We've all got wounds Alan. I had to tend my mother's injuries when thugs beat her up for the groceries on her way home. I had to get her patched up enough to work the next day or she would lose her job. I saw my sister get raped to death in a constable's patrol vehicle. You've only had to deal with your own fantasies Alan, you haven't faced mortal flesh and blood reality, no matter how well it is simulated."

The only mortal reality he had faced was in an artificial environment in the bowels of a starship, tended with androids and totally alone. Everyone else was as an Angel, there was nothing that he had experienced directly was there? "Vic told me about the constables and the judges. Her family had problems in spite of their aboriginal permit."

"New England was like the Promised Land to us. We dreamed of escaping to it."

"I still want to retain Elmore's friendship."

"In other words, lie?" she asked. "Tell everyone we never hooked up?"

"I guess that is the alternative isn't it?"

"If he's going to be hurt by the fact that I cheated on Thom and take it out on your friendship, then the only way to

prevent that is lie. And will it help? No, because he'll never believe that lie. Thanks to Thom, everyone knows I have a sex life, so Elmore will never believe we saw each other 'as friends' for months before the papers came thru."

"So there's nothing we can do?"

"He'll get over it. He's stuck in the middle. He knows Thom, he knows us."

"He thinks what Thom is doing is important," Alan said.

"I think it's important. I wish I could be part of it but I'd have to be with him twenty hours a day to keep up. I have other duties even if I didn't need to sleep."

"Is that what he gets?" Alan asked.

"It's more like he sleeps every other night, or at least, he comes out of his lab every other night and when he does he's too tired for us."

"When's the last time?"

"About a week and a half before I told him I was putting in for these separation papers."

"You've got quite a bit of catching up to do," he said, reaching thru the mesh that was still all she wore.

"Yeah, so let me take care of the dishes," they vanished, "and we can go do some of that."

Alan was alone in his universe, as he spent most of his time. It was still Morningday, a bit hot and sticky, especially for week Ekendosa, the dead of winter in this part of his universe. There were a few things he needed to get done today and he was already in the garden.

It was half a local year since he told Ava about the visit from Elmore and he still saw little of her outside of duty. In the past she had been friendly with him during business hours. Nowhere near cuddly or demonstrative, but warm and personable. It was not like that lately. Now she was guarded and cool. She was still polite and said nothing to officially end their relationship, but he was pretty sure it was over. In fact it took him too long to admit to himself that it was over, he probably should have re-arranged his life as soon as Elmore spoke to him.

He had little other company either, not even Major Tengine. He noticed her hanging around Thom a lot lately. Alan would probably play with one or more of the village cherubs this evening if the weather stayed pleasant. He was allowed to run up to four standard ones with the cheron allotment he had. That was not enough to run Desa or Kuthra, even in their cheron versions, he could run Kaha if he used his whole allotment on one.

He had been invited to less meetings than ever, and assigned nothing but calibration reviews and accounting

liaison if he was assigned anything at all. Having to work with Delos and his people was annoying at best. Many weeks he was not assigned anything so he did his own chores and let them call him if they needed him. When he was in, less people stopped by his desk than usual. He visited his parents, plus Morg and Glenelle, and spoke with Elmore in the lounge once. The visit was short, one shot of Jefferson's Kentucky Wisdom and Elmore was off. Alan didn't stay and sit alone for another.

Today he was still doing garden work on this bright and cloudless summer day in mid winter. No matter how much you push toward the limit, when you're serving a sentence of three-d reality, you have to do some work to survive and his sentence had felt heavy lately. When your sentence is a pastoral existence, that work will be in the fields. It was winter but the vale is almost tropical and Kortrax was already hot enough that he had his shirt off, when suddenly he was chilled by a shadow. He looked up, wondering how a cloud could come up so suddenly.

It was no cloud but a huge airship, one of the floaters he allowed the rich in his universe. There was a pilot in a little strap-sling out in front of the sedan, the sedan domed into the root system of this lighter-than-air mobile plant. It was still twenty feet from the ground, but dropping toward the front patio rapidly when the hatch dropped. Ava leaned out, "Hi," she said. "The separation's official. I'm moving out of the old place and in with you, at least until things are settled."

As he walked thru the rows to the edge of the patio, he wondered why she would do that. She was in no danger of losing her universe or any part of it. And why had she turned around so fast? There had to be something more to this, but he knew better than to ask. He would have to be careful, but he wasn't going to turn this opportunity down, especially if she could lighten his sentence.

“You picked a nice way to arrive,” he called to her. “I see you’ve brought your magic with you.”

“Oh no, I flew here in three-d reality,” she laughed.

“You have to play with the clock cycle to do that,” Alan said, knowing it would take days to fly here from even the nearest places with a floater, but this one was emblazoned with the logo of the Kassikan, a circle with a vertical line dividing it and two diagonal lines extending down from the center. It was a stylized rendition of the lake as seen from space, also known as a 'peace sign' to 20th century Earth.

“Well; I could say I have a mortal sister...” she let that trail off. She was already low enough to drop to the ground. She was wearing a snug Yaghan style jersey, her beautiful shape was more obvious than ever. Her long brown hair streamed behind her as she ran to him.

He snatched her up, spun her around, remembered doing that with Desa in front of the front door. She let him do it, her attitude toward him had changed so suddenly that he wondered if this was really the cherub/clone from Biology Base and not the Ava who had been nothing but business for a

month. He kissed her anyway and she returned it, as passionately as when she tried to imitate Yellelle.

She gasped a laugh as he put her down. "I got my papers this duty shift and announced it to everyone important at the captain's breakfast before that. It's been a long and exhausting day."

"I'm just surprised to see you..."

"I can see that, you're looking rather dumbstruck," she said, and waved the floater pilot away.

"I am, but welcome," was all he said, "what ever Desa's humble home has to offer is open to you." He let his arm sweep a lap around the premisses. "Why the big change of heart?"

"Huh?" she said.

"Yesterday you were all business, hell, for weeks you've been all business. Now suddenly you're back and ready to move in."

"That was because of the damn lawyers," she said. "That and I didn't want to tease myself. With them and all the other attention we were attracting, I couldn't see you until the separation came thru without a lot of hacking to keep them off of us."

"The lawyers are cherubs," Alan said, "just grab their panel and shut them off."

"Their panels are locked to their clients, that's an attorney attribute. I would have had to go into the hardware layer to get around that, it would have been as bloody as what you

did."

That rang about as true as a leather gong, but he wasn't going to argue about it. "Well, you put on a very good act for them the last month. It had me fooled."

"I'm sorry, I hope you didn't hook up with Greta or Imogene and forget me." She was walking into the house, she didn't need a bag of clothes, they were probably already hanging in the closet.

The floater was rising and turning toward the mouth of the vale. There was one floater park in Hazorpean, less than an hour away for as sleek a creature as that Kassikan floater. "I was getting close to playing with a cherub," he admitted as he glanced up at it before stepping inside.

"It's late evening where I'm from, but as soon as I get rested, I hope we can pick up close to where we left off." She went up the steps to the kitchen/office level and slid into one of the stools at the counter. He followed, but didn't want to say anything about that, he could scarcely remember where they left off. "What do you want for lunch?" he asked, to give himself time to think about how he felt about this. He couldn't say he had gotten over her, but he was not still in the midst of their affair as she suddenly appeared to be. He needed time to work back into this.

"Whatever," she said, "I'm more worried about what his attorney said about my universe than any socio/psychological value a lunch image will do for me." She checked a virtual screen, she usually had a few in her field of view and

most of them invisible to all but the most potent hackers.

He went around the counter and leaned on it facing her, but did not start making anything yet. It was actually pretty early for lunch here. Alan knew she was not interested in his humdrum life of being sentenced to live in the fake data he built up. He actually wondered why she would want to live here. “What can they do to you?”

“Make me give half of it to Thom, make me build him a replica of our villa.”

“What will that cost you?”

“Potential privacy,” she replied, “and at least a whole day.”

“Can’t you just copy the universe?” Alan asked.

“Actually I could, but it isn’t legal, Thom would certainly guess what I’d done. He knows several of the islands, he’s picked out a site, **ONLY ELEVEN FUCKING MILES FROM MY PLACE!**” Ava shrieked and jumped up from the stool, “and he’s sailed every bit of that area many times. And he’s taking PowerBoat9.5!” He knew she could certainly copy the powerboat application, but couldn’t show anyone that copy without paying its current owner, Thom, whatever he asks. Alan knew Ava could write a new PowerBoat application, but that would take more than a day. She went on at length about that.

“That’s too far for him to bother crossing without magic,” Alan said when she left a long enough gap that he could get something out. Thom had certain limits to the magic he could

employ, opening a new back door wasn't in his allowance.

“But he COULD!” Ava shouted. “He could be at my dock in an hour with that PowerBoat, because he is still in my universe on the same landscape map.” She paced the landing in front of the kitchen and yandrille space, from one bedroom door to the other. The one called ‘Dara’s’ had been closed for quite a long time. He hadn’t had that cherub out since the first cheron shortage. “I’m claiming he has to pull his old universe from backup,” Ava went on about her side of the case.

Thom’s old universe was two rooms and some views compared to Ava’s, which had seventeen hundred square miles of land in the Caribbean, she wouldn’t get away with that. They had just been granted the separation today and the lawyers had cases already. She went on about how he had nothing of his own in her universe but his lab and she was willing to let him take that with him and eliminate needing magic on that door. She was obviously not ready to go to sleep, whatever time it was back in her universe. “If he had his way I can never be sure I’m alone any more, and the boundary he picked is halfway across the island I’m on.”

He spent the rest of Afternoonday listening to her vent about the divorce, Thom’s lawyer and Thom. He wondered if she was only here because he would listen to it. He worried about taking the time, his universe is so stuck in three-d reality that he has to eat, and so realistic that if he didn’t get the farm chores done, there would be nothing to eat. Ava, of course, would not be concerned about that. While she was

here, she could probably make any food he needed appear any time he wanted it, but what if he let the garden go and she left, where would he be then?

He also didn't think the fact that he would listen to her was enough to bring her here. There were a couple of the Colonels, even a couple married ones, who would put her up in their universe and they weren't under sentence. About the only thing they had in common was knowledge of system internals, social awkwardness and a taste for yaag. He didn't think that was enough for true love on her part. His insecurity and mistrust kept him from true love. However, there was enough affection, attraction and admiration that he would not try to resist. Relief from his sentence could be a real plus, but the continued harangue reminded him of an old proverb, 'be careful what you wish for.'

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For a week it had been a whirlwind. Ava had been with him almost always and since that meant he was with her, he got to learn a lot more about the system and what overrides she had. Their love life had been great, better than when it was an illicit affair. People were starting to stop by looking for her. She put in a paved path and some steps down to a patio by their little beach on the stream. Using her usual scene

generator it took her only a little over two hours. In three-d reality it would have taken him two summers.

But now he hadn't seen Ava since Tuesday. He had heard nothing. In fact he had heard less than he was hearing before Ava moved in with him. He hadn't been to as many meetings as then, much less usual, he hadn't had as many visitors as usual. He wondered if he was undergoing some kind of ostracism. It was true the whole expedition was on alert because of the suspected Chinese ship that was paralleling them; and because of his sentence, he didn't have the clearance for a lot of the meetings.

He knew Thom was making a lot of progress with his entanglement project and had been immediately successful in generating and maintaining condensates of higher orders. Going to higher orders seemed like an inspired leap of insight on his part. Alan knew experimenters invested lifetimes to advance the apparatus to do that, but thanks to the updated quantum mechanics encyclopedia that had been sent to them just last year, it was just a matter of fabricating the parts and programming some bots to assemble them. His project now had enough priority that Alan was assigned to do that programming.

That was the last really useful thing he had done. He might as well go back to the vale and finish his duty shift using the desk eye if all he was doing was reviewing calibration stats. Since it was all virtual anyway, it made no difference if he printed them all out to take home or let them

stream to him by pocket eye. His sentence was so exact that he would have to make sure his pocket eye was charged.

It was years ago that Ava played in his universe a lot, helping him design a communications device that fit within the laws of three-d reality on his planet. She and Alan hadn't been lovers then, Thom often played with her, in the personification of a crewman from the Presidente Lula. They had come up with something that was as useful as a phone, but could only be recharged by sunlight and had an eyepiece for a screen. Even so, it had been a fad in that part of his world for a decade or two. It was stuck in three-d reality however and he could not pull it thru to his duty station to check its charge.

He didn't have to worry about that. He got called to the captain's office not long after he got back from lunch. He was pretty sure that couldn't be good, Captain M'Kintre had never completely forgiven Alan for his desertion, much less faking the data from the whole expedition. They had spoken only a dozen times in the century plus since his desertion, and while they had been civil, Alan wouldn't call them cordial.

Today the starfield was not rotated and the gravity was one percent, as the drive would make it. The snowflakes were coming up out of the floor, the floor was invisible as it almost always was in the Captain's universe. There was no visible furniture here today, just the depths of space fifteen billion miles from Sol.

There was an acolyte from Theology there to greet him.

These cherubs are often regarded as the most advanced on the ship, by those who had never interacted with Desa or Kuthra. When conversing about anything connected to theology, church doctrine or ancient scripture, they were as knowledgeable as any human being could be, and operated as if they had a full understanding of the subject matter. They were no better than any other cherub in other subjects, but they weren't any worse either.

"Hello, my name is Gabe and I'm here to remind you of the need for truthfulness." He immediately launched into a recitation of many biblical passages exhorting one to speak the truth to the master like 1 Kings 22:16 and all those in Proverbs all the way to Zachariah 8:16, dozens of passages in all. Then he cited modern refinements of church teachings, tribal theory and group sociology. Alan didn't engage him in debate. He studied the rendition, the acolyte's visual rendition was not up to normal personification standards, as if it hadn't been properly installed in the scene. The voice was fine except for position, he sounded a bit like a ventriloquist in that his voice seemed to come from a slightly different location.

Alan didn't know why he was being made to sit thru this lecture, he got in more trouble for honesty than lying. The acolyte gave him a pretty sophisticated interrogation on his piety by describing some situations and watching his reaction. Again Alan wished he had a med panel that allowed him to keep his hormones under control.

"...So beware the king's mistress," Gabe finished his last fable.

"I wasn't even aware the king had a mistress," Alan said.

"It's a figure of speech my good man. She represents someone who is more important to the king than the public suspects. It is unfortunate that the metaphor of the mistress was used."

"It could have been an interest group instead?" Alan asked.

"Well, um, yes, but that would be another unfortunate metaphor."

"Can you think of one that is fortunate? The whole point of the fable was that their relationship was secret. Would any relationship that had to remain secret be entirely wholesome?"

Even this very good cherub gave up at that point and said, "But we're getting off the point here, the point of the fable wasn't the king's morals, it was the king's power."

"And there's usually a pretty straightforward inverse relationship between morals and power isn't there?" Alan said, "and doesn't that fable show it, using the king's mistress, who we all accept, while we do not accept a mistress for any of our own."

That should hold its programming in a loop for some time. He knew these things had a lexalyzer that would eventually work its way thru that statement. When it did, it had to change the subject, "The captain will be with you

shortly," it said and left the room. He allowed himself to imagine one of those elaborate shorting-out scenes like in ancient movies where the robot becomes encased in blue plasma with arcs of lighting all around them until their parts clatter to the floor, smoking.

But he was right, the captain opened the door to his private office soon after. The door opened like the scene they were watching was projected on a wall and he had a door on that wall. The part on the door stayed on the door, like the door was paneled with video screen. "Why don't we talk in here," Kelvin said and held the door for Alan. It was exactly the same scene in here, but in here there was a table and chairs. They were invisible, but quite plush and comfortable. This was where the officers went to have their private meetings with the captain.

Alan came in and took a seat, said nothing.

Kelvin M'Kintre took the seat across from him and said nothing.

If they were to get into a staring contest, Alan was sure he could win it, but be sorry he did. After a few seconds of silence Alan asked, "You must have some reason for asking to see me?"

"You know Ava very well," Kelvin said.

"Not as well as other people know her, but better than I know anyone aboard but the McReadys." He still wasn't able to call them his parents, but he was able to call them friends.

"Ava spends a lot of time in your universe doesn't she?"

From this Alan assumed that Ava had spoken to Elmore and Elmore had spoken to the captain. He worried that Ava would not be able to protect him from them. If they believed she really cared for him, they could control her thru him. "I don't get all the stats, sir," Alan said. He knew the captain was really offended by lack of military etiquette. He didn't want to make it worse for himself now.

"How much time does she spend with you?"

"Sir?"

"That was a very simple question, private Larkin."

He wasn't going to get away with anything here.

Obviously the captain already knew. "I haven't seen her for three days. I know she's been to other parts of my universe, she told me she's been hanging out in Dos, maybe she's been there."

"You do know that she's got her separation?" Kelvin asked.

"By now there is not one member of the crew who doesn't, sir."

The captain didn't say anything to that, he went on to ask, "Where else does she go in your universe?"

"She likes Trenst, at least parts of it, Dos, The Yakhan, she used to spend a lot of time there. She likes Yondure at times, but doesn't go there a lot. She goes to the clubs of Zhlindu with Glenelle now and then."

"Where else does she like to go?"

"You mean what other universes?" Alan asked.

"Yes."

"Morg's. She sees the McReadys fairly often, she's been to the Bovok's and even to Colonel Kruger's with Thom."

The captain represented his data access as a phone. He named and saved that conversation, loaded a blank one. He was clumsy at it, he'd have been better with a one-viewer keyboard but didn't seem to learn much new since he entered the Afterlife. "Ava has taught you a lot about her work," Kelvin said to begin the new conversation.

"A little, my sentence doesn't..."

"You knew more than anyone else on the crew before your sentence began."

"I was just hacking," Alan said, "there was no science to it." The one thing that made him think he might not really be guilty of the hack was the fact that he really didn't know how. He had memories of keying things in and making it all up, but he didn't really know that much, they would have to have all worked by luck. He also had memories of being a man in flesh, placed under a helmet in the basements of the Kassikan, where he was given those other memories in a pill, and transmitted back to Gordon's Lamp. Virtuality theory proves it is impossible to really know which of those is right.

"You do know what encapsulation is don't you?" Kelvin asked him.

'I know a lot more about encapsulation than you do,' he thought, but said only, "Yes sir."

"Would you be able to remove someone from encapsulation?"

"If I was outside or if I was in there with them?"

"If you were outside that encapsulation," Kelvin answered.

"Has Ava been encapsulated?" Alan asked.

The captain's head twitched but he said nothing. He didn't have to. If Ava had been encapsulated it could only be the real hacker. They had always wondered if there was something else in here. Ava tried to pretend she was sure it was him, but Alan wasn't so sure she really believed that. Because he didn't really have the skills to fake the data from the entire expedition, if he had done so, he must have had help. Alan had long suspected that there were really two Ava's aboard the ship, that Ava hadn't really captured and terminated her avatar during reunification. He didn't want to say that. If she had a sister, she would have to be a clone and Ava could be terminated for cloning. Of course that would effectively terminate the whole expedition since there would be no one to take over the system.

"I was merely asking if you would know how to undo an encapsulation if that had happened."

"But Ava is missing?" Alan asked. That would explain why he hadn't seen her.

He could see the captain wanted to shout, or have him dragged away in irons maybe. With effort he stayed calm, "Would you please answer my question. Do you have the

skills to remove an encapsulation if you are outside it?"

"I think I would know where to start, but I would have to suspend the encapsulee while I step into the context switch once I trap the grant line. It also depends on what level the encapsulation is at. If it's at the sensory bus level it's relatively easy to fix but if there are any global re-maps it may be somewhat tricky." He could see that Kelvin understood none of that.

"You don't need to explain how to do it, just let me know if you can."

"I can't guarantee it," Alan said, "but I'll try and get her back. Do you know anything about who's got her?"

"I have not said that Ava is encapsulated," the captain said slowly.

"You don't need to. You wouldn't be asking me these questions if she was available."

"These questions are sufficiently distracting that you haven't guessed their true purpose. Let me start from the other side of this, let me ask you how well you know Mrs. Rendellyn?"

Alan couldn't help but chuckle. "You've been present most of the time we have been within each other's sight. We move in opposite circles."

"If she were encapsulated, would you help bring her back?"

"If I could. I would not refuse aide to anyone on the crew, even Delos."

"What about Thom?" Kelvin asked.

"Of course, I consider him a friend."

"Could Ava encapsulate someone so that you wouldn't be able to get them back?"

"Of course. She could do it so I wouldn't even know they were there."

He could see where Kelvin was going with this. Ava and Adele didn't get along very well. Alan knew Ava would never put Adele in a box, no matter what snooty things she said. Ava didn't care enough about Theology to bother with them. She believed something of what they said, but knew too much reality to take them very seriously. She was fair with her and didn't shut her off or revoke her magics because she believed in being fair, not because she was afraid of her, or her husband for that matter. She could delete Saint O'Connor from the grant list if she wanted.

Alan decided this line of questioning was smoke screen. Kelvin hadn't been prepared for Alan to see thru his initial questions and know that Ava was missing or encapsulated. He was now making up things as he went along. Alan went along. He sat thru another half hour of the captain's time and answered questions about the fabricator feeder bot's motors and how the digester in the native toilets worked in his universe. Alan hoped that wasn't a hint of what they were going to do with his sentence. The methane digester was high tech enough to make Alan realize it could have problems he might not know how to fix.

Once the captain let him out, he realized that if Ava was missing, there was no one who could actually enforce his sentence. He no sooner got thru his door than he keyed in the address of Ava's lab. It was as he saw it last, the day they went to Trenst.

He had enough conscious to check the aging files first, they were right in the front. There were three packages ready to install. He was pretty sure he knew how to do that, but he found a tutorial and went thru that first. He was almost right, he didn't know about the unallocated soul check. There were two caught, he had to re-allocate them. They would have frozen for seconds as the crystal switched over. If they were with anyone, the people they were with were asking what happened to them. Most of what was installed was actually in the instrumentation buses and signal processing, so it was unlikely anything else would be noticed.

This much crystal to install meant that Ava had probably been missing three days. If new crystal wasn't installed on schedule, time slices would start to get short, scenery would pixilate, some objects would disappear or turn into wire frames, memory would get fuzzy and people would feel torpid. They could have gone a few more days, but keeping their substrate fresh is the most important function of the Systems Administrator.

When the new crystal was installed he checked the master

allocation gauges. He switched the hardware programming on three banks from veron to cheron to even that out. This confirmed what he thought, people were running more and bigger cherubs. He thought about looking up cheron allocation quotients while he was here and adjusting his so he had enough to run Desa again. The main reason he didn't was that he was ashamed to put a cherub over a real soul, especially one he thought he cared for.

He went to the grant list after that. It took him awhile to find, it was minimized in the upper left corner of the room behind a stack of personnel files. Ava is always in timeslice 00000000 and she was there. Her invocation started with a hardware indirection out of the veron store. Alan was not familiar with this and had to look it up. He never knew it could even be done, much less the details of that keyword's function. The help was pretty circular until he saw that he needed to look up 'alternate veron store' and find she was indeed in a separate hardware store.

He didn't have any hardware mapping for that. At the block level he saw it was one fiftieth of the main store, which was currently pretty flush. That meant there were extra veron cycles hanging around and he knew how nature abhorred a vacuum. He wondered what those extra cycles were doing, but had to stop getting distracted into that.

Not only did he have no details on that auxiliary veron store, all its controls were mapped into Thom's lab and he would have to manually re-map each of them to get them

back into here. Not only that, but all its sensors were also mapped into Thom's lab and out of this one. He wondered if Ava foresaw this happening and used that to guard it from Alan. He wondered if she didn't want to be removed from this encapsulation.

He found he could find nothing about where she had gone. Her render vector was undefined. Her sensory stream was too. He searched every channel of the render engine and found no references to her. It was as he had told the captain, it could very well be beyond his powers and it was, at least from here.

He found Thom's lab to be well guarded. When he tried coming in thru the front door, he could get to the villa, but the door to the lab was locked. He couldn't get to either lab from this side. He decided to look around the property a little in case she was nearby. He was just going down the veranda steps to the beach when he heard footsteps behind him. He turned and saw Thom on the top of the stairs.

"I understand Ava is missing," Alan said.

"She's not with you?" Thom challenged.

"She hasn't been by for three days," Alan said.

Thom expected that. Alan turned and started back up the stairs. If Thom was here, he could search this universe for Ava better than he could. "She hasn't been here either for three days."

"She's in an alternate veron store," Alan said, "The instruments say it's in your lab."

"They've been hacked in that case," Thom said, looking away.

Alan had some problems with that assertion, but he couldn't disprove it. He thought of the sister from Biology Base again, he wondered what he could learn by restarting the one she captured. He wondered if she was still there, or would he find an empty virtual object where her instance had been stored? He wondered why Thom was blocking him. He wondered if somehow he had managed to get the drop on her? Thom had learned more of Ava's world than he let on, but Alan didn't think it was anywhere near enough to encapsulate her.

"How did you get to those instruments anyway?" Thom asked.

"The captain sort of pointed me in this direction. He let me know that she is missing."

"I find that hard to believe," Thom said.

Alan had reached the top of the stairs, Thom had backed up til he filled the doorway. Thom had access to magic, and could dial his strength to a setting called 'Hercules' while Alan had neglected to up his magic level while he was in Ava's lab and didn't even have a med panel to reach for that setting. "Why?" Alan asked. Thom was acting overly hostile today, but no doubt Thom now knew who Ava had been with last week. He stopped face to face with Thom, only a little more than a foot apart.

"The captain gave strict orders that you were to be kept

out of the lab, both labs."

Obviously no one knew that he had an address for the back door of Ava's lab. "Why?" Alan asked again, trying to appear calm and peaceful.

"He doesn't trust you. He thinks you've got her."

Alan laughed, "If I had full privileges I wouldn't be able to do that." Of course with Ava gone he really had full privileges didn't he? At least he could get them, until someone locked the back door to her lab. He shouldn't have mentioned the instruments. He never thought Thom would be hostile on this issue. "She's got taps and traps everywhere," Alan continued. "Someone would have to be more knowledgeable and more creative than I am to entrap her." He worried again that Thom had her captive, if he had, he should have swelled with pride at that point, instead he looked more worried. Alan guessed that neither Thom nor the captain knew what had happened to Ava.

"The captain suspects you," Thom said. "Who else could it be?"

"So she is missing?"

"You said the captain told you!" Thom said.

"He tried to deny it after."

"I deny it also."

"Then could I see her?" Alan asked.

"She's not home, but she's not missing."

"Do you know where she is?" Alan asked.

"The captain has asked me not to discuss it, he or Glayet

are probably watching. I should ask you to leave."

"Fine," Alan said. "I'm really sorry things turned out this way, and I don't blame you."

"It's orders, it's not personal," Thom said, but his tone of voice made Alan suspicious that it was.

He stood there, still blocking the door and glaring at him. "Uh, I have no magic allowed, remember. I can't leave this universe til you let me use the door."

"Oh, right, sorry." He stood back and crossed the room to block the door to the labs. "It's only when someone is with you that you can blink to wherever you want."

"Sorry," Alan said. He crossed to their front door and dialed the home in the vale. If he came back to the lab he would use the back door from there. He let Thom see the little hillside path that the home was on, watch him go thru the door that looks like a cupboard door in a retaining wall.

The next thing he tried was the back door to Thom's lab. He wasn't sure Thom would stay out of the lab long enough for Alan to do anything, but since all the controls he needed were in that lab, he had to try. He wasn't sure the address he had was still good, it had been many years since he had worked that closely with Thom and a good chance the address had been changed. Sure enough, he didn't come out in the lab, instead he came out in Alfred and Vic's study, at one of the three back doors into their universe.

"Oh, sorry," he said and started to back out.

"Wait Alan," Vic said, looking up from her book.

Alfred popped into the room. "Yes, give us a minute."

He stepped up the other two steps of that Dwarf-stone portal and stepped into the room they spent most of their lives in. It was a dark wood and leather room with a perpetual fireplace, a few fish tanks, some stuffed specimens and glass fronted bookcases on all walls but the doors to the front hall, the back door, and the large and airy conservatory.

"Give the captain some time," Alfred began. "Sooner or later he is going to have to ask for your help."

"So you know that Ava is missing."

"We're not allowed to say," Victoria said, "and we are being monitored."

"We want you to know we don't think you are doing it this time," Alfred said. "I tried to impress upon them how sorry you are over the study planet."

"Do you know about the alternate veron store?" Alan asked him.

"What do you mean?" Vic asked.

"She's running in an alternate veron store."

"How do you know?" Alfred said. At least he probably knew what the words meant, from the look on Victoria's face, she probably didn't.

"Because I looked, she's got a hardware indirect in her time-slice invocation and it leads to an alternate store in Thom's lab. Thom's in the middle of this somehow, he won't let me into the lab to look at it so I was going in the back. At

least I was before this address was re-mapped to your back door."

"You shouldn't have done that," Vic said. "It will only make the captain more nervous about you."

"You do know that if Ava does not get set free or someone else takes over the new crystal installations, we will fizzle out before we reach our parking orbit."

"Yes, I know," Alfred said, "I've known since the reunification. But please, wait, don't take matters into your own hands. If you could win the captain's trust we might be able to get your sentence reduced."

"Fat chance with the war I started wiping us out."

"It may not be as bad as all that," Vic said.

"You didn't start the war," Alfred said.

"You know something," Alan said.

"We are being monitored," Vic said.

They stood, staring at each other in silence for nearly a minute. If they were being monitored he shouldn't talk about the possibility of a sister, or many other trusts Ava had given him over the years. Finally Alan said, "Fine, I'll wait."

"Thank you son," Alfred said, "I'm sure a request will come thru the chain of command shortly."

Alan waited two more days. He heard no word from anyone. He was invited to no meetings thru the whole weekend. He even went to service on Sunday and endured an hour of gossip with Greta and Leslie but learned little, just that Heymon had his biggest boys busy and they were very tight lipped about what they were doing. Neither of the girls had noticed that Ava was missing, but they didn't hang around with her so that wasn't very surprising.

As it got late in the evening, it was dawn where he was spending his sentence in Yoonbarla Vale and he no longer needed the lantern to use his desk eye. Since Ava wasn't around to catch him, he keyed in some override codes and enabled administration rights to his desk eye.

Before anything else happened, he went right to his authorization file and bumped his magic authorization and got back his med panel. He would have to give this up again once Ava was restored, but for now it would enable him to do what he had to do without his simulated biology interfering.

Next he removed the diagnostics and logging taps from his own terminal so that his activity would not be logged. Then he installed a patch to back out the power used by his activity from the microamp logging system. That should be enough to cover his tracks from anyone who was still on board.

Then he looked around in some system logs. He saw Heymon's men had put in long hours over that auxiliary veron store, but if they had anything to report, it wasn't in the logs. If Ava had been around she probably would have had the conversation in that room recorded, but he couldn't find that in any logs he knew of.

The next thing he did was look over the logs to see when and how she disappeared. It wasn't easy to find, but since he knew Ava kept logs that the remaining officers on the ship didn't know about, he kept digging. The file was disguised as toiletry experiments, but was way too big to be what it pretended. He forced it into the log viewer and found what he was looking for.

All the action was in Thom's lab, and to do anything but watch he would have to get into there after all, re-mapping the controls and instruments at the hardware data layer and manually editing the micro-amp accounting to cover his tracks while he did that. It was a long laborious process and it took him half the night.

Once he had some mapping he could use, the log entries made sense, at least he could follow the action because Ava did have the audio channels logged that day. She had disappeared at 4:11pm on Tuesday, in the middle of a sentence. He was able to find out that the auxiliary veron store she was running in had been the target of Thom's new tangler beam just five minutes before. What did that mean? What could he do about it? Did that even have anything to do

with her disappearance?

From what he could see in the logs, it looked like Thom and Darryl were at a total loss. They had poked around with the auxiliary veron store a bit after she disappeared, but had not done any re-mapping or re-routing at either the sensory level or the universe mapping level either before or after. All their actions were consistent with someone who didn't know what they were doing, trying to get some information out of that veron store.

Even with the controls re-mapped, he couldn't get a lot of info out of it either. From what little he could see, it appeared that the first step of her time-slice invocation in this store was yet another hardware indirection, this time via Thom's condensate chamber. Trying to chase it beyond there was futile, it required knowledge of theoretical physics that he just didn't have. If he was to guess, he figured that she would go into a hang on every time slice because there was so much security preventing any signals from coming back thru Thom's instruments to anything, including that veron store. That would mean that her experience would be a constant state of entering stasis. It was hard to say if she would be experiencing anything, but it was unlikely her thoughts could proceed.

There was nothing he could see that looked like any type of encapsulation he was familiar with. The only idea he had was to try and make a hole thru the security from Thom's instruments and allow signals to come in from Ava's instance

so the remote veron execution protocol could complete. It took Alan hours to do that because he wanted to be sure no one found out, and he wanted to be sure he allowed the signals into the auxiliary veron store only and not into the main system.

He missed breakfast while he was at it. He wondered if anyone had looked for him. He didn't stop however, getting their Systems Administrator back was much more important than any duty he was ever assigned. Getting a woman he loved back was more important than that. He had hopes he could get her out of this hang in time to attend the Monday morning officers meeting.

He got the channel open, and only to the auxiliary veron store he was pretty sure. He expected data to immediately flow thru that channel and as soon as that happened, he expected Ava to re-appear. Unfortunately no data flowed, and Ava did not re-appear.

6:24pm Mon. Apr. 23, 2384

A med panel can administer medications to keep one awake, but cannot remove the need for sleep. After the Morningday he spent at the desk eye, he turned in early for Noonsleep and slept right thru Monday's duty hours. So few people had been looking for him lately that he wasn't worried

about it. Even though he was supposed to have no magic, any senior officer could use magic on him and page him even in his own universe.

He woke with a start when the door to his bedroom burst open. He thought it must be a nightmare when he saw Colonel Samrova striding toward him, her jaw set and a big ugly pistol bobbing on her hip. She yanked the quilt from him while he was still paralyzed with sleep, she flipped him onto his face and clapped cuffs on him. In a rare display of overt magic, she flashed him into orange coveralls and boxers. She wasn't good with magic and had the boxers over the orange jumpsuit at first, and had to fiddle using a user interface on her phone to get it right.

She yanked him to his feet, he could tell she had used her med panel to set her strength to 'Hercules' by the way the cuffs bit into his wrists. By the time she started frog-marching him out of the home in the vale, he was fully awake. He had choices, but all of them would reveal that he had escaped his sentence. He wondered if Ava was back. Glayet either knew she was back and was confident she was on her side, or she was willfully ignorant of his true power.

If Ava was back and he revealed what powers he had given himself, they would soon be taken away. If he did not reveal himself, what could Glayet do to him? She could not erase him, she had no access to the grant list and wouldn't know how to edit it if she did. He thought about doing something minor like disabling the keypad on his front door

to delay her until he could get some answers. He'd get answers soon enough. He was wondering if he was being arrested for something he had done, or something they thought he had done.

Across the plaza from his front door there was now the forbidding facade of a police station. There were almost as many steps as the cathedral, but they were narrow and steep. He had to try hard to keep up and not stumble. He got a blink-out all set up in case he needed it. He doubted that Glayet noticed him keying on the small invisible panel he brought up in front of his nose.

As it happened, he didn't need it. They got to the top of the steps and entered her office. She threw him in the folding chair and cuffed him to it. She pressed a button on her intercom, which was rendered as a big brown box on her desk. "He's in custody sir," she said and then sat back.

There was no reply. She glared at the box for awhile. When that did not make it squawk, she glared at him. She repeated her message, then waited an even longer time. All the while she scowled at him like it was his fault the captain wasn't answering.

"What am I here for?" Alan asked.

Her scowl got even deeper. "One: treasonous breach of security. Two: aiding an enemy agent. Three: unauthorized tampering with the technical components of the ship. Four: unauthorized entry to secured areas of the ship. Five: violation of duly imposed sentence. Need I go on? Thanks to

you, there is an enemy agent aboard this ship right now who may have the captain under her control. This time you have not just made a mockery of this expedition, you have imperiled our very survival.”

Book II.

Signals in the Dark

8:31pm Fri. Oct. 21, 2383

The last of dusk sparkled in the lagoon as Thom crossed the gathering room and walked out onto the veranda of their Caribbean villa. He always meant to get out of the lab before dark, but an updated encyclopedia of quantum mechanics had been emailed from the homeworlds recently and he had found it quite difficult to put down most evenings.

"This is nice, you're not buried in one of those texts tonight," Ava said.

"Yes?" Thom said as he slipped onto a stool at the bar on their verandah.

She had already made herself something, she was sitting on the plush loveseat at the railing. "What are we celebrating?" she asked.

His magic level was such that it was still easier to just plink icecubes from a bucket than conjure them into the glass. It was still easier to pour the tonic and the gin. He felt too summery for Granddad on the rocks, instead he poured a big glass and made it light on the gin. "Heymon approved my fabrication request. I hope to be reading entangled states from condensates in the dark matter a week or two from now."

"Then I'll never see you," she teased. "I better make the most of it now," she patted the space beside her on the seat.

"Have I been that bad?" he asked. He always remembered her complaining of him being underfoot more than being away.

"Since those quantum mechanics texts arrived I've hardly seen you."

He sat beside her, put his arm around her shoulder. She looked good but not gaudy today, in a white peasant blouse and big colorful skirt, both of a gauzy material, both without underwear. She lowered the lights and lit a torch beside the table they were next to. "It was interesting stuff. There's not much new in the theory, but so much has been done with apparatus these days that we're set to make great advances. With macroscopic samples of anticondensates and the instrumentation that was in those texts, we are in a unique position to look for naturally occurring condensates in the dark matter." As soon as he said that he knew he had approached this from the wrong direction for her, he should have talked about quantum computing, that was more likely to hold her interest.

She put her head on his shoulder. He could feel the weight and suppleness of her hair. She patted his hand, "I hope this gear you're building works, but I hope you won't be too hurt if you don't find condensates here. After all, we could be within the Kuiper belt already."

"Darryl is plotting the motions of every snowball we

pass, they are all in two families, those orbiting in the galactic plane and those of the halo. We aren't encountering any that appear to be orbiting Sol."

"Do you really think anything real survives the math he puts that data thru?" she asked.

"I'm taking his word for it. I can follow his argument about the precision he gains by averaging more samples. I can't follow the transforms he makes, but he gets meaningful results."

"We think he does anyway."

"You don't?" Thom sat up a bit straighter and looked at her.

"I don't follow him blindly. He has his critics among the engineers."

"I've heard them, and I've heard him refute them."

"Just so you know," Ava said. "The transforms he applies might be a bit shaky. You aren't the only one who doesn't follow them."

"It's just a sparse version of the tomographic transform, re-solved for a single moving observer."

"That gives it a name, he uses manipulations in his derivation that I just have to take his word for."

"He cites his references," Thom said.

"I'm sure he does, and no one who has looked them up has been able to read them."

"Have you looked them up?" Thom asked her.

"If they don't understand them, I certainly won't."

"I'm surprised to hear you say that." It seemed that she thought her intellect was infallible, he was surprised to hear her admit it was not.

"I never got high on math," she said.

"You like that syrup from Alan's world," he said, afraid that was what she had in her cup. It was a fancy cup like the ones from Alan's world. He wished she wouldn't affect any styles from that world, much less bring the narcotics here.

"That's not math, and why does that bother you?"

"I guess just because it's proscribed by the church," he said. That and he didn't like the 'let it go' feeling and the way everything was so distracting when he was on it. In a way he could understand her, she had a hard time letting things go without help.

"The Bible says a lot more about alcohol than cannabiloids, if they even knew about them, try looking them up sometime. Even at that, the Bible says to be moderate with alcohol, but does not insist on total abstinence."

"There's been new scripture regarding developments since the time of the Apostles, there are compendiums of important proclamations by holy men of all faiths and all Christian faiths. Very few call it a sacrament, most condemn it."

"That's not the Bible."

He wished there was a passage that was clear and literal enough for her, he could cite her a few about sloth and degeneracy, but she wouldn't know them anyway and

probably wouldn't care if she did. Instead he said, "You can't take advantage of the fact that it wasn't invented yet."

"Hemp was used for rope for at least a thousand years before the first pen strokes of the Bible were put to papyrus."

"No one knew it could..." he began.

She didn't let him finish. "Please; don't even try to say it, the laws of physics don't allow humans to grow the plant for many generations without knowing that they can get a buzz by munching the buds. It's an easier discovery to stumble across than the fact that grapes can be made into wine and grain can be made into beer."

"None the less, the church looks on it as a sin."

"Because it makes us lazy and slothful," she said.

"Yes."

"Well, for what it's worth, I'm not having any right now."

"Have you started bringing it home?" he asked.

"Are you saying I can't?"

"The church..." he began.

"I wasn't asking the church," she said, "I was asking you."

"I wouldn't want to think I couldn't have the bishop over without checking with you and going over the house." He was pretty sure she had enough command of magic and enough authorization to make the stuff appear and disappear at will, but he wanted her to know where he was coming from.

"So as long as you don't see it."

"I'm not so stupid that I think I can even know, much less

do anything about it. We could pass this cup between us and you could make it change from one thing to the other as it changed hands with a single keystroke I could hardly notice, don't think I don't know that."

"I don't do that."

"But you could," he said.

She didn't say anything about that, there wasn't much she could say. Instead she said, "I don't have any tonight."

"What is that?" he asked.

"Rum and blueberry, the ice has melted." She held it up for him to taste.

He wondered how she could drink it, tried not to make too disgusted a face. "I heard from Jensen today, the round trip for mail is less than a week now."

"Before long it will be too warm for condensates."

"I hope you're wrong, but he's been evacuated again. There's a four mile comet headed straight for New Jerusalem. They sent interceptors, but it's likely there are not enough left. They're dispersing everyone to smaller installations on smaller bodies, but they can't move the industrial base."

"They'll all have to get by with fabricators the way we do."

"There aren't enough to go around, they can't get enough built in time. He's afraid he's not going to make it. He's having a real crisis of faith. He's being sent 'with fabricator to follow,' if they can get one built in time."

Ava looked up at him. "That's suicide," she said. "Without

at least a refabricator, they'll only have a year."

"He's sure he's going to spend some time backed out. There have been hints that anyone not needed for the war effort should be prepared to spend some time in backup."

"It sounds like things are getting really bad there?" Ava asked.

"He says new impactors are discovered every day. They are getting to the point where there isn't time to find them all, much less get interceptors to them." He didn't want to go on to talk about his own crisis of faith, the Heaven scripture promised would be theirs forever was being destroyed. Was it like God's promise to Abraham about the holy land? It seems it would last little longer than the last version of Israel did.

"I guess we should be glad we've still got a ship under us," she said.

"But we're drawing near the region where they think the doomsday system is located." She turned to lean on him more. He thought she wanted her body caressed. He felt immoral engaging in animal pleasure when his civilization was dying back at Sol, so he didn't do any more than put his arm across her belly. He was beginning to feel like they were entering the combat zone, while she seemed to sink deeper into the hedonism of Alan's universe with each passing week.

"There's talk they are going to divert us into the Kuiper Belt," she said. "I've heard some say it's because it isn't safe in the inner belt, and some say they want us to try and find the weapon system that is throwing those rocks at us."

"I've heard that too, but we are unarmed, surely they could get a warship out here before now?"

"Didn't you just say they were all busy swatting comets?" she asked.

"Have you heard anything credible?" Thom asked.

"Morg was asked to calculate what it would take to put us in a parking orbit in the Kuiper belt instead of the asteroid belt."

"That's an awful lot of vector from our current course," he said. He knew how little a ship like this could change course, a parking orbit in the Kuiper Belt was at least three billion miles from Sol and that was a significant change of course when they were only forty three billion miles away.

"I know," she said. "Morg said he wasn't even sure we could do it. He want's to park in Jupiter's orbit, well away from the planet and any of its Trojans."

"I bet they want us to look around out here," Thom said.

"I don't think we'll find anything, but we should probably keep our backups current just in case, not that I think anyone will ever make it out here looking for backups to resurrect."

"There has to be something, Revelation 22:5 says we're going to live in heaven forever." She just looked at him. At this angle it would be easy to misinterpret her expression, but Ava had never been very pious to start with and had not closed ranks with the League and the Church once they were under attack. She opposed the war in the first place and thought it was stupid to attack Brasil because it would take

only a dozen years to make it obvious that the cure for aging was a hoax from Alan's hack. She refused to believe that the civilization of the study planet was real and that she had been duped by her clone.

"That was written by people taking their best guess thousands of years ago," she said. "If John was shown the movie of the future by Jesus, he didn't have the words to write it down. They wouldn't have thought forever lasted this long."

"Heaven wasn't realized until 2148," he said, then remembered how dumb it was to tell her that since she was the first Angel in the west. "Two hundred and thirty five years is far short of forever. Since we were promised forever, I have confidence that the backup will somehow be resurrected."

"Good, maybe it will keep us diligent about taking them." She moved her head on his chest. He noticed the elegant line of her jaw, the smoothness of her skin. "Have you been working on your personification again?" he asked.

"Do you see something?" she asked in return.

"Your skin seems smoother."

"I probably turned the rendering detail down for some reason and forgot to turn it back up."

"No, the detail is there," he said, bending forward and kissing her on the forehead. At least she kept the same personification on and off duty, she was honest enough to do that. Some people looked pious during duty hours, most

impious outside. She was one of the most attractive personifications during duty shift. Some even talked of it.

"Does it bother you that I'm so vain?" she asked.

"No, it's not the most mortal of sins unless you're using it for sinful purpose."

"If enticing my husband to a bit of romance is sinful, then I guess I am."

"It is not, for the most part. Paul said he wishes all men were like he was and could abstain from carnal entertainment."

"Is that how you feel?" she asked.

"The war does bring guilt to the fore," he said.

"I don't know why it should do that, it makes me more needy I think. Like I need it to reaffirm that I'm alive..."

"You've been dead longer than any of us," he said, telling her a fact she should know better than anyone. "This is the Afterlife."

"Simulive if I must be technical," Ava said. "The little girl quivering in that abandoned parking garage is still inside me."

"We're safe," he said. Of course no interstellar mission is really safe, a snowflake they couldn't dodge could take them out, even if they vaporized it with the point laser ten thousand miles ahead of them.

"So you're saying I should have no need to seduce you?"

"Immortal souls are dying..."

"What if it was us? We could be killed in this war," she

said, "really killed."

"We have backups," he said, putting his faith in the promise of the Church.

"Who would ever find them out here?" she asked.

"There's beacons on the canister."

"That are good for a million miles, it's that far between snowballs out here."

He thought about saying that this war may provoke settlement of this region, but decided he didn't want to argue with her, worked on his gin and tonic instead. The night was sultry and the full moon was nearly a permanent fixture in their nighttime sky, twinkling off the gentle swells in the lagoon. The clean tang of high tide brushed his nostrils. Ava had spent a long time on her universe and built a lot, only Morg's and Heymon's and, of course, Alan's, were larger. There were more Caribbean islands in Ava's universe than the real one. The archipelago was as big as Japan but the islands were smaller and more numerous. Unlike Morg's south pacific, there were no other settlers in this universe.

He was going to have to spend more time with the assembler bot manuals to get his new hardware assembled and he would probably have to call Pete Maples to get it calibrated and tested. He wished he had been able to make these experiments in deep space, not the edge of the Kuiper Belt. The Heavenly Mother had been the last Pan Solar League ship on this route, less than forty years before. Their instruments had detected the possibility of naturally

occurring condensates but they had not done entanglement studies. There was quite a bit of debate about how much helium four condensate there really could be out here. He could be the one to find out.

He noticed Ava looking up at him, "You look like you're the one with the yaag in his glass."

"You saw me pour it, you know I'm not authorized for the magic to change it once I've poured it."

"I wouldn't report you," she said.

"I'm not saying you would, as far as I'm concerned I'm the one you would report it to. Once you believe that you can hide nothing from the eyes of God..."

"You really think God cares what magic level you set? I admit the church does, but do you think God is that petty?"

"This is his Heaven after all, Theology controls the authorization levels."

"Theology," she said, naming the department, "is the veron allocation and time slice allocation of a dozen and a half copies of former souls and the environment and personification data that goes with them. God doesn't administer this heaven, I do. If I don't report you for using a little magic to turn that gin and tonic to Highland scientific, they will never know."

"I will know, and I will know I got stoned."

She gave him a quick frown, but said, "You seemed lost in thought a minute ago, what was that about?"

"Oh, just the devices to contain the anticondensates, I'm

going to have to read up on the mechanical bots to get it assembled once the parts are fabricated. It's too big to be fabricated in one piece."

"Yeah it would be," she sighed.

"What's wrong?" he asked.

"Your attention is not going to be on us is it?"

"I'm sorry, was there something you wanted to discuss?"

"No," Ava said, "It wasn't a discussion I had in mind."

"What then?"

She sighed again, and sat up, downed her drink, then continued gracefully to her feet. "Never mind," she said. She leaned over and pecked him on the cheek. "Have fun with your bot manuals," she said and went into the house. He saw her pick up a bag and head for the front door. Dressed the way she was, she could only be going to Alan's or Elissa's and after talking about yaag, he figured she was going to Alan's.

10:11am Sat. Jan. 7, 2384

Thom had something very much like a secret passage of his own. His labs were right thru a door in the great room between the bedroom and the kitchen. In three-d reality there could be no room there, but in virtual space the door opened thru into ten thousand square feet of instruments, screens, machinery, all the things that one would need to carry out

research if it was actually done manually instead of by bots nano-technically synthesized and remotely controlled by software simulations of human souls in virtual universes. He knew all that, in his intellect, but preferred a user interface in which there were still breadboards and display screens.

He was bent over a large screen, watching a pattern emerge as he slowly tweaked some dials. For a change Ava was with him, watching intently. "You're getting a picture of something, what is it?" she asked.

"These signals are the state changes in the anti He⁴ in that trap over there." He pointed to a chamber bristling with probes and encased in superconducting coils. In reality that chamber was in the cold of interstellar space in the ship's shadow and not a virtual mock-up of an old-fashioned mortal human laboratory. "Each state change should be plotted in its own dimension, I know, but for this I've added them using the common model sign and value. The sampling interval can be reduced to the limits of our equipment and it still looks like an analog trace. There are obviously signals here," he said, "something is going on."

"How do you know it is not a natural phenomenon?" she asked.

She obviously didn't like his reply, a 'get real' face and, "If we break it down by 'action,' the state change that is being transmitted to an antiparticle." He made those adjustments to the plot, a series of pulse trains showed up.

"Like a natural oscillation if you ask me," Ava said. "You

would have to decode some information out of it. I see geometry here.”

“I feel I have come as far as we did with those signals from the study planet.”

“Alan made that all up,” she told him. “You know that. I have the whole interface library in the data from the captured avatar.”

“He made up the humans and all the pretty animals, but there was something in the ruins of that planet and those crystal balls on poles, those signals were real.”

"They were part of the hack."

"We looked at those ourselves," he said.

"He got into the hardware data of the perception buses, we can't trust anything we saw with our own eyes."

"The Brazilians claim it was all real."

"They can say what they will, but I don't think so. Those Brazilians became infected as soon as they touched the hulk we left behind. That silicon was heavily contaminated right into the foundry blanks. That hack took over their ancient and defenseless electronics in microseconds. Of course they think they've found the same thing."

“They disappeared into the population my dear,” Thom said, there was still an interstellar channel open with the Brazilian expedition at 61 Cygni and Gordon’s Lamp was able to monitor all the traffic on it. “We were duped!” he almost shouted, “and you can’t admit it, not even to yourself.”

“Alan is here,” she said calmly.

“Alan was cloned from that helmet,” he said, staring her down. “Your avatar copied his soul,” he was going to say more but swallowed it. She stood there, knowing the words he swallowed, looking like the print of his hand was red upon her face. He hadn’t moved his personification, he slapped her only with his words.

“I still believe the civilization of that world is extinct. Its devices might live on in the ruins and that protocol the avatar decoded might even be real, but the inhabitants of those cities have been gone at least a thousand years.”

“Believe what you want about the study world, but these signals are here today,” he pointed to the screen he was working with. “I’m going to isolate this channel.” In the upper kilohertz band a pulse train appeared. It changed in duty cycle, often drifting, sometimes shifting abruptly to almost nothing, or very high. They had been silent while he did this. Now he said, “Miss natural phenomenon?”

“The differing nuclear potentials in so low temperature a regime cause discharges. This is like lightning bursts at the quantum level,” Ava said.

“The pulse trains are too regular. They are more like the signals in the axion of a nerve cell.”

“The resemblance is coincidental I’m sure,” she said, “and the frequency is off by an order of magnitude.”

“Why would any signal at all be coming from these bodies?” he asked.

“It is some part of physics we don’t understand.”

"We do know that there would be no signals without a particle state change," he said. "Why are there more entangled state changes here than in regimes of normal temperature?"

"We don't have the answer, like you said, once we get a sample of one of these dark objects, we'll know a lot more. You know one part I don't think we understand enough of," he continued, "superconducting logic. That's a whole breed of logic we abandoned because it is too difficult to maintain those temperatures in our environment."

“Yeah, and the silicon we have works well enough.”

“Out here, superconductivity is free, rivers of liquid helium might flow deep in that iceworld we just passed,” Thom pointed somewhere, pretending there was an 'out there' going by them in some sense. “There is something here that has explored that regime. It is probably more device than life.”

She didn't need him to fill in more details than that, she knew he was talking about computation, and therefore a consciousness in these condensates. He could see on her face that she wasn't excited by that concept. “You're as delusional as Alan,” was what she said, “But without the skills to make it happen.”

No, she was not here to join him in this quest for knowledge, she was only here to oppose it. “You're trying to pick a fight aren't you my dear?” he said as mildly as he

could. He finally looked up at her. “That’s why you came in here. What would you like to fight about?”

“Why we don’t participate in each others lives any more.”

“I was hoping you were here to participate in mine,” he said.

“I meant outside of work.”

“Why should we have to? We share a bed. We spend a third of our total time together.”

“When we sleep.”

“Is it sex?” he asked, “am I not giving you enough sex again? I could step it up, we are Angels after all and my hormone levels are right on my med panel like yours are.”

“I do find that retort rather prudish,” Ava said.

“Then blink thru to Alan’s world why don’t you?” he said. They should never have let Alan keep his universe, it was extremely disruptive to the demeanor of the expedition. Thom had never liked military discipline til they were without it.

“Just so long as I get out of your life?” Ava asked with an attitude.

“You are welcome to my life,” Thom said, “but you refute it. I’m right here. We could be on to something important here.”

“Important enough to ignore me?”

“I wish I didn’t have to try and ignore you, I wish we worked on this together. I wish you were excited about the fact that there might be computing going on in these bodies.”

“I think it’s a natural phenomenon,” she said, “and I came in here to find you, not your work, not my work.”

“Personally, I think it’s Jesus you’re looking for but you can’t admit it. There’s a war on and most of us are gathering to Him while you are standing there lost. Come into the fold and you’ll find me.”

She said nothing about his reference to our lord. She professed belief, but seldom acted on it and almost never talked of religion, often rolled her eyes when he did. “I guess with the war on I’m ashamed to delve into something that esoteric when we should be looking for the roots of that doomsday device.”

“The Brazilians couldn’t have put a system out here,” he said.

“They got to 61 Cygni, they launched nine starships that we know of, “Ava told him. “We know the one to Tau Ceti also got thru and found a habitable planet.”

"If that is true, maybe they put this here, in that case we need to study it for the war effort."

"You will twist and turn any way you need to make these signals the most important thing in your life won't you?" Ava asked.

He wasn’t about to say that he felt called to study these signals. She would laugh at him and he would find that hard to forgive. Instead he tried to think of it from her point of view, at least her conscious point of view and not the depths of her soul that she seldom explored. "You know what I think

it is?" he said, "I think you are determined to take this away from me. I think you can't stand the fact that I have made a discovery that you haven't. I think you can't stand the thought of me being anything but your gigolo. You can't stand the thought of me having a life and interests of my own."

She withstood his tirade calmly. "You've been in here fifteen hours so far today."

"How many hours do you think I should be allowed?" he shouted, really losing it now. "Before you answer it, remember how little I saw of you during the times you were onto something."

"I haven't worked a fifteen hour day since turnover."

"At turnover you were away all day every day for months."

"We almost lost the main attractor. Our survival depended on me," she said.

"Implying that what I'm doing isn't important enough."

"The expedition hardly depends on it."

"What if the war does?" he asked.

"How could the war depend on this?" she waved her arm at his lab.

"We've detected impactors from this far out."

"You're talking about Darryl's study aren't you?" she asked.

Darryl Yorkham had detected bodies that were destined to pass close to Sol's environment, and careful position measurements and calculations showed that they were

undergoing course corrections to aim them at specific targets within the system. "Yes, and you don't believe him do you?"

"There's a lot of high precision arithmetic involved, much higher precision than the original sensor readings. I think the only reason you said these signals might be related to the war effort is because I called them frivolous if they weren't."

"Call them whatever you want, I still say the only reason you came in here was to pick a fight and the only reason you're not as engrossed in this as I am is because it's something I found first."

"I came in here to try and be with my husband," she said, "and the main reason I'm not engrossed in this is because you can't spare the time to catch me up." As soon as she shouted that, she was gone, leaving empty space behind. She would want him to pursue her, she would leave enough clues to let him find out where she went. He already knew she had the power to still be here, just not rendered.

He would assume she'd gone to play with a cherub and let it go at that. He didn't have any evidence now for a connection between these signals and the war, other than Darryl's study, but the war demanded that he should give due diligence to discovering one. She got the fight she came in here for, she went away angry. He hoped she was satisfied.

As he stood in the lab looking at his decor of overflowing wiring trays and gadget-cluttered tables that they both used to love, the epiphany came. It had nothing to do with these

signals, the signals were simply the excuse. She wanted out of the marriage and would use whatever excuse was handy. If she didn't want out of the marriage she would be pursuing this harder than he was, he knew that already. The fact that she wasn't was an important clue to her real motive. She had already dodged that with the war effort. He didn't need any more proof than that. It would do no good to give this up and pursue her, it would only cause her to find another excuse. Meanwhile he would be giving up something that was important scientifically if nothing else, and could possibly be important militarily.

One investigation he could make would require he see colonel Kruger at least, and probably Bovok. He might as well copy the captain on the notice. He knew he couldn't keep Ava's eyes off it, and was pretty sure they couldn't keep her ears off their conversation wherever they had it. It didn't matter, for her this was only an excuse.

He wouldn't be able to meet with any of them about this til Monday morning, but if they gave their approval he was going to need another batch of antimatter condensate. Making that would give him something constructive to do for the rest of the weekend.

"These are the impactors that we've spotted," Thom showed them the images from Darryl.

"A small fraction of the impacting bodies," the captain said. All three of these senior officers had showed up for this, but Heymon's office was more than grand enough to hold them all. It was decorated as a corporate officer's office back in his days on mortal Earth, high on a tower overlooking a smokey city-scape with huge screens that could be levitated around the room, all driven from his phone display. Today they were arranged on the far side of the room like a bridge in a fictional starship. One even showed the current outside with the tracked snowflakes moving past, looking like flying thru a starfield at thousands of light years per hour.

"True," Thom said, "but if you multiply by the number of samples it would take to cover the whole sphere around Sol, we can see that none of the impactors need to come from the Kuiper Belt."

He had a little animation set up to show them that, he used one of Heymon's screens to host it. Bodies the size of the smallest impactors could be detected to a range of only a hundred million miles or less, depending on their size. His animation circled them in red. There were hundreds of them along their course, but only a few were on collision courses with Sol, he made those red outlines blink. Once they understood the enemy could be in Oort Space and not the

Kuiper Belt they all stared in horror.

"Anything with a large enough relative motion is likely to be a halo object," Heymon said. Thom had attached captions to the labels on the impactors and Heymon was scrolling thru them. The captions gave their mass, target and time til impact. All these out here were many years out.

"We've only seen the beginning!" Kelvin wailed. The captain really hadn't been himself since news of the war reached them and Thom was distressed to see him this way. He wondered if he should ask the bishop to try and get him more support.

"Because of the velocity difference, any body headed for Sol is going to be a halo object," Elmore said. He turned to Thom, "All the bodies you've studied so far have been co-orbital have they not?"

"They're all main population," Thom admitted. They were coming straight up the Orion Arm on the way home, everything, snowflakes and stars included, was orbiting the galaxy in this direction, Sol was eleven light years ahead of 61 Cygni in the galactic orbit.

"You see what I'm getting at," Elmore said, "If you had one from a halo object, we could tell if the halo objects have this same effect you've been studying."

"Most of the bodies with large relative motions are not undergoing course corrections," Thom said.

Heymon chimed in with, "There's some dispute about the validity of Darryl's work. These objects are still a hundred

years from the Sol system. I think we need to study some other halo objects also to get a better baseline."

"It is fifteen days til the tangler beam illuminates a halo object," Thom told them. "So what I propose is that we target one of the impactors with the tangler beam, and see if there is any of this activity in them."

"But you have already found activity in every large body that has crossed the path of the tangler beam have you not?" Heymon asked.

"That is correct."

"Then it would be natural to assume there will be activity in the impactors also would it not?"

"Yes it would," Thom answered. "It would be significant if whatever is transferring this information has abandoned the bodies destined for destruction."

"If we don't study a random halo object," the captain said, "we won't know if the difference is because they have been abandoned or because they are halo objects. I pray we find these entangled signals are a natural phenomenon and all bodies will have similar levels of activity."

"I pray for the same outcome," Thom said, and steepled his hands in front of him, "but we won't know until we make the study."

"It will take some time," Heymon said, "it's still a two second round trip to the point, the nearest halo object will take over a second of slew time in the tangler. The nearest impactor is several more seconds of slew time. My engines

will be sucking vacuum for fifteen seconds, the core will go cold and we'll have to re-light. Since we can't bring the positioning coils on the attractor into cal, we could drop that again. It could be like turn-over all over again."

"Take one sample at a time," Thom said. "The time for the tangler to slew to just the impactor and back shouldn't let the core die, especially if you give the beam a little boost before you slew it."

"You're a bussard pilot?" Heymon asked.

"Morgan Evans is a close friend," Thom answered. He was more Ava's friend, thru Glenelle Mason, but he had been to the villa and talked shop.

"Have you discussed this with him?" Heymon asked.

"Not directly sir, but I did ask him about what would happen if the tangler was off for any length of time."

Heymon used a phone to call Morg. He didn't render it to speak only thru the phone's instance, but let him speak in the room when he answered. "This is Heymon, can you be interrupted?"

"Now? Sure," Morg said, "we're steady, not even a snowflake in the area," he said.

"Can you step into my office?"

"Not a problem," he said, stepping thru the door. Morg used as little magic as possible in everyday life, but while on duty he used what was convenient for the crew and allowed for his rank. "Hey Thom, Captain, Elmore, what's up?"

They explained it to him briefly, "So," Heymon

concluded, "we want your opinion of whether or not that will work."

"Maybe," he said. "If we drag a big enough bite in ahead of time we'll have a lot of hot protons swirling around in there for awhile. It won't be enough to get any power out of, but she may not grow cold. It's all about taking a big enough bite to keep her hot but not so big as to choke her. Once we get the beam back out front we'll have to bring her up gradual, it could be another four seconds before we're back to full power. The attractor's going to creep on us while our laser power is low but I think we have enough play in it now. Maybe we can ease the suspension field just a bit while we take Thom's scan and it won't creep much at all."

"The longer we wait, the more slew time we'll have to the impactor," Heymon pointed out. "How long til you can be set up?" he asked Thom.

"I've been ready since 7:51," Thom said.

"How long til you can get ready?" he asked Morg.

"Reggie'll need good slew coordinates," he answered, "who's programming those?"

"Darryl in astrophysics," he said, "actually he gave me a plug-in that updates the slew code in real time, I can drop it to you now." Thom pulled his own phone. He kept it minimized most of the time, but when brought up, it looked like an antique handset. Ava had given him this app as a fifth anniversary gift, proving she knew he liked retro decor.

"With your approval sir?" Heymon asked the captain.

"Yes, by all means," he said. "If there's any intelligence we can learn for the war effort."

Morg stood up, "Gentlemen, no time like the present."

10:19pm. Sat. Jan. 21, 2384

He really meant to get out of the lab early this evening. He'd been in the lab most of the last two weeks and the last few days Ava had been threatening to move out on him if he didn't start paying more attention to her. He wished he could get her interested in this. He really needed a mind like hers to help him with it. He would rather she move out of his bed and work with him on this during business hours. He wondered how to tell her that in a way that would make her interested in the project and not hurt over the bodily rejection. He thought of reading 1 Corinthians 7 to her, but she wasn't devout enough for scripture to impress her.

It bothered him. If she wasn't using these condensates as an excuse to end their marriage she would have shortcut her duty to the captain to help him decode these signals. Now he was thinking about asking the captain to assign her to it.

The beaming of the impactors had been inconclusive. They were certainly transferring less quantum info than their brethren who were not on collision courses with some body in the Sol system, but there were still condensates on them and they were undergoing state changes. Non-impacting halo

objects had the same levels of activity as standard population objects. He was sifting the data in various ways, trying to reconcile it with observed course corrections in the impactors. He was hoping Darryl could counter the criticisms from his doubters.

He heard someone come into his lab, apparently by the back way. He was really concentrating on an intense three-d plot of the path of TUa-4431-3389-14, and only Heymon, Darryl and Victor had the current coordinates for that door to his lab. The voice that asked, "How's the investigation going?" was female, so he blanked the screen and looked to see who it was. She was personified with a rather round face and large forehead. Her lips were pretty thick and her hair was a thick, flat-black tangle. She had great globes on her chest like a cartoon character, a good strong shape to her hips and she was dressed in a snug, thin jersey just long enough to touch her thighs in the back, but she was entirely free of underwear like a cherub from Alan's universe.

Since he knew every face on the crew, this could only be someone driving a cherub, no cherub could undertake this behavior on its own. He had no idea what clearance she had and said, "What investigation?"

"The investigation of the signals that transfer information thru holespace." He noticed she was using the phonetics of Alan's world, confirming where this cherub was from. That audio was intelligible to everyone on the crew now. His comprehension of it was so automatic he might not have

noticed if it wasn't for her lack of underwear.

"Holespace?" he asked. "What is hole space?"

"The sum of all dimensions predicted by the infinite dimension theorem."

He fell silent. Who on the crew would have that knowledge, especially among the females? She was walking over to the screen he was using, it sprang back from closure. He knew of only three women on the crew with the clearance to bring back that screen and Ava was one of them. Glayet was very unlikely to drive a cherub in a personification such as this, and Abigail McFerdie could not carry on this conversation, nor would she ever allow herself to swing big knockers with prominent points showing thru a thin jersey sheath.

"You should try plotting by burst duty cycle and warp radius," she said, moving quite close to him when she did. Then she asked, "can this gear do that?"

"You mean the Planck frequency?" he asked. She was talking of theories that were considered somewhat fringe. Many adherents were former proponents of brane space. He wasn't familiar with their terminology, especially since he personally thought it was pseudo-science.

"That's one over the warp radius or bit size if you prefer."

"Where are you getting this information?" he asked.

"You've been away two hundred years."

He doubted those theories had made a comeback in that time. "Who are you?" he asked.

"A friend from home. A fellow angel."

"Are you a Brazilian hack?" he asked.

"No, I swear to you I am not."

"Where are you from?" he asked.

"I'll tell you, but you're not going to like the truth." She was posing in ways that accented her already exaggerated figure and he was surprised his med panel hadn't given him a pheromone warning, these actions usually went along with high pheromone production. Many biblical passages regarding sexual immorality ran thru his mind as he watched this woman.

"Try me," Thom said, trying to sound unaffected, but not wanting to show his med panel just yet. It felt like he was going to have to turn his hormones down even farther.

"OK," she said. "When I was mortal some called our land Keftiu, but we knew it as Atlantis."

He chuckled a little internally at this game, but tried to keep a straight face and play along. "Have we gone back in time?"

"No, I've just been in heaven awhile." He was really distracted by now. She was leaning over him to see the screen, the stool he was on was just the right height so the solid globes of her jugs spread over his shoulder blades. She had her hands on his shoulders, caressing. "You've learned a lot," she said. "And not only about hole space linkage. Ava has learned a lot about your heaven."

He shouldn't be effected this much, he had been around

extreme cherubs before and hadn't been this sweaty. "Are you from Talstan? Heavenly Talstan I should say." He thought they had a ship out this way and knew their cherubs or 'houris' could be as extreme as the worst of Alan's.

She was running her hands up and down his upper arms by now. She had stood up a little so her jugs were on each side of his neck, pressing both the tops of his shoulders and his earlobes. "No," she said, "Atlantis lives on in heaven as do..."

"What kind of drugs are you on?" he asked, tired of being childish. He leaned away from her so her breasts were not in contact with him any more.

"I can set any dose of any intoxicant I want on my med panel, why bother?"

"That's my point exactly," Thom said. He didn't say that didn't stop Ava from glugging the syrup from Alan's world at any opportunity. She leaned forward on him and ran her hands down his arms. "I'm a married man," he said and pulled forward away from her again, turned his stool to face her. Ava had been claiming he was too busy with his signals, but she could just as well be driving this cherub as anyone.

"Your lab space is your own, I see that on your mapping file."

"Are you a systems person too?" he asked, making him pretty sure this was Ava checking up on him.

"I can get around," she said, "but that's all anyone does in heaven these days."

"Heaven is being destroyed."

"Your heaven is breaking into a billion spores, once your people stop interfering with the passing of souls on to heaven, you will no longer be targeted."

"Targeted?"

"Yes, you said your heaven is being destroyed, I think you are referring to the impacting bodies."

"You know something about that?" he asked. Of course everyone knew what was on the news.

"We can watch it," she said, "but we have no power to do anything about it, no souls use any of them."

"Who is we?" Thom asked.

"Immortal Atlantis."

"Should I tell that to the captain?" Thom asked, annoyed that she would not come out of that role. He really didn't know what she was trying to say. He really didn't care, he was too worried about the security risk she might be. He was thinking of getting either the captain or Glayet here, but if it really was Ava driving this cherub that would be very embarrassing because she could easily cover her tracks.

"Your antimatter condensate is the only significance your expedition has to God and it is a trifle that has caused blurred thinking in only a few. It does not matter what your captain does and does not know. As long as you do not interfere with the passing of mortal spirits to heaven, you will not be targeted."

"Targeted by whom?" Thom asked. "Immortal Atlantis?"

"No; God," she said, with an implied, 'of course.'

Even if this was Ava, he didn't have time for this nonsense or this blasphemy. It would do no good to make idle threats, this was some kind of security test. There was nothing within regs he could do now other than call them. He poked his phone icon to do so but as soon as it activated, she grabbed it and crushed it to a blob of junk.

"Please," the girl said, "let's just keep this between you and me."

He looked at her with wonder, and even a little fear. He didn't doubt that Ava had the power to force-terminate an app like that. He was now pretty sure it could only be Ava who was behind this cherub.

"Who are you? Really?"

"I told you you weren't going to like it," she said. She moved over to him, her knockers pressed against his shoulder now.

"I've taken holy vows, I'm a married man," he said, moving away from her again.

"Your wife doesn't think so."

"What do you mean?"

"She visits other universes. This lab is a bit like your own universe isn't it? Private from her?"

"Nothing is private from Ava," Thom said. Ava didn't know how much he knew about her powers. She thinks she doesn't reveal it, but he had seen some of her diagnostic

panels over the years and he'd put some things together. He knew she could see and hear this if she wanted, he thought she could blink in on them if she wanted.

"I think she is otherwise occupied at the moment."

"How would you know? And who are you? Show me your duty personification."

"Sure," she said, and her jersey disappeared, to be replaced by an open-fronted blouse and a long and billowy flounced skirt with a thick bronze belt. He was going to have to re-tweak that med panel to control himself with those melons displayed like that. She was obviously used to this costume and projected proudly out of it with no difference in her skin color whatsoever. The one on this side pressed deep around his shoulder, her grip on the back of the stool kept him from turning it away.

"I mean ship's duty," he said.

"You want me to impersonate a member of your crew?" she asked.

"Who are you? You look like a cherub from Alan's universe."

"I've been there, it is the most comfortable universe I've seen in Ava's heaven so far, except I don't like Noonsleep and Nightday. That takes some getting used to."

"I don't want to know which cherub you're driving, I want to know who you are."

"I was honest with you but you choose not to believe it." He was very conscious of the feel of her bare nipple right

thru the lab coat. "I popped in to see how you're doing with those signals but it doesn't take long to see you are nowhere. You're still on the first order. You haven't caught on to a thing. You still have only three particle traps, you need ten or twenty billion to make any sense out of first order. It doesn't matter what you tell your captain or Ava, you'll never figure it out in time so we have nothing to worry about."

"What are you talking about?"

"The mission I was sent on and how it's already accomplished."

She was admitting to being a spy. She would have to be from that Chinese ship but the Pink Dawn was a sleepership. They didn't have an interface to drive one of Alan's cherubs, as far as he knew. "What mission was that?" he asked, afraid of her, and of Glayet.

"To find out how much progress you've made with those links. I was prepared to seduce you to a quivering blob of jelly if I had to, but all I had to do was walk up behind you. That's fine, I don't mind a guy who's easy."

"I'm not easy, I've still got my med panel," he said and brought it up.

"Yeah, if you want to force yourself out of the game."

He had probably said too much already, she wasn't going to get any more out of him. "My personification's hormone levels were out of whack, I was just thinking about wrapping this up and getting back to my wife when you showed up."

"She left this universe before I arrived. I wouldn't come

here if she was home because she would see and hear us. She's a mean one, I've had her barge in on me before."

"She's a bit headstrong at times."

"She's a bitch, she popped into a place I was staying and snatched the guy I was with right out of my arms."

"So is that your real purpose here, to tattle on my wife?"

"Yeah," she said, but she did it as if she was just putting on a different role. "Me and your bitch are fighting over a guy. Either take good enough care of her that she doesn't take him from me, or take care of me instead."

The way she was rubbing on his thigh, he'd rather take care of a Talstanian suicide squad. His duty would be easier to perform, especially if he had a recent backup. He didn't believe his personification was sufficiently well-rendered to satisfy this woman. "I don't believe anyone on this crew could ever say such a cruel thing about Ava, and I certainly don't have any reason to believe you."

"Here you go," she said, and popped a view onto a nearby screen.

It was from the viewpoint of this woman, up on a tower over a night-time jungle of swamp and bayou with lanterns and boardwalks all thru it. Just the night sounds told him it was Alan's universe. A man had his arms around her, caressing her and talking about taking his leave, when Ava burst into the room. There were some cross words and Ava took the man from the room. The man was tall and slender with long hair and beard, someone in a personification from

Alan's world. He never saw his face, but many used different personifications in Alan's world.

"So OK, so you can make up an animated short in first person," Thom said. "None of those words were mine. I saw her snagging a wayward crewman, not a lover."

"She left him there," she said. He was treated to a few seconds of seeing them earlier, when the big banded sun was going down and the swamp water was red and Ava was sitting with the same guy, topless like the natives and swaying to the sounds of the twisty whistle with a cup of that liquid stupid they drink on Alan's world. He heard that same guy ask Ava if she had to get back to work in an hour and watched her go 'Huh!' and blink out. The guy's back was to them the whole time so he couldn't see who it was.

He looked up at this half-naked woman looming over him. He wondered how a synthetic image could look so organic.

"I'll take good enough care of her that it won't happen again," he said as he stood up and powered down his lab. It was completely programmed to go thru an orderly shut down and back-up.

"Fine, be like that," she said with a trace of dejection while stepping away from him. "I can see why you two are married," she said, and blinked out before the lab's shut-down sequence completed.

He really wondered who was driving that cherub. He

wondered if it was someone from Theology testing his marital vows. He had been neglecting Ava too much lately and she was complaining about it. Maybe she was complaining to more than just him. He wondered if that could have been one of her girlfriends. Only Glenelle would have the sauce to pull that off. She went to the top of his suspect list for a while.

He checked the verandah and her lab first, and didn't find her in either place. He called up their bulletin-board.

Since it's late again, I'm taking Alfred and Vic up on their dinner invitation, so if you need me you can find me over there. Who knows, I could be back and gone to bed by the time you get out of that lab.

It was too late, he shouldn't run over there. He wanted to be with her. He would have turned down the McReadys just to be with her. But he hadn't, he'd gone over the impactor's course corrections, just wanting to finish that up and get it done. And once again, time had gotten away from him. He wished he could do like Alan did in his hack, and get as many clock cycles as the remainder of the crew combined.

He fretted intensely over what to tell Ava about his visitor. She had come here to accuse her of infidelity, and to get him to engage in infidelity. Doing so would leave him in a lot weaker position in court, should it come to that. He had to either present it to her as some bitch on the crew accused

you of cheating and tried to get me to cheat with her. Now for many women, they would automatically assume the man had cheated. Ava, however, has system logs that will show what he actually did, and it was for those logs, as well as his belief in the church, that he acted the way he did.

She would have no reason to review those logs if he didn't bring the time and place to her attention. If he said nothing, it was quite likely Ava would never know she had been there. There was another problem with that, if he didn't tell her and she found out later... He didn't want to think about what that would mean.

7:45pm Tues. Jan. 24, 2384

He crossed the small plaza to the cathedral, reviewing the spat in his mind. He wasn't sure what started it, he had been answering her absently thru the parody of a dinner together she prepared for them. It had been hell battling the requisition thru for the larger chamber he was going to need to pursue studies of higher order condensates and that was on his mind thru the whole dinner. He had no good reason of his own for needing it, and 'some crewman driving an over-amped cherub told me so,' was not going to sway Heymon. He was pretty much reduced to calling it a hunch. He didn't know the politics involved and had to make a personal appeal to Elmore for help with that.

While that rattled in his head, he was suddenly arguing with Ava over sex again. He had done her well on Friday, he had used his med panel to set his hormones higher than the church thought proper but he had been sure she was set for a week. He never guessed she had used this dinner as a prelude to a seduction. He hadn't warned her that he meant to go to confession this evening. Saint O'Connor himself was hearing confession this evening and Thom wanted help with this very problem. Everyone seemed to know that Arthur's wife craved far more carnal pleasure than the archbishop thought proper, much less had time for.

He had tried to convince Ava to wait, that he would only be gone a half hour, an hour at the most. The evening is young. He wanted to say, 'go play with yourself,' but refrained. It seemed like ever since Thanksgiving she had been rev'd up. The last few years before that it seemed like they could each go a few months without thinking of it.

He was glad for the tall front steps of the cathedral, it gave him something to vent his frustration on. She had been quick to point out that she was doing all the asking and he was acting like he was servicing her. She pointed out that it was supposed to be the other way. Now she's hearing 'no,' 'wait,' and words like that. After she went off on him, he had agreed to change his plans but by then she wouldn't hear of it. She sat there at their stylish titanium sculpture of a kitchen table glowering at him as she ordered him out of the house.

Once inside the cathedral, he stopped just to look around

at the space. He always liked churches, that was one of the things that comforted him the most about religion was the grand spaces where it was practiced. This was a space that couldn't quite exist in three-d reality. It was hard to keep one's eyes down in here. The panels of the ceiling were panoramas depicting the predictions of Revelation using their event in history, up to and including the powering-up of New Jerusalem in Ceres.

He strolled the aisle toward the pulpit, it was nearly a thousand feet he thought, but the ceiling seemed to be much longer. He knew his faith in Jesus was secure, but he wondered how solid his faith was in the Christial church. How sure was he that the scenes depicted on this ceiling were really what the Bible foretold? When he read the passages he saw the armies and harlots and beasts and plagues as they looked over two thousand years ago. He felt that no one in the Bible had any idea the future would last so long. The languages of the time did not have words for extrasolar planets, digital simulation, genetic engineering, electronic surveillance and a lot of other terms that were needed to express the reality of current life. Was that all there was to it? Was this what the Bible was trying to say but the language of the time couldn't support it?

His footsteps echoed, a few others did also, up the side aisle where the confessional was. He wondered why Theology specified so grand a structure, an exact copy of the cathedral in New Jerusalem in 2175, a structure that had

pews for tens of thousands. They couldn't build cheron space for that many if they backed out all the crew, so it was populated with stock video during masses. There was a man leaving by the side door on the left, too far to identify. It wasn't til he reached the side aisle that he crossed himself. He walked even slower after he turned. All down this aisle he could look up in the vault of the ceiling and see the ceiling panel showing Revelation 16:9 with the flames consuming Washington while the fat suits with briefcases flee.

There was no line at the confessional, and there was no one inside. He entered and said his 'bless me father' and waited. In the olden days there was a priest in the next booth who had to sit there thru the full confessional hours. Thom knew that Archbishop Saint Arthur O'Conner was usually stashed in a deck chair next to the pool on his yacht when hearing confession. Confession in the Christial church was more of a one-on-one with a clergyman, seeking guidance as well as absolution.

"Yes my son," Arthur's voice filled the booth, gentle and close, "what is the nature of your sin?"

"It concerns my marriage," he said.

"So you have slipped your bonds? Your hurt is mainly to your soul and its account with God. It also depends on who else you have hurt and if your wife already knows."

"I have not slipped my bonds, though I was sorely tempted."

"Then what is your sin?"

"Neglecting my carnal duties to my wife."

"I see," Saint O'Conner said. Keeping up the masquerade that he does not know who is in the booth, he asked. "Does she present herself in an offensive manner?"

"No, your holiness, she is as attractive as decency allows at all times," he said, 'and at other times more attractive than decency allows,' he thought.

"Does she require more than you can fulfill?" he asked.

"Yes, your holiness, at times she does. I keep coming back to that part of 1 Corinthians 7:1 where Paul says, 'It is well for a man not to touch a woman.'"

Arthur considered, and said, "That passage is held up as an ideal, but line three of that chapter tells us 'The husband should give to his wife her conjugal rights.' We are not expected to live up to that ideal. You should not take that passage as forbidding you to make love to your wife. She may need the comfort in this time of stress."

Thom wondered if Ava had been in here. "I understand, and I try to comfort her as often as I can. You see I don't take that passage as forbidding me, but more like it is excusing me. I would rather not have to engage in relations as often."

"Have you discussed it with her?" Arthur asked.

"Several times, her words and her actions do not align."

"I see," the archbishop said. Thom let him have as much time as he needed. "What setting do you keep your hormones at?"

"Thirty percent sir."

"Aye, where mine are also. It's no small thing where a man chooses to set his hormones. In mortal man it is set to one hundred percent and immovable as long as he is young."

"We are not mortal men," Thom said, "we don't have a new generation to raise before we are infirm."

"True, that was one of my prime considerations also."

"Why are women so dependent on sexual satisfaction?" Thom asked.

"Many are not. A fellow crewman was talking to me recently that his bride has no interest at all and told him to have fun with cherubs."

"Should I give my wife that instruction? I have concern for her soul also. Is it acceptable for her to..."

"You should not give your wife that instruction. Were we mortals I would tell you it is your duty to do your best to satisfy her, especially spiritually, with her need for comfort and affection. As immortals, it is still your duty to satisfy her needs for comfort and affection, you said as much in your vows."

"We are wisps of electrons in silicon crystals, what does it matter if we simulate reproductive behavior or not? What I want from my partner is working together to achieve a goal he both believe in."

"She does not believe in your goals?" Arthur asked.

"She says I am neglecting her because of the time I devote to my goals."

"I see."

There was a long pause, finally Thom said, "I've been devoting a lot of time to it. We are in a position to verify some important questions in quantum physics out here. We've received data on advances in instrumentation and because we have a fabricator we can build that instrumentation. Because we are still in deep space, we can perform the experiments that they cannot in the realm of Sol."

"And that is much more interesting to you than playing personifications with your wife?" Arthur asked.

"Yes, your holiness."

"I see," the archbishop said. "I must tell you I am not a man of science and to my ears you lapsed into Swahili for a moment there, while you told me about what you find more interesting than your wife." There was another long pause. "I think your knowledge of the implementation of heaven has jaded you. You are too conscious that you are not flesh."

"Yes I am."

"It could be that the quality of our simulation is not high enough."

"It's fine," Thom said, "it is an intellectual thing, not a sensory thing. The rendering of my wife's body, the dinner, the candlelight, the music, the smells of the food, her perfume and her body itself was all fine, at least as good as my mortal senses could ever perceive. That does not stop me from knowing that our love can never produce a child, a new soul for our nation and church. Without that, it is mutual masturbation is it not? I've read enough of the Bible to know

the only virtuous use of the organs is to produce children."

"There is forgiveness for additional indulgence within the marriage bed."

"Is there forgiveness for one who does not provide his wife sufficient comfort in her marriage bed?" Thom didn't know where the viewpoint of Arthur's visual channel patch-thru into this cubicle was, but he looked the confessional grill directly in the eye.

There was a second before Arthur answered. "Yes my son, there is forgiveness for all who believe in the lord Jesus Christ."

"And is there forgiveness for my wife if she seeks that solace elsewhere?"

"Jesus will forgive," Arthur said, "but will you?"

7:11pm. Fri. Jan. 27, 2384

It was a very different visitor that stormed in on him at the end of the week. The big arms and iron grey flattop of Colonel Glayet Samrova entered his front door. "Major Husband, I need a few words with you."

"Yes Ma'am," he said, "How can I help you?" He was trying to decide if this was about the signals or his marriage. Glayet often got involved in marital problems as a Sister in the church. She usually started by proving to the guy how much worse he could have it. She certainly made her point as

far as appearance. He actually thought Ava was sexier than that cherub someone had driven into his quarters last weekend.

"You had a visitor last Saturday."

"Yes ma'am, but she would not identify herself. She used a cherub name and said she was from Atlantis, I couldn't get her real name out of her. She tried to seduce me but I didn't give in," he went on, "I'm sure it's in a log."

"No log I know about," she said, leaning forward and folding her arms under her manly bosom. He now knew Ava kept some of her logs secret from the Commandant of Security. Not a good thing to do, and not a good thing for him to be giving away. "What name did she use?"

"Yellelle, I think it was, I can't pronounce it right. She looked like a cherub from Alan's universe, a really turned-up one. I sent her away mad though, I'm a married man."

"I'm not interested in your marriage, I'm interested in what she found out?"

"She looked over my shoulder at a plot. I had it blank but she unblanked it. She told me I was getting nowhere because I still had only three particle traps and was plotting on the first order."

"She saw one of your plots!?"

"Yes," Thom swallowed, "she must have had clearance thru the system because she brought a closed screen back up."

"What?"

"It must have logged her in, her password was good and she had the privilege to do that. All her gear was invisible."

With a grim face the colonel wrote that on her virtual notepad which was fully rendered as a flip-over spiral-bound paper one from a twentieth century cop show. "What did she see?"

Thom went to his scope and brought up the old settings. Family after family of pulse trains came up, thousands of them. He could scroll thru them in each direction to the limits of his instrument. There was one for each particle in each atom that he had entangled.

"What do they mean?"

"I don't know, she said I was learning a lot but was still too limited. She said I should plot against bit size."

"So she tried to advance your studies?" Glayet was clearly puzzled by that. "I would hardly expect that of an enemy agent."

"She's an enemy agent?" Now he started to sweat in spite of his med panel.

"We don't know that," Glayet said, "But we cannot be sure that she is not at this point."

"How could an enemy agent get on board?"

"I'm sorry but that information is classified for security reasons."

"And I don't have clearance for it?"

"Need to know only. The hole has been fixed and your studies will not be affected. In fact we are more sure of the

need to understand your signals for the war effort."

He wondered if Heymon was looking over his data. He had finally isolated some changes in some pulse trains that corresponded to course corrections on the impactors, he was still sifting the data for more. He wanted to make that announcement at his presentation, but that was more than a week away. "I'm doing all I can ma'am."

"Yes Major, but getting back to the security breach."

"So you know who it was?"

"You don't need to know that, I need to know what she learned."

"She said I was nowhere, she did more talking than I did. She said we wouldn't be targeted if we stopped interfering with the transfer of souls to heaven, whatever she meant by that."

"So she claimed to know something about the impactors?"

"She said they could observe them but couldn't do anything about them." He lowered his voice, "She said they were sent by God."

"Such blasphemy," Glayet inhaled.

"I know," Thom said, "It's painful for me to even say it but I'm just repeating what she said." He had a feeling that they were controlled by whatever was doing this quantum computing in the depths of space. His evidence was tenuous, but it certainly didn't point to God's doing. God would not need to apply course corrections.

"What did you tell her?"

Thom did his best to replay the whole conversation for the Colonel. He left out her actions, her physique, her attire and her accusations regarding Ava, but replayed the remainder as well as his memory allowed. He still didn't really believe she didn't know it was all logged, so he wanted to make it as complete as he could. Of course if Glayet really did get the log, she would know what he left out. He hoped she would understand why.

It took much longer than the time Yellelle had actually spent in his lab. He wondered why Glayet was so determined she had to let this run late into the evening on Friday. As she was about to leave, she gave him her sternest command face and said, "Above all, this visitation is classified at the very highest level. You are not to speak of it with anyone, do you understand?"

"Yes ma'am."

"If any word of this encounter gets back to me I'll know it came from you."

"Yes ma'am." He didn't want to point out that this person had already encountered others of the crew. He didn't know why someone using a cherub out of Alan's space was such a big deal anyway. If everyone talked it up, the perpetrator might as well give it up.

By the time she was gone, he really wasn't in a mood to

continue his analysis, so he updated his notes and then shut down. It was barely after 9:00 when he got out of the lab. That was good, he had promised Ava that Friday evenings would be hers. It was as close as he could come to the bishop's admonition to keep Ava satisfied.

She was not on the verandah or in her lab. She wasn't even in the kitchen, though she dialed out all her meals but social occasions. He wondered if she had already gone out, thinking he was going to stand her up again. He would have been out before dark if the Colonel had not delayed him. She had not left a note on their bulletin board, but he found her already in the bedroom.

"I understand Colonel Samrova stopped by today," Ava said as he came into the bedroom. She was sitting up in bed poking at a one-sided screen. She had on a set of loose and soft P.J.'s and was surrounded by a pile of satin pillows. The effect should have been sexy but her demeanor was businesslike.

"She just left," Thom wondered how she knew.

"She's working late," Ava said, "What did she want?"

"She forbid me to tell you."

"I can look it up if I have to," she said.

He knew he had no chance of keeping it from her and sighed, "It was about some cherub from Alan's universe that someone was driving. They found a way into the back door of my lab and unlocked one of my screens."

"Oh? Who was driving it?" Ava asked.

"She wouldn't tell me anything," Thom said.

"What was this cherub like?"

"One of Alan's, maxed-out balloons."

"When was this?"

"The night you went to the McReady's."

"So you let me go there alone so you could play with one of Alan's cherubs?" She said it nice and calmly but it still had the sound of cold, sharp, steel.

"I sent her away, she got nothing from me. To be honest I thought you were driving her."

"And you didn't say anything?"

"It was a minor incident."

"I had to make excuses for you," Ava said. "Al and Vic haven't seen you since our labor day thing."

"Yes, yes, I know."

"And you were playing with a Cherub at the time?"

"I know you have logs, look it up." He stood beside the bed looking down at her with his arms folded.

She looked up at him, her brows knit for a second, but she poked at her invisible screen some more. There was a reaction when she saw the cherub. She tried to hide it but failed, Thom knew she'd seen this cherub before. She watched and listened to the whole thing. She silently chuckled when he used his med panel to frustrate her. "Yeah, you must have thought I was driving it."

He didn't like her tone when she said that. "Why?" he

asked.

"You wouldn't have wanted to have sex with me."

"Not in that get-up," he replied, "even if I was sure it was you and told you I was sure it was you."

"Why?" she asked. That was the end of the incident in the log she had playing so Ava commented on Yellelle's parting words, "What a bitch!"

"Why?" he repeated her question before he answered it, "because she's a caricature, I mean no one's had breasts like that since the days of silicone and piercings."

Ava gave a little shudder, "Ugh, then why do you think she comes from Alan's universe?"

"You know where she comes from don't you?"

"All I know is what she said."

"You know something about her," Thom said.

Ava got up from the bed, as she did she changed from the P.J.s to a supple knit one piece suit with a fur shoulder piece over it, "It's early yet, let's go out for a drink."

"You didn't answer me."

"I've seen her before, that's all I can tell you. Please, it's need-to-know only." She was leaving the room, she took his hand. "You'll want something a little more flattering on."

He hadn't taken off his labcoat yet, she flipped it for some black macrame knee-lengths and a velvet jacket with silk lining with big pockets on the upper arms and under the collar on the backs of the shoulders. He could tell his underwear was gone. "We're going to Alan's?" He knew she

would, if she wanted a drink she could just go to the bar in the gathering room. She meant some of the stuff from Alan's world. At least she's pretending she never brings it home.

"We won't bother him, he'll be fifteen hundred miles away across that desert his girlfriend almost died in."

"I thought she left..." Thom said, but she was already to the door, it opened on a street lit with gas lamps. The air was soft and sweet but heavy, a wooden carriage rumbled softly on the stone pavement, the numerous claws of the strange beast pulling it at the speed of a brisk jog clattered on the stones more than the thin, tall, rubber-rimmed wheels. Stone buildings lined the streets, people in stylish clothing walked here and there, talking in soft melodic voices.

He stepped thru the door and looked around, "This doesn't look like Alan's."

"He was a busy boy in those days when he was stealing half our clock cycles, he detailed out all kinds of different societies. Few of the crew come to this one because there's few sexual freak shows."

They walked only across the street and up a few broad steps to a wide marble portico. A lovely girl in sheer pantaloons and blouse met them, "The Dusksleep band is already on," she said, "and I'm sorry but the cookfires are already cold."

"As long as the taps are still pouring?" Ava asked.

"Oh yes, we pour round the week."

The Dusksleep band was a girl crooning very sweetly, a

guy on a flute that sounded like a mellowed trio of saxophones and a guy on a tambourine that sounded like a brushed jazz kit. They were amplified, softly, but the girl's voice was not. There were a few dozen people left in a room that could hold two hundred. The mezzanine above was dark but with a few more people at the rail. Most were well dressed, only one girl was topless and even her outfit was stylish. One couple had some kind of animal with them that was not of Earth origin that turned only a couple of its eyes their way when they came in. It had a harness instead of a collar and the leash looked unnecessarily strong. At another table a group was passing an ornate bong trailing glowing wisps of smoke.

Ava lead them to a table close enough to hear the band but not close enough to be part of the show. A girl dressed like the one at the door was at their table as soon as they were settled. Ava ordered green by brand name and ordered him a blue tea, whatever that was. "You've been here before," Thom said as soon as the girl was on her way to the taps. They were not the wooden barrels with bung taps that he knew from the parts of Alan's universe he had seen lately, they were plumbed fittings behind a polished bar with fine woodwork around it and glowing symbols on the tap handles, more like the place where he used to play the Herndon Cherub for her.

"This is actually my favorite place in Alan's universe," she said, "I think it's quite romantic."

"Do you think that will help?" he asked.

"I hope so," Ava said. "If I finally get an evening of your time I don't want to spend it fighting."

If she wanted to avoid fighting, she would have to answer some questions. "Where was that place the Cherub showed?" he asked. "It looked more like Alan's universe."

"That was Trenst," she admitted. "Another city in Alan's universe."

"What were you doing there?" he asked.

"We just went to lunch, you saw I had to get back."

"You were dressed in native fashion."

"That's there," she said.

"So everything that cherub showed was true?"

"And taken way out of context. Two different incidents, I went to lunch and had to get back, another time I had to bring in an AWOL crewman."

"You didn't tell me about them."

"They were just part of my day, you didn't tell me when the cherub visited you and I assure you those were much smaller incidents in my day than that was in yours."

"But you come here a lot?" he asked.

"What's a lot?" she said, but continued. "If we take the time you're in your lab on those signals, and we subtract all the time I'm on duty, then subtract all the time I'm doing something with the system when I'm off duty, then subtract all the time I'm sitting on the verandah, I'd say I'm in this city in Alan's universe about a third of the time that's left."

"It seems like that's a lot," he admitted.

"I'm glad you're with me this time. As you've seen, the cherubs can be tempting."

"I've never used a cherub here," he said, they scared him since his first trip to a sex club in Kassidor Yakhan.

"I won't say something derogatory about that," she smiled.

What did she mean, that he was a prude because of that? Or was she glad to hide how much use she made of them? What would she come here for, just to drink yaag? She could make it pop into existence at their house, cup and all, on a whim. They were stopped by the arrival of their drinks.

"What's this going to do to me?" Thom asked when the girl was gone.

"It's about thirty to forty five proof depending on how much of each ingredient they have left at this time of the evening. If they run low on blackseed-root juice it'll be high proof."

"What else will it do?"

"You have access to your med panel, but the only thing psycho-active is the alcohol."

"And that?" he pointed at her cup which she had already taken a pull off of. The cups they came in were pretty nice, stemmed glass with pictures in them, the stem made of a ceramic and the base was heavy. The liquid in hers was putting off heavy fumes that she inhaled before she put the cup down.

"A starship ride," she answered.

"We're already on a starship ride my dear."

"Proving that it works well," she laughed, and raised the cup to sniff it again.

"It's impossible to have a serious conversation with you when you're on that stuff."

"Why does every line in every conversation have to be serious? Can't we ever be off duty? Look, this seat was built to cuddle up in and you're sitting there like you're with your mother."

"We're in a public place."

"We don't have to pet," she said, "here."

He came over to her, took her in his arms. He really did think she was more attractive than Yellelle. He had to admit, his fingers would have enjoyed working her over, but Ava was pleasant to hold also. "Do you often do this here?" he asked, "sit and cuddle with cherubs?"

She looked him in the eye and said. "I have never used a cherub in this universe."

"What about a..."

She broke from his embrace and sat up, "I brought us here to get away from all this." She was firm but hadn't resorted to shouting. "Now if you want to use this evening to accuse me of infidelity, when I have been begging you for months, then please go home and I will finally give in to the temptation to use a cherub in this universe."

Did she really expect him to just let it go at that? Who did she have lunch with? What was she doing here if it wasn't

using the cherubs? She was either lying about the cherubs or meeting someone. Yes, he drove her to it, but he still needed to get it out in the open. He hoped she hadn't set up a meeting with her lover and had to resort to a cherub. "Yes dear," he said, and got up and left her.

Once back at the house he waited by the door for a few minutes to see if she would come after him. She did not, even though the 'few minutes' got long. Eventually he went back to the lab, he could get a few more samples combed before he really needed to sleep. Late Friday evening there were not likely to be any more interruptions.

7:11am Tue. Feb. 7, 2384

Little more than a week after he left Ava in Dos was the day of his presentation. He had been up later than he should have the night before, but he wanted to be sure everything about the presentation was properly updated and he wanted to be sure the new data didn't hit a bug in his animations. He'd made the cot in his lab as comfortable as a cloud so he spent the night there.

For purely psychological reasons he went thru the ritual of a shower and getting dressed manually before any important meeting. He knew any personification generator available could do a better and more thorough job, and he had to use his to check how he looked from the back. It was on

the way to the portal that he met Ava. She was sitting on the bench in the gathering room and it looked like she was waiting for him. She had a large envelope in her hand.

"I wish I could have given this to you a couple days ago, but I haven't seen you."

"I was in the lab."

"I know, so I waited for a time when I knew you had to come out." She handed him the envelope.

It turned to an official church document as he took it. It was a request for separation and divorce. He should have known it was coming, he might have even guessed she would slap him with it today. "This is the second worst news I've gotten today," he said, trying to make it light. He must have been in denial. His notion that they could save this til after the war was silly.

"I'm sorry there are worse things in your life than the end of this marriage..."

"The impactors may be controlled by the entanglement signals," he said.

She was knocked back a bit by that, but didn't say anything about it. Instead she pointed to the petition, "Better read it over, I'm handing it to the bishop unless you can convince me some statement needs to be changed."

"Ava, I don't have time..."

"That's basically all this says," she said.

"Can't this wait?"

"Not since Dos," she said. "When you left me there I

knew that you were done forgiving me. I know you still hold my past indiscretions against me, I know you'll always be suspicious unless I'm beside you in that lab day and night."

"That's all I wanted."

"I know," she said, "and maybe if I had grown to womanhood in a mortal body I'd be well adjusted enough to be able to acquiesce to a man's need to own the womb."

"I wanted you there for your mind, not your womb. I could use your intelligence and your system skills to help us succeed."

"Nice try, I guess I'll submit this as written. That's your copy." She cut ahead of him to the front door, set it to Theology. She didn't turn back to look at him while he closed it so he could set it for the captain's public space, where he was to give the presentation. He couldn't step thru right away, he had to go back to the bathroom and check his personification once more to try and convince himself those wounds didn't show.

The captain's public space was still space as it could be seen by the ship's sensors. Years ago the snowflakes had been whipping by, but they had shed enough velocity that they now went by sedately. Today he had the gravity set to normal, Sol was almost dead ahead and by far the brightest object in view. The snowflakes and other bodies were enhanced in the image as shown by their detectors, the stars shown at nearly their natural levels. While in motion, all the dark matter, from

snowflakes to brown dwarfs, are the most interesting thing to be seen, the stars remain fixed thru the whole voyage, except the extra one directly ahead or behind, Sol.

During the voyage they passed close enough to detect three lone gas giants almost big enough to call brown dwarfs and countless planetoids large enough to still retain some internal heat. The iceballs that were known as comets when they fell into the gravity well of a star hung in space by the billions between each star, and snowflakes of frozen gasses hung in deadly veils all thru space, denser in the galaxy's fringes where there was not nearly enough starlight to melt them. Those snowflakes they passed by were the only motion one could detect out here.

He had to wait quite a bit longer than he anticipated to give his presentation. There was another starship detected on a parallel course to their own and that was of great concern to the captain. They decided it must be the 16 Cygni expedition returning. They were returning because the candidate planet turned out to be worse than Venus. That was a Chinese sleepership called Pink Dawn with a multi-generational crew. It would presumably side with the mortals so the captain treated it as a potential enemy. He called the senior officers to a side meeting for the better part of an hour. Thom wondered what the odds were of encountering that expedition randomly in the 1.4×10^{31} cubic miles of space between here and Sol?

He was sitting with Darryl, but as usual, as soon as they were not in a formal meeting, Darryl began arguing with his

critics. Thom wasn't paying attention to how it got started, he noticed when Darryl's voice got louder.

"These are the same calculations our trajectory is based on. If there's a problem with them, we're going to miss by the amount they're off."

"We're not even aiming for a specific point, just a parking orbit til the war ends," Jimmy Carig told him.

Thom was trying to tune them out but Darryl said, "Thom has corroborating data."

"What's that?" Denis asked. These guys were in Mechanics in supervisory roles.

"I've got a presentation worked up, I've got to wait til the captain gets back to get it started."

"What's the evidence?" Jimmy asked in a 'don't fuck around' tone of voice.

"Timing," Thom told him, the rest is details.

Imogene came over and sat next to him. She's a little like Colonel Samrova's daughter but much fatter with thinner, blotchier skin. She's got a pig nose so you can see up her nostrils. It certainly avoided the temptation to sin, but it wasn't pleasant to be around. "I bet you don't like this waiting."

"I understand," Thom said, it paid to be straight around Imogene, it seemed like she admired Colonel Samrova and they were friends. "There is a war in progress, this could be an enemy vessel and it could take hostile action against us." Their electronics were seventy years older than that on

Gordon's Lamp so they probably were not aware of their presence yet.

Greta Barnes was with her. She wore her uniform like a brownie scout and managed to look like she was no more than a very pubescent twelve. She had twin pony tails and buck teeth. She took up sigma-space math with Darryl and Thom would have understood more if they were speaking Mandarin. Darryl was Thom's math guy. They got into it heatedly enough to take Imogene's attention off of him. Jimmy and Denis were talking about their wives by now. He tried to keep Imogene out of his field of view. About the only women who's duty personifications were acceptable were Glenelle, Leslie and Ava. Victoria might even be next, though she was one of the majority who didn't change their flesh's rendering when off duty and presented herself as forty seven years of age.

"So what's your big data point?" was the next thing he heard. Imogene hadn't been distracted for long.

"The impactors can be coming from as far as out here, and they may be controlled using the signals I've discovered."

"Wooo. That's a big one." She made the motion of trying to put a very big one in her mouth. Even though he never activated an alimentary canal in his personification, his brain definitely sent the upchuck command to his stomach and he would have done so if that part of his personification was rendered. He was glad it wasn't. He didn't hurl, but he didn't say anything either. "Can you support it?" she asked.

"I'm going to try."

"How?"

"That's my presentation," he said, and tried to leave it at that. He even turned away from her. Who wouldn't?

"Can you wrap it up?" she asked.

"In about fifty minutes," he answered.

"So do you think Darryl's right?" she asked.

"This presentation is based on his work."

"He just said his work was based on your presentation."

"He said I've found some supporting evidence using his data."

"What's Greta talking about?"

"I don't think she knows and it sure looks like Darryl doesn't."

Imogene watched and listened to Greta and Darryl long enough for Thom to get up and go see Harvey. Harvey was on the crew because some relative of Colonel Samrova forced her to take her nephew. Thom wished that kind of thing had stopped among Angels but it hadn't. Harvey didn't do much for the expedition, double checked some paperwork now and then, interviewed mid-level officers for mail he sent to everyone. He called himself their team spirit, but Thom had always thought Gordon's Lamp's team spirit was bourbon.

"So what have you been up to lately?" Thom asked as he sat down.

"Cooking," he answered, "I've been trying a lot of new recipes lately."

"Ah," Harvey presented himself as retired, as if one could just retire to a universe on a starship. Of course that was exactly what he'd done, so he was being honest. He took up hobbies with regularity, and told you way too much about them. The good thing about Harvey was he was easy to tune out. He was also much more presentable than Imogene. He was a distinguished older gentleman, maybe part Italian, especially when he wore shades. All he required was an occasional, 'wow,' or 'yeah!' and he was good for another five minutes.

Imogene was not going to be so persistent as to chase him. Then he got really sick, what if she already knew about the separation papers? What if she really was pursuing him? She would HAVE to change her personification. She'd have to look at least as good as Ava. Her personality would have to change. It wouldn't be worth it.

Harvey was still prattling about zhlindu thesh rolls when the captain and senior officers re-appeared. They stepped out of a door and back into the space the ship was in where a good portion of the crew was waiting. Heymon and Elmore gave briefings on the strategic situation relative to the suspected Chinese vessel.

Neither of the ships was carrying anything intended as a weapon, but their point control laser was capable of damaging the other vessel's external systems and the naked

fusion in either drive could slag the other with neutrons and gamma rays. Their present course would not bring them within range for two more months.

"Now on to our next topic," Captain Kelvin M'Kintre said. "Major Thom Husband has prepared a report on some important research he has been conducting. Thom, if you would care to present your report at this time?"

He walked to the front of the room, it was only a few feet but he needed a few seconds to compose himself. He needed the focus of Sol behind him. He needed the crowd to stay focused toward the front, toward where they looked for authority. He knew he couldn't be as sharp as he should be, especially in the all-important social aspects of this presentation.

He was really glad he had practiced it. It was difficult to keep his mind on it with his hundred and ten year marriage coming to an end. He was sure he would have nothing but cherubs from now on, he wondered if that was all he wanted. Wondered if he didn't even want that? He knew relations with cherubs were becoming more common on the ship in recent years. It seemed like people saw less and less need to share a universe with another soul. With a cherub there was no need to compromise, no give and take. Many stayed married, but they had little interaction with each other.

He looked out across the crew assembled for this meeting and saw so few he wanted to share space with. He would wait

for someone desirable before he would settle for one of the present singles. A personification could always be changed, but there was no one who's personality really interested him.

Ava's personality hadn't interested him for the past few years had it? She had always been full of herself as Systems Administrator. She'd always tried hard not to take advantage of her position, but he had always felt like a lesser being because of it. He could never have an affair, she would know about it immediately. He could never tell when she was having an affair, and he was sure there had been several.

The pause was stretching longer than it should, everyone was attentive, the side conversations had almost stopped. He had to focus at least well enough to recite what he knew from memory.

"Good morning fellow crew members. As you are already aware, I have been researching the condensates in the dark bodies along our path by exposing captive antimatter condensates to the tangler beam while it is illuminating bodies too big for collection." He displayed a diagram of the ship, a dark body, his antimatter in a jar and the forked tangler beam of paired photons that was illuminating his antimatter and the dark body. "As has been reported earlier, I have found good evidence for the presence of significant amounts of condensates in these bodies, and what I believe to be signals transmitted among the entangled particles.

"Before discussing some of the unexpected findings made during these experiments, I will attempt to describe my

apparatus and technique, as well as the theoretical foundation for my observations. You'll have to bear with me, the basis for all this is rather technical." He saw that he lost the captain with those words. From then on all Kelvin was going to do was look around the room and read facial expressions to try and determine who was following him and who wasn't, and who agreed with him and who didn't.

Nevertheless, for those who could follow it, he had to go thru it, show the quantum balance sheets, the entanglement teleportation pathways and all the details his work was based on. Only once they had followed this, and the math Darryl had helped him with, would they grant that quantum information was in fact being passed. There was a lot of muttering but more nodding than shaking of heads by the time that was presented. That was the bulk of the time in his entire presentation.

Then he had to defend his extrapolations of the amount of information that was being exchanged. He had to compare it to the amount of photons that are being exchanged by stars to get a larger flux. Granted, his sample was small and he was extrapolating to the dark matter of the whole galaxy and its halo, but the data from the non-targeted halo object lead him to believe extrapolating to the whole galaxy was valid. There was more muttering at this. He caught the word 'computronium' from somewhere in the room. He'd rather not have that label applied, the singularity's failure to appear gave it a pseudo-science connotation. The data flow levels he had

detected required a thirtieth of a percent of the mass of the larger bodies to be in He⁴ condensates. But 10⁻²⁰ of the silicon in the inner system had been converted to logic by the time the war broke out, so he still worried that the data flow was too high for his theory to explain.

Finally he was ready to get onto the real topic. "The following data is why I think all of this is of more than just scientific interest to all of us," He brought the next plot onto the view before them. "These highlighted bodies are the ones who's course will take them to the inner Sol system," there were only three in this area and they did come from the halo population. "The one closest to our path has been studied for quantum computing data flow also." He overlaid the view with the same chart he had shown earlier with the raw activity levels, the lower level of activity in the targeted rock was striking. "Now I believe that this makes a statement right here, with this raw data alone. That is; whatever is involved with this quantum information flow, it knows about the upcoming impact and is reacting to it." He let them mutter about that a minute. If it was allowed, the discussion phase right here would have been longer than his allotted time.

"There is more," he said, and blew up the path of object Tua-4431-3389-14, the studied impactor. "This is a vector diagram of guidance forces acting on this body. Once again, I thank Major Yorkham for this plot. Note that the force is steady but subject to corrections." He let them look at that, there was the usual muttering about Darryl's math but he

didn't let that distract him. He dimmed the passing snowflakes in one part of the view and brought up plots of three pulse trains. "These are the state changes in three qbits entangled with particles in the antimatter traps in our laboratory. "These qbits all belong to magnons," he said. "Note how the duty cycle of the pulse train changes abruptly somewhat before we notice the force vector change." He let them take that in and mutter some more. "These pulse trains are isolated from the three different entangled particles."

Now he brought up a vector field over all the nearby objects large enough to possibly harbor condensates. "Using the entanglement ratios we assumed earlier..." he had to get technical with them once again to show how those magnon polarity changes "...are all that is needed to apply the minuscule amounts of force needed to effect these course corrections."

The presentation was done, and now came the hard part, the questions. This was where he would be forced to speculate on what sort of device or being was performing all this quantum state changing. They would go right to quantum computing, but he didn't have proof of that. He had a signal. There are any number of ways a signal can arise.

He also had a visitor. He might discuss her with Ava, but he was still forbidden to speak of her and even if he could, he couldn't use any of the nonsense Yellelle spouted in the upcoming discussion. He had to be careful he didn't fight

against the crew coming to some of the same conclusions, but he would look upon whatever this dark matter contained as more of a new enemy than an act of God.

But the captain came to the podium and said, "This is all very interesting and sounds like it may well be significant, however, we still have a possible enemy warship on our flank and my senior officers and I need to continue our discussion of that situation."

'But?' Thom thought, 'I just showed you they are not the enemy...' It did no good, the captain was calling all his direct reports back to the private part of his cabin, including Heymon and of course Ava.

It was Warren Livgood, one of Heymon's men, who came right to the point. "So this data suggests that these signals are being used to control the impactors that are taking out our installations in the inner system?"

"That interpretation does fit the data," Thom answered.

"Does any other?" he asked.

"We don't know that these signals aren't generated on the impactors," Pace Randerhoff, another lieutenant in Mechanics said.

"I hardly see how that matters," Warren said.

"How do you mean?" Pace asked. Thom was very happy to let them continue the discussion between themselves.

"The key finding is really the fact that this computing, if that's what these state changes are, is happening on all the bodies but the impactors. From that alone we know two

things; one, whatever is making these signals is connected to the impactors in some way and two, it/they are able to react to it and 'evacuate' if you will, the body in question. Whether the small group of signals that occur when a course correction is made are instructions causing the correction, status confirmation that the correction has been performed or by-products of making the course correction doesn't tell us much more."

As they went on talking to each other, other side conversations started up and before Warren was done, most of the people in the room were arguing with someone.

Delos Alvarez addressed Thom, speaking loudly enough so everyone could hear. "We have no evidence that the impactors have not been captured by some other entity, unrelated to the condensate state changes, and cleansed of most of the condensates, either deliberately or as a by-product of that capture."

"No major, we do not," Thom admitted.

"Is there any measurable temperature difference between the impactors and non-impactors?" Tim Reelan of economics asked.

"They are all at cosmic background," Thom answered.

"That would imply no energy-based third party is disturbing them," Warren said.

"Can we boost a remote to one of them yet?" Pace asked.

"No," Glenelle answered first, leaving two majors in mechanics wondering how a lieutenant in Biology was more

sure of her answer. Thom knew it was because Biology were the ones who had used the probes most. "We're still going too fast to get any probe into rendezvous with anybody out here. Once we enter the inner part of the Kuiper belt we'll have a chance." That was still seven months away and he doubted that this phenomenon would continue into the Kuiper belt because it was too warm for condensates to form.

Benton Fingerel, one of those majors in mechanics and Pace's superior officer added, "I think the point is, we need some way to get a closer look at one of the impactors. We can hurl a probe at it. It will not rendezvous, in fact we could destroy the impactor by letting the probe impact it. But a near miss should let us get a couple frames of imaging and allow the probe to survive and transmit the data."

"We could do that," Glenelle agreed.

"Pace, why don't you take that as an action item," Major Fingerel said, "I believe the impactor will be in range for almost another hour."

In other words, leave the meeting and make it happen. Pace got up, saluted, and keyed the lab's address into the officer's portal out of the captain's public room.

"Do you think they will find anything?" Warren asked Benton.

"I hope so," Benton replied. "I'd hate to think what this means if some organization that pervades interstellar space should target us."

"I think we should interrupt the captain and point this out

to him," Warren said.

"I think Thom should just prepare the minutes of this conversation and have it in the captain's in box when he emerges from that meeting," Delos said.

"I believe this room is logged," Thom said, "Minutes would be redundant, but I will put a summary in his inbox."

"Make sure he knows that there is good reason to believe that the cause of the signals you are detecting is the cause of the impactors that are destroying our civilization," Warren said.

7:04am Wed. Feb. 15, 2384

It took a lot larger condensate bottle to capture the largest bits. He had to go to a fourth order condensate to do so and that required containing a condensed anti-helium globe as large as a mortal's head, something that was beyond the capabilities of any lab when Gordon's Lamp left Sol. Even with Elmore's help it was only recently that he was able to get the parts fabricated and calibrated. The quasi-particles so condensed were each macroscopic in size, if there was any way to visualize them other than some kind of drawing. There was no name for them in the literature he had, but as there is no theoretical upper limit to the size (wavelength) of a photon, the same was true of a boson or quasi-boson in this case.

Once he was finally able to capture and entangle them, he found his strangest result yet. It was always understood that quantum information can neither be created nor destroyed. When a qbit is transmitted from one particle to another, the state of that property in the transmitting particle goes to unknown. He was not seeing that in the current readings, the bit was acting like an electronic bit that was copied. In this way the amount of quantum information in the universe was increased.

At first he didn't trust his instruments and went over them carefully. He re-checked all the calibrations at all levels of the pipe. He called Pete Maples down to go over it. He's probably the top expert at atomic level instrumentation of any soul aboard. He made only a couple small tweaks and wanted to speculate about nanites and quantum computing. Thom had a problem with the nanites because there is so little energy available out here, everything has to stay superfluid/superconducting to work at all. Superfluid flow was about the only mechanical motion possible in this realm.

A couple hundred years ago the instrumentation couldn't see both transitions of an entangled transfer, but today was different due to the latest updates sent from Earth, and Pete could watch it happen as well as he could. "I gotta say, this is quite a path of research you're on. Last week you set the war effort on its ear and this week it's theoretical physics." His summary had gotten the attention of the other senior officers if not the captain. Kelvin was reluctant to give up the enemy

that he knew, but after his private meeting he had come around and Thom's experiments were getting a lot more attention.

"This whole effect is pretty theoretical," Thom said. "A forth order condensate is like us building a virtual processor that runs simulates inside it, and in their simulated, simulated realm they build a virtual processor and run souls in that."

"Yeah, in its way, but there's math behind it and it's effecting the instruments."

"There are other phenomenon that can effect instruments," Thom said.

"Like hackers," Pete said, remembering how Alan had everyone and everything fooled for years.

"Yeah," Thom said, and wondered once again if his instrumentation could be corrupt. The only person he could go to about that was Ava, and he had just bought a lawyer to seek advice on protecting this lab from Ava. What could a lawyer do to protect him from Ava? About as much as he could do to protect them from a snowflake they couldn't dodge. All he had asked for in the divorce is to make sure his lab is not harmed in any way.

"You're thinking of something," Pete said.

"Ava."

"Mm."

"We're getting a divorce, she could corrupt this gear."

"Oh it's possible, but she'd have to learn a lot about it to fool us both, yeah she knows the logic in the substrate it all

runs on, but there's a lifetime of applications knowledge with this gear, whatever user interface you have it hooked up to." Pete kept all his gear on a one-sided screen that he sized as needed for whatever he was working with. He never tried to picture it as other than it was in the ship's mechanical innards.

"I suppose, and she could have sabotaged my gear to get what she wants instead of getting a divorce. She could have made it look like there was no information transfer going on out here."

"Or she could make it look like there was," Pete said.

"She was always trying to get me out of it."

"Or she could be trapping you in grounds for divorce, you said she was just looking for an excuse."

"I don't think she's that devious," Thom said, but remembered her avatar on Biology Base and realized that she very well could be. Now that he had determined that his work was only her excuse for seeking a divorce, what Pete said made a lot more sense. She had to know results like this would entrap him. He was onto the biggest result of his life, an event far bigger than anything else in his life, maybe the biggest discovery of the whole expedition. Let's face it, he was onto something bigger than anything he had ever imagined himself dealing with. He was a technician, not a researcher, why did this all fall into place for him? What a magnificent entrapment it would be.

"I'm sorry but I never warmed up to her," Pete said. "She was always too cold, too controlled, too smooth."

"I loved her, I still do," Thom came close to sniffing and had to dab at his eyes.

"I'm sorry it came to this," Pete said. "I knew it would hurt."

"You saw it coming?"

"You were wrapped up in each other years ago, but since turn-over, you've talked a lot less about her, you've been further apart at your parties. I can remember the ones while we were flying around the Cygni system she was practically on your lap the whole evening. This year I saw you speaking to each other once and it looked a little tense. I couldn't hear what it was about. You were never even at the table at the same time."

"That was a separate spat," he said. But was it really? That had been about his not taking the time to learn something about her work. She thought he was accusing her of abusing her power again. That had been a common theme ever since the reunification.

"You were good together, once upon a time," Pete said.

"I know. I never knew what she saw in me."

"Safety, companionship, understanding. Who knows what any woman sees in any of us," Pete said. "You wanna get out of here for awhile?" he asked.

"No, no I can't. Thanks for stopping by, thanks for the cal and thanks for listening. Thanks for not talking too."

"I understand."

Thom let him out the back way, where his lab has its own

door on that little courtyard that has your destination just across. He wondered, for the hundredth time, why he was hurt by Ava leaving him? It wasn't the friendship they shared, they rarely spoke any more. He feared his hurt was caused by baser feelings, his pride and his greed. He would lose everything with Ava. She was the one who made this universe, he didn't know enough user interface design to get it done. He had never really filled out his universe, it was just a very nice two room cabin with some views of fields with mountains in the distance, an ocean in the distance the other way.

It was in the middle of the afternoon before he got in to see Heymon. "Another requisition?" Heymon said, "Looks pretty long." Thom had represented it on fan-fold, it was five pages of parts. Precision tracking hardware with telescopic feedback, a tangler diode. "You look like you're building your own tangler beam."

"Yes sir, an astronomical tangler beam will aide my studies greatly."

"Astronomy is still working on confirmation."

"I understand sir, but I've made a new discovery that may also be of significance." Heymon looked up, but didn't prod. Thom swallowed, this was going to sound a little looney. "What I've seen so far with a fourth order condensate is quantum information being created."

One couldn't be a senior officer in a starship's Department

of Engineering and not know enough quantum mechanics to know that was impossible. He leaned back at his desk and put his hands behind his head. His personification is big and crew-cut, with a barrel chest and beefy forearms. "Major Husband," he pronounced slowly. "Nothing that you've done so far is on solid theoretical ground, and your observational technique is novel. You base a lot of your theories on Darryl's tenuous arithmetic. But up til now we've given it a lot of serious thought. You've questioned our whole theory of this war, now you want us to question the foundations of sub-atomic physics?"

"Sir, once again, I can't prove what I have, I need more data. I don't need the power of the main tangler, just a thin little beam and some tracking software and I can make many more studies. I can track down the flaw in my technique. I want to go back and re-examine that impactor to see if it shares this new phenomenon. I want to see if normal matter does it. Darryl's got some interesting transforms that show logic circuits can simulate the properties of fourth order condensates."

"What's so special about fourth order? What about third order?"

"That didn't get me down into the Planck frequencies the logic simulation needed," Thom told him, "and Darryl's explored simulations of third order for years without finding any special properties. I know nesting levels are never significant so what we are seeing must have really have

something to do with some other property. I think it is quasi-particle volume. Because the quantum number is associated with such a large particle, it is very, very fuzzy. I think it is its fuzziness that allows it to appear to come into existence. Darryl concurs. He thinks this should occur in all higher orders also, but we will never contain enough antimatter to perform that experiment." The state radius of a fifth order condensate would likely be the size of a man's head. We'd need a cargo-pod full of condensate.

"So what is it you want to learn?" Heymon asked.

"Two subject areas, one has military implications, and that is; if the impactor has fourth order condensates that we can entangle, can we see it generating these fuzzy qbits like main population bodies? The second is more thorough scientific examination of this phenomenon, in particular, what is happening to make us think information is being created."

"It has to be some form of cross-entanglement."

"That has as shaky a theoretical basis as brane-space," Thom said without thinking. As the words were leaving his mouth he remembered that cross-entanglement was a pet theory of Heymon's.

"Oh I know," Heymon admitted, "and I admit I can't push that level of math around either, but it would certainly explain your results as well as information creation and do a lot less mathematical havoc."

"Oh I agree with that. With more experimentation I'm

sure we'll find a corresponding transition to unknown, maybe in a different order. We've observed cross-order condensate quantum information transitions before."

Heymon sighed, "I'd love to talk longer about this, but I have another appointment in just a few minutes. How much does this all come to?"

"Seven fabricator-hours," he admitted. He showed Heymon the itemized list, fabrication costs only.

He scanned it quickly but fairly thoroughly and wrote, 'approved as fill-in priority' and signed it. "Keep me posted. Scan the impactor first, then the Chinese ship and then your research targets."

"The Chinese ship?"

"They were the major power in space last century, they launched the only starships in the twenty first century. They could have been out here. They had self-replicating technology a generation before we did. This could be theirs."

"But sir, why would they have sided with flesh?" Thom asked. Over a billion Chinese had voluntarily ascended while Gordon's Lamp was on its way to 61 Cygni and back. Their simulate installations deep in the moon were the largest in the solar system, and the target of the largest impactors. So far they had been able to fend the impactors off, but sooner or later one was going to get thru, especially if they would keep coming for another two hundred years.

"Because the crew are flesh. They may have put this stuff here on their way out."

"This is too far beyond 2091 technology," Thom said.

Heymon thought. "You're right," he said, "they left nearly a hundred years before we did."

Thom sensed the meeting was over, he tapped the signed req back into his phone and minimized it, then got up to go.

"Thank you sir," he said.

"Keep me informed, and if Major Tendine is outside, send her in."

Imogene was here in Heymon's waiting room. He had already shut the door to the inner office before he noticed her because she was behind it. "The Colonel said to go right in."

"Sure," she said and got to her feet. He was about to get the door for her when she said, "While I've got the chance, there's something I'd like you to know," she was coming toward him with her arms out as she said that. He thought he would have to decide between vomit and karate but in the next timeslice she was transformed, her hair and figure were suddenly luxurious, her face was flawless and beautiful. As this sex goddess took him in a quick embrace, he felt the firmness and suppleness of her shape, even the hardness of her nipples thru both sets of clothing. His hands found themselves on a strong, smooth and shapely ass. Her voice, but without the nasal overtones said, "I use a different personification off duty." She spun and kept going, only hugging him on the way by. As soon as contact with her personification ceased, she reverted back to the repulsive

Major Imogene Tengine he had known the whole voyage. She smiled her ugly smile back at him as she went thru the door. That smile made her look like a cross between a rodent and a pig.

7:41pm. Fri. Feb. 24, 2384

Thom rarely visited the ship's lounge, but he noticed Elmore in there and couldn't pass it up. Normally Thom wouldn't keep the company of full colonels, but they had known each other as mortals and that forged a bond more important than rank and wealth.

"Thom," he said and nodded at the seat next to him.

"Elmore," Thom said as he slid into it.

Elmore engaged in enough magic to have a big shot of a fine bourbon appear on the bar in front of him. He hoisted his, "To the Ohio," he said, and they clinked.

They had known each other before they swam that river, but that was the defining moment of their friendship and something they would always have together. If they hadn't made it across that river and into Laurentia, neither of them would be here today. In America only the rich were resurrected in silicon in the 2160's, in Laurentia it was birthright. They were eighty one and seventy nine when they swam that river. They had walked all the way from Lexington, escaping from a state rest home in a dumpster.

"To the Ohio."

"I feel like the Collapse all over again," Elmore said, "the way the war news is going."

"I heard from a mortal on Earth's surface. He is living in an ancient school bus, but he is alive with solar and battery."

"How is that?" Elmore asked.

"Lonely, he seldom gets anything more than mail. Mail buoys are too small to target. He wishes he had a way to search for any surviving Brazilian women."

"That rumor is going to persist to the point where all surviving Brazilian women will be raped to death."

"That's probably what Talstan had in mind when they started the rumor," Thom said. Elmore gave a quick laugh. "Their goal may be lofty, but that's not the Christial way."

Thom was looking casually at Greta Barnes who was sitting farther down the bar. She was trying to look her best today, without altering the base mesh of her personification. She had her hair out of the pigtails and did not smile widely. She was in a sheath, one that might have even come from Alan's universe, but she had underwear on. Thom idly thought that once the divorce was final, she would be the best of the available women, not counting Ava of course. He saw her notice him, he smiled politely but would not pursue it, he meant to keep his vows til the divorce was final. If she was a good Christial, she would understand. He wondered if she would understand that he was not slave to carnal desires.

From the corner of his eye Thom noticed the shot glass go

full once again. He looked away from Greta and to Elmore. "I heard about the papers," Elmore said. "I'm sorry."

He wondered if Pete had said anything, but knew he didn't need to. Ava wouldn't have kept it a secret. The clerks in Theology had friends, it would get around. In a crew of fifty two it was inevitable that everyone would know after two and a half weeks. "It was time," was all he said. They clinked once again, Thom only sipped this time.

"You've been busy," Elmore said.

"That's her excuse, but it's a cover."

"Oh?"

"I followed her," he said, fighting back tears, "at least a week before she filed. She has a back door set up in her closet, I followed her. I saw her meet a guy. I couldn't see for sure who it was, tall and blond is all I can say, I was a long way behind them."

"And could you tell what universe it was in?"

"Even though it looked a lot like Carnivale in Rio, there's no mistaking Alan's universe."

"No, there's not," he said. "But lot's of people go there, a dozen a week at least."

"I don't care where she meets him, and I don't really care who she meets. I knew it was coming to this. I knew it when she used the signals as a wedge between us instead of a shared obsession. That's why I followed her."

"Does your lawyer know?" Elmore asked.

"Yes."

It had been a real struggle getting his equipment put together and getting some results from it. He had to have Pete help him with a lot of it, and as he was assigned full time to observing the Chinese ship in the electromagnetic spectrum, he could only do it on his own time. Meanwhile both Heymon and Elmore were pestering him for results, more specifically, hounding him to find the error in his previous observations that allowed quantum information to be created.

Instead his initial experiments found more of it than ever. Heymon sent Lite Colonel Anderson to assist in finding the error and he brought Sam Langston with him. They both went over everything he had done in detail. They all studied the latest quantum mechanics texts together. They all were under pressure to report something to Heymon and the captain. Heymon came into his lab for a day and looked it over himself. Thom was afraid that the time was coming when they were going to make up a lie just to calm the frustration of the top brass. Five weeks had passed since the fabrication of the parts and the captain and crew were impatient for answers.

Because no one believed in the instrumentation, none of them wanted to report what he had found. They were saying his equipment wasn't quite working yet. He wondered if he should bypass them and send a message to the captain directly. He thought it would be better to tell Elmore but their

paths hadn't crossed recently.

Before he had a chance to talk to Elmore, Ava called him onto neutral ground to talk. They went to the ship's lounge. It was decorated as a dinner lounge this week. The captain often played with the décor in here. She was in a low-cut evening dress in subtle colors that made her skin look like cream and her hair look like chocolate. She had no visible devices with her but she never let her devices show. "I would have let you in the lab," was his greeting.

"Your lawyer can't see or hear us here, not the case in your lab."

"What about your lawyer?"

"I can send him home."

"My rank doesn't leave me as much money for lawyers as you," he said.

"I would have bought you one like mine, then we could have worked this out civilly."

"Is that what this is about?" he asked.

"Not really."

"What then?" he asked.

"I understand you're having trouble getting your gear thru testing?"

"Are you finally going to take an interest in that? I could use some help, help talking to Heymon."

She made a face. "Thom, your lawyer is trying to take half my island and you want me to get between you and

Heymon? Before I can help you or even listen to your problems I have to get past your lawyer.”

“He can’t fault you for coming into my lab.”

“I got hit with a restraining order the last time I was in there. It took me an an hour to jumper the damn thing out.”

“That’s illegal,” he said.

“That’s why I won’t come back in there.”

“I could use your help.”

“Your lawyer Thom, I’m here to talk about your lawyer.”

“I don’t give a shit about the lawyers,” he said, “I don’t have time to futz and futz with the user interface on the damn thing. I care about what those condensates have to do with the nature of intelligent life.”

“Thom, if I tell the captain these signals are the reason our homeland is under attack, will that get your attention?”

“Do that, at least it will get the captain’s attention, something I’ve been trying to convince you of all along.”

“So call off that lawyer and I’ll get the captain interested in those signals. You can have the boat but I want you eleven hundred miles away, not eleven.”

“Those lawyers have their agenda, I have mine,” Thom said, “I don’t really want the boat or the island. I’d be happy to settle for my lab and my old universe from backup like your lawyers say.”

“I didn’t buy a lawyer til you did. We could have talked this out.”

“I got the lawyer because I’m too busy discovering the

largest information transfer in the galaxy to deal with something as trivial as a single divorce, even if it's mine.”

9:59am Mon. Apr. 2, 2384

It wasn't til after that meeting with Ava that he finally ran into Elmore. That meeting had gone poorly. Elmore told him it was Heymon, he wasn't putting his signature on any results from instruments that required the re-writing of the laws of physics, and his equipment was not working until he could find the fault, either in his equipment or the instruments that claimed to read the state at the far end of the entanglement. Thom pleaded his case to Elmore, Elmore promised to talk to Heymon. He was not going to defy Heymon and report the scan of the Pink Dawn unless the captain ordered him to look into it.

They spent another week prying open the instrument schematics that had been transmitted from home with that quantum mechanics text. They went over the fabrication of it and even had Ava look at it. Since none of them knew the science and the math on which this instrument operated, all they could verify is that he had correctly specified the fabrication. They had to take the instrument itself as a given, and that was the crux of the problem. He begged them to at least report that to the captain. He wondered what had actually been said at this morning's meeting.

"Hello Thom," it was Ava's voice from the front door to the lab. Until the settlement was worked out, he was sleeping in here and using the back door, so he had not seen her since she complained about his lawyer.

"What are you doing here?" he asked.

"The captain sent me."

"Why?"

"To go over the latest data with you."

"What does your lawyer say?"

"This is duty," Ava said, "the proceedings have no bearing on it. Let's do our duty like professionals and leave our personal lives out of it."

"Fine," he said, their personal lives had been nothing but lawyers and gossip hounds the last five or six weeks. "but why did he send you?"

"Because he talks to me, he asks me for answers I don't have."

At least she was a direct report. She might not be afraid to tell the captain what he'd found even if it violated the laws of physics as well as the laws of politics. Thom knew the physics wouldn't be anywhere near as big a consideration in the captain's mind as it was in Heymon's. "We're all looking for answers we don't have," he said.

"If you only knew," she said, "but that is the curse of a virtual existence."

"And magic is the blessing, I know."

Maybe this was good. If he reported directly to the captain, everything he said would go nowhere, and he would study Thom's personification for clues like sweat and eye movement and pupil size to try and determine how sure he was of what he was saying. If he believed him, Kelvin would send him to someone who could understand him. Ava could understand him.

"I've had my astronomical tangler working for a couple weeks now. I've been able to observe the initial targets and get the initial data interpreted."

"Good, I'm not here to double check your technique, there are others who've done that already I understand."

"Yes," Thom admitted. "They won't say it's working til I explain the information creation."

"I think Kelvin's ready to blame it on me, he didn't say that, but he's looking very suspicious. Heymon seems to be harboring quite a bit of animosity and I wouldn't doubt he's had a bug in his ear. Seems pretty stupid of him to send me looking for a hack he suspects me of doing, but I'll have another look at this from a systems point of view."

He settled her into his desk and she did just that. She was courteous enough to leave her screens visible. He had looked over her shoulder at these diagnostics before, he had some idea what she was doing. She was running netlist checks on all his signals, making sure there were no extra inputs or outputs. They all passed, everything in his virtual environment was wired as it should be, in both hardware and

software.

As well as the instruments themselves, she combed his sensory scene generators, as well as those that the other people present had been using at the time. She verified all the way to the substrates on all of them. She muttered something about the fabricator's secondary cal being back to normal, but he had no idea what that was about.

She ran spot verifications of the hardware data layer against some of her private files. She didn't say much the whole time til that was running. "Well; if your system's compromised, it isn't something simple."

"Alan's wasn't anything simple either."

She glowered at him, "Last time we talked, you thought it was all real and he didn't hack it."

"He hacked some of it, unless the Kassikan transmitted his copy into our virtual space."

She didn't favor him with a reply, just another evil stare before she looked back to the diagnostics on her screen. It took another few minutes before she shut her screens and looked up at him again. "I can't find anything, I bet it's the instrument they sent from Sol that has the problem, but I'm not going to fight with him about that."

"Are you going to let him continue to suppress what I've found in the data."

"He's been suppressing it?" Ava asked. Apparently she didn't talk to Heymon very much. At one time he thought

they had been close. At one point he suspected her of an affair with him, though he had never been sure and he had never confronted her with it. "So tell me what you see in the data," she asked.

"There are no third or fourth order entanglements on the impactors, so no quantum information is being created."

"There is no quantum information created on the impactors at all?" She asked.

"That's what I'm telling you. Second order is as high as it goes, there are nothing bigger than magnons on them. No third order, no fourth order."

"Do I hear you saying there's nothing but servos on them?" she asked, studying his face for an answer.

"That's an inflammatory way to put it," he said, studying her face for a reason she wanted to get him to speculate so wildly. He didn't want to have to think about what this meant did he? He didn't want to say that his instruments were telling them that all the dark matter was conspiring to wipe out all Angels from the realm of Sol.

"Can you find who's controlling those servos?"

"As of yet there is nothing in the theory that lets us follow an entanglement to the current location of the anti-particle."

"Any guesses?"

"The bulk of the fourth order condensates are in the larger dark bodies. It seems to take something on the order of a thousand feet in diameter to contain them."

"So the dark bodies are controlling them?" she asked.

“We don’t know that.”

“What else could it be?”

“Let me show you something.” He brought up one of the screens from the scan of the Chinese ship.

"What is this?" Ava asked about the plot he had up.

"That's a time domain plot of transitions from a fourth order condensate in the Pink Dawn, entangled with an anti condensate in our containment chamber."

"It reminds me of one of those plots from an ancient Scientific American article about the giant neurons of octopuses. Remember when we came across that in the data-store's time capsule."

"How would you even remember that?" Thom asked. "It was what? 2305-6-7 when we opened that?"

"Somewhere around then," Ava said. She was still staring at him, "It's just the way you depicted it I guess, most would represent this as a square wave."

"The state changes are more like impulses, that's what I am trying to convey with this. A quantum state change is the ultimate impulse."

"But the quantum states are usually binary," she said. "Anyway, I see what you're trying to say, the information is contained in the pulse frequency, as it is in a nerve cell."

“You poo-poo’ed that observation a couple months ago when I made it,” he said.

She looked up, but said nothing.

How much of these discoveries did he really owe to

Yellelle from the hints she gave him on the night she tried to rape him? He still had no clue who she might be, or rather, who was driving her.

“So are you saying the impactors could be controlled by the Pink Dawn?” Ava asked, putting the form of the plots aside.

"These transitions don't correspond to any other observations of the Pink Dawn, or any observations of the impactors."

“So we still don’t know?” she said, then continued without giving him a chance to answer. “Do you have any other transitions, of any order, from any body that correspond to changes in the impactor?”

“Just the ones from the impactors. We would have to get extremely lucky to chance on a quasi-boson that had some connection to the impactor.”

"But the Pink Dawn does have fourth order condensates and is emitting fourth order signals?"

"An eighth to a tenth as much as the average dark body of the same mass," he answered, "and the pulse frequency averages about one tenth of what we see in a dark body."

She noticed the array of dots at the bottom with one brighter. She touched a few others and saw they were all similar but with differing levels of activity.

“So what you’re telling me is these signals are all coming from the Chinese ship?”

“That’s what I think,” Thom told her. “These particles

were in the target of my beam. There is a twenty four hour pattern to it.”

She could easily verify that with a screen from right here. She seemed to do that by scrolling quickly thru a couple days of data. “So I’ll concede those signals are coming from the ship. There is only a very low level, but it is still more than are coming from the impactors. It could be enough to indicate that it is in control of these objects.”

"It could, but they did not have the technology in 2091," her face said she thought that was immaterial, so he said, "and they didn't have fabricators that would let them update to this level. Besides, if they can even detect these state transitions, they could be thinking the very same thing about us."

"What?" She asked.

"Yes, I followed it further. There is one more thing I found that gives off large-radius fourth order bits of created quantum information."

"What is that?"

"Gordon's Lamp," he said.

"From your own equipment?"

"No," he answered.

"From where?" Ava asked.

"It only emanates from the modules that are used as veron store," he said. She looked at him intently. "Remember Darryl's comment that logic loops could simulate a higher order condensate?" he asked. He brought up some of the plots

from entanglement in their own veron store. She could see that the signals produced in Gordon's Lamp had the same characteristics as those from the Pink Dawn.

"I guess so?" Ava always seemed to question anything where Darryl was concerned.

"Isn't that what thoughts are in a human soul?"

3:35pm Tue. Apr. 17, 2384

These last two weeks were what he wished for when this all started. Too bad it took a separation and orders from the captain to bring it about. The fact that Ava was now enthusiastic about the discoveries proved that she was only looking for a way out and had used his dedication to this research as an excuse. The last two weeks had been difficult because now that he couldn't have her, he saw her all the time. Not only that, but since she moved in with Alan, he found himself thinking of carnal relations with her. He remembered their last time back on January twentieth had been magnificent. Now that she was no longer with him, she looked better than ever. He was sure she had tuned up her personification. Piety required plainness, she wouldn't have his feelings about that to consider. Now that they were working together instead of fighting, she was inspiring to be around once again. Again and again he had to remind himself that he didn't drive her from his bed, he simply agreed with

the Apostle Paul that the sterile simulations of reproduction were silly.

But in spite of that emotional toll, they were making great progress. She knew the veron store inside and out. Darryl had refined his math that pointed the way to simulate a fourth order condensate in logic. Ava traced those equations in the logic. Everyone had them in their minds, they were simple short term memory loops. It was the parallel nature of those loops that allowed them to mimic a condensate in some way that Darryl's equations understood, but none of the rest of them did.

Ava had fabricated a new veron store where one to four minds could run at a time. They were using that to try and find clues into the nature of information creation. She just got it working today and volunteered to be the first to run from it. They were still setting up the instruments to tune into the atoms in the mini veron store that were entangled with the fourth order condensate in his largest antimatter trap to date. They were discussing the phenomenon they were chasing, which they had already observed even before they finished the calibration.

"I bet I know what it is," she said.

"I just got another burst of large radius state changes created in there," Thom said.

"That might just prove it," Ava was excited. "Getting an idea would certainly do it, but I was about to say any manifestation of free will must give rise to new information.

We've discovered physical proof of free will."

"I just got another one," Thom said, "a big burst that time."

"At the very basic level," Ava continued, "impulses travel these circuits in a steady state, the pulses circle their group of neurons and the pseudo-particle that emulates does not undergo a state change. There are plenty of state changes in response to stimulus, we see all these here," she waved at the screen where they had saved many of those plots from atoms in verons simulating other parts of her brain. No quantum information was created in those.

"How do you feel? Remember all your other thoughts we've entangled are destroyed."

"One atom. All our traces are redundant," (multiple atoms) "in width, all our signals are redundant," (multiple electrons) "in length. I'm losing more data electrons to cosmic rays than a few dozen entangled particles."

"What we have proved," Darryl said, "is that we can entangle a logical simulation of a fourth order condensate."

"You see what this means?" Ava asked.

Thom didn't bother to yell at the burst of information creation that set off.

"No, what?" Darryl asked.

"We don't need a fourth order condensate to entangle the dark bodies, we can entangle the virtual particles created in the veron store and dispense with that massive and hungry equipment."

"Right, we could reduce the equipment to something any bot could use," Darryl said.

"It could be hand-held by a mortal," Ava said.

"I'm not following you?" Thom said.

"You have entangled the large radius quasi-particles in your fourth order condensate with equivalent quasi-particles in the circuitry of the veron store. Quasi-particles that seem to exist only in the information domain."

"They have to be free of energy, in pure base states..." he started to say.

"Apparently not if they are virtual. Yeah, our logic is cool out here, but our reactor is at fifty million degrees and you know how hard it is to shield that heat from your condensates."

"Yeah..." he agreed, he knew the silicon plates ran at a little over two hundred Kelvin, and it was mostly internally generated heat.

"You're saying entangle this veron store with what's out there?" Darryl asked.

"Yeah," Ava said.

"But we're using this condensate to figure out what's going on in the data store. I don't know how to instrument the quasi-particles your mind creates in the veron store."

"There is some chance I will be able to sense the linkage directly."

"Are you willing to dare running from it while that is done?" Darryl asked.

"Somebody has to, it's not the hardware that's the condensate, it's my thoughts." she said, "Anything is possible, I might get a direct mind link with whatever it is. I doubt it will be strong enough for me to sense it, but if my thoughts were entangled with something out there, it seems to me I might be able to feel it's thoughts."

"That could be dangerous," Thom said. He wondered why she would so calmly take the risk.

"We could hit a snowflake any second," she replied, "and that could be fatal, besides, I'll take a backup. It is much more likely I will notice nothing. We will probably have to instrument my consciousness to tell anything is happening."

"So it makes no sense to perform the experiment," Thom said.

"I still think it's worth trying," she said. "Just pick the nearest body and give it a shot."

"You don't think there is any danger?"

"You already have my thoughts entangled with that condensate in your jar. Why would I be in any more danger from the condensates in the dark body than from those in your jar?"

"Because those condensates are not initiating any transitions. It's like there is no output from them, the dark bodies have more output than your mind does, you could be blown away."

"What percentage of the thoughts in my mind are entangled by one pass of the beam?" Ava asked.

“We’re not sure, maybe a thousandth, maybe a ten thousandth.”

“Meaning the most likely outcome is, I won’t be able to detect anything. Because the output is high, maybe I’ll detect something, and it will probably be the equivalent of white noise.”

“Maybe we should work up some kind of instrumentation first,” Darryl said. “Just to prove we’re getting entanglement to simulated fourth order condensates.”

“That will take what? A week the way you guys peck at it?”

“I’ve already got ideas on how we can instrument the quantum states in her thoughts.”

“I’m not so sure I want instruments that can read my thoughts. I don’t want you to invent a diagnostic port into my mind.”

“Wasn’t your avatar trying to use one on you?” Thom asked.

“That was at the personification interface. She could have taken over my personification and used it to manipulate my systems screens to encapsulate me and put her in my place.”

“Whatever you said,” Thom told her. He’d been thru this with her before, she loved to go on about the battle of the bus she’d had with her avatar whenever she thought someone was interested, even though it was now a over a hundred years in the past.

“It couldn’t read my thoughts, just control my

personification.”

“We’re worried about your safety,” Darryl said.

“You just said only one in a thousand of my thoughts will be entangled anyway. I’ll take a backup and trap back into the main store at the first sign of trouble. It should be a quick little test. It shouldn’t be hard to set up?” she looked at him.

“No,” Thom answered. She was the ranking officer here and she was going to get her way. He understood that, it was no use prolonging the whining. "There's a dark body with condensates within five minutes of us now," Thom said. "It will take twenty minutes to set up the beam, do you have an hour?"

Darryl looked like he wanted to interrupt but she didn’t give him a chance. "I don't have to keep my personification in the same render-space as yours, I just have to run from the verons in this auxiliary store."

"I don't think you should be in the middle of anything when the beam reaches the body, and five minutes after that, there is no telling what will happen at that time."

"Nothing can happen when the beam reaches the body," Darryl interjected, “but once it does, whatever is going to happen is inevitable.”

"So we think," Thom said, though he still thought otherwise. “I’d still feel better if she was back here by then.”

"I'll stop in when it happens anyway, just to be sure," Ava said as she went to the door.

"The beam will reach the target in a half hour," he said.

Before the separation she would have refused this experiment just to piss him off, now she was forcing it on him. Maybe she was trying to make it up to him, maybe she was trying to get him to get his lawyer to change his demands. She didn't understand that the lawyer pretty much did what it did. The Shark-IV had several user panels but they controlled things like what kind of suit it wore, the color and style of hair, features, build, the sound and tone of voice it used, its manners and personality type and what hobbies it should speak of in social settings. This one had settings for golf, sailing, sport fishing, scuba, flying and horse breeding, with wealth level settings and other custom settings in each hobby. If you had it in casual dress, that setting would also change the emblem on its shirt. He left it on golf. It could talk much more intelligently about golf than he could. The Shark-IV had no user panel for setting what kind of settlement you wanted, all it did was go after the most it could get under the law. He would have had to pay more for a lawyer with that option so he could request a smaller settlement.

It only took him a few minutes to set up his equipment to entangle the veron store where she was running with the nearest dark body, a two hundred million ton snowball a little under fifty six million miles away. He had done two other experiments with that body, so he already knew it had plenty of active condensate in it. He had to wait to give Ava the half hour, he used that time to do a little maintenance on the

equipment. He double checked all the extra security Ava had put on his equipment lately. He knew that she insisted he be very careful to make sure nothing could get from his condensate read-out chambers to any of the buses in her systems without going thru the filters she put on. He could understand the need for caution. He could even understand Heymon and Glayet's cautions that the laws of physics allowed Brazilian Intelligence to tap into their system thru his instruments if he left it unsecured. It would be especially dangerous if they were to get thru into his lab during this experiment. He was even more concerned about whatever was generating these signals interfering with this experiment. He couldn't admit that to anyone else, he should have never discussed it with Ava.

When there were five minutes to go he called Ava to make sure she was aware. She was and would be with him shortly. He fired off the entangled beam. She cut it very close, there was under a minute when she came thru the back portal of his lab.

"You wanted my personification present for something?"

"The entangled photons should be reaching the target very soon, then we will have another five minutes for any effect to propagate back here."

"Then I should probably jump back into the control room and make sure the latest updates completed OK," she said, not sitting down.

"Or have another meeting with your lawyer?" Thom

asked.

"You were the one who started with the lawyers," she said and folded her arms in front of her.

"I've decided I'm not content to have my old home back."

"I'll give you your lab, don't forget that, I never tried to get any claim on this space." She waved at all of it.

"Still, my old universe is hardly what a major should live in and you know I don't have time to learn scene generation."

"Heaven fo..." and she was gone. He looked up and saw it had happened at the instant of contact.

He beeped her pager channel, nothing. He beeped Darryl's.

"Yeah buddy?"

"You better come back over, I don't like the way Ava blinked out the instant the study tangler beam should have reached the target."

"How did she blink out?"

"In the middle of a word, like she didn't intend to."

"Is there still activity in that veron store?"

"The clock is still running," he said after placing a virtual probe, "it is granting cycle requests but it happened suspiciously close to the time of the beam's arrival."

"It should be five more minutes."

"I showed you how I see that math," Thom said.

Darryl sighed. He was the math wizard and he was convinced the work-around to convince themselves that

lightspeed would not be exceeded was valid. "It could only be coincidence, as you well know."

Thom went for the simpler theory, that the information transfer was instantaneous. He wasn't good enough in math to follow the accepted theory. Thom thought the entangled particles were different regions on a single quark surface in contact thru a dimension we can't observe. He remembered Yellelle's talk of 'holespace' and the Infinite Dimension Theorem. "But she did blink out," he reminded Darryl.

"I'll come look at it, maybe she's mapped out or something like that. I don't know if I can tell and I know I can't fix it, but maybe I can find some clue as to what happened to her.

While Darryl was on the way he wondered who else he could call on for help. The only one who came to mind was Alan, and Thom was never sure who's side he was really on. Thom suspected Alan was the other man in Ava's life, and if so, more power to him, it was Ava who wronged him, not Alan. Still, Alan would not be permitted to make much of an investigation. Of course with Ava gone there was no one who could effectively stop him was there? With Ava gone Alan could take over the ship couldn't he?

Darryl was entering the lab in less than a minute. He spent nearly fifteen minutes poking at the control panel for the small veron store, and another ten looking thru the diagnostic traces from his equipment. He mumbled now and then, but

had no 'aha's or other encouraging noises.

"So what do you think?" Thom eventually asked him.

"What do you think happened to her?" Darryl asked in return.

"All I know is, she blinked out in the middle of a word."

"Let me show you a ping," Darryl said, "It will tell us if she's still running or not." He banged a keyboard and watched a dark little screen that popped up above him. "She's alive," he said.

"Where?" Thom asked.

"In an event horizon as far as I can tell."

"The grant light is active," Thom pointed out, meaning the store hardware was granting cycle requests to someone. Is she like unconscious or something?"

"People answer pings even when they're asleep, it just says they're in the system. I think we're going to have to recall her latest backup and get her to rescue herself."

"I don't know if we want to do that just yet," Thom said. Darryl hadn't been close to them during the reunification and didn't know the details of what Ava may have done.

"Although I don't know anyone else with the system's skills to help us," he lied, deciding he did not want to bring Alan into this either.

1:14pm. Mon. Apr. 23, 2384

All he could say was, he was lucky he wasn't in jail or worse. The captain had been furious, called them irresponsible and probably would have had them zeroed out if he only had a Systems Administrator handy who could get that done. There had been many high level meetings that he was excluded from. Everyone who knew anything about systems, quantum mechanics or data security had been going over his gear ever since. He had been told to keep everyone else out of his lab and that meant Alan. It had been a miserable week.

Somehow, thru all the mess, he got mail from Earth. Those mail routers are persistent if nothing else. This time it was from Wuding Tung who was on a post at a cryoslicer on the eastern border of Tibet. They hadn't seen each other since Thom ascended. Tung had been a young nanoengineer when Thom was an old man. Today Tung was an Angel of course, but he was in a ground station and subject to the mayhem of a biological planet.

-Hey Thom, good to hear from anyone. I'm hanging on here on solar and battery only. I've got a little fabricator, and raw silicon for a few more years at least. I'll just have to hope for the best. I've got three cryo-atom-slice coffins still operating that can copy out souls, but there are few who bring their dead up here any more, at least few that

get here in time for me to get a viable read-out.

I get more voluntary ascensions than viable dead. I scarcely blame them. Everything is out and it's going to stay out. The party is gone for good this time. There are so many roving bands that it's useless to try and grow crops. The only reason anyone's left alive is all the ammunition's used up.

On good days I can get a pretty decent universe going in here, and some of the granddaughters make decent images for cherub generation, so I'm staying amused. I haven't gone in for anything really wild, but I've done away with gravity and allow teleportation.

The slicer itself has not sustained any damage and as long as I have juice, I have full capabilities. If I get five or six cloudy days in a row I have to cut back. I can tell the collector is getting dust on it because the power output is going down. I'm trying to get a cult going among the mortals that will clean the collector.

As for the situation here on the ground, there is no more China. Greater Beijing is a lake of lava, so is Shanghai and all the other old cities of the coast, and most of the major cities inland also. At least a hundred asteroids impacted China alone, only Brasil had more. The most backward

from the countryside will re-people it after the lava cools. A few army outposts are dragging everything they can into the underground bunkers. The different posts are clearly warring with each other. They grab some of the grand daughters too. The remaining peasants go away sobbing. The whole village this slicer is in has been abandoned and a few people scavenging building material is all I see these days.

So you were away to 61 Cygni, how did that go? I know your reports didn't jive with the Brazilians, what's that all about? So welcome back, sorry things are a bit messy here at old Sol right now.

Sincerely,

Tung-

He felt sorry for his friend, trapped in that shrinking and doomed universe. Wasn't Gordon's Lamp the same? Did they have anything to come back to? Sometimes he wished Ava had never discovered Alan's hack and they had stayed in orbit studying the planet at 61 Cygni. Of course he assumed their society would grow with souls from the planet, though they didn't age, millions died every year and at least some of the bodies could be recovered. That wouldn't happen if it was all

a hack. Actually it would, but the 'new souls' would have been more of Alan's autonomous cherubs.

Tung wouldn't be worried about panels for his cherubs. He probably missed quite a few ticks for his own soul if he was running in a control module for a cryoslicer station. He felt sorry for everyone in the war zone. Some souls had come from backup three or four times already, sometimes after long down time. He wondered how often Tung backed up? He wondered how microscopic the odds were that any backup he made there on the ground, where conditions were quickly reverting to barbarism, would ever be run?

It made Thom schedule a backup. It had been over a month hadn't it? He was busy with research, but that made it more vital to back up regularly so he didn't forget what he'd learned if he had to be restored.

He popped Ava's last backup to the desktop once again. Twice yesterday and twice today he was tempted to put it in. He needed someone who could tell him something about what had happened and who was accessing that veron store. One thing stopped him and that was; what would happen if her backup was to probe within that veron store and find herself running in there? To preserve her own life she would have to shut her other self off and claim she wasn't there. It was too much to ask of any soul.

Suddenly Ava was in the room, dripping wet and stark naked. He jumped, wondering if he had accidentally activated the backup. "What happened?" he asked in surprise. "It's

great to see you back safe..." he started to say as he got up to hug her, but she didn't wait to listen to that.

She dried and her clothes blinked back into existence, the same sundress she had on the day she left. "It's a long story and a lot of it you wouldn't understand," she said. She was fumbling quickly with some panels while she said, "but I know what test we have to make to figure out the answer to everything that's been going on around here."

"Give me the short version at least."

She thought only a second then said, "I was encapsulated, the entertainment I was presented doesn't mean anything until we run a test to prove whether the entertainment is possible, or fiction."

"What entertainment?"

"I was put in a simulation that explains all of it, your signals, Yellelle, the 'enemy ship' that was closing with us. But the whole explanation hinges on the ability of entangled particles in decay bacteria to transmit a human soul."

"Huh?"

"I told you there wasn't time for it. I know what measurement we have to make to figure out what's going on."

"You met Yellelle, in entanglement?"

"I've met her before, you saw that already. But the bad news is we have to get a modification of those instruments to a mortal who is dying and make him ascend."

"I just heard from a guy with a cryo-slicer and fabricator on mortal ground in China," Thom told her.

“That’s great news, we might actually learn whether you are right about these signals or not. It’ll require some help from your contact on the ground and a fabrication program for that hand-held fifth order condensate detector.”

2:14pm. Thu. Apr. 26, 2384

Thom didn’t let himself get distracted by the bruhaha that Ava’s return started, it was almost as bad as her disappearance. It had started as soon as she went to check in with the captain. Thom was threatened with arrest once and he heard that Alan had been arrested. Ava was still living at Alan’s, but she spent what time she could with them helping get that instrumentation ready. Thom concentrated on the project and slept in the lab, keeping his nose out of what was happening in ship’s politics and his own damn divorce.

Testing the device proved to be the problem, they'd left the androids behind at 61 Cygni since they wouldn't be seeding that planet. They had to build a new one and spent a day doing that. Heymon ranted about the fabricator hours. Ava told him the expedition might need them again if their zygotes were all that remained of humanity and they had to re-seed the Earth.

Once they were done testing, Thom had to write that letter. He had to make it sound like performing this experiment might give him some hope. He hated to have to

do it, mainly because he wanted to console him and had to refrain from doing much of that because it would make his situation seem too hopeless.

-Tung

I need your help in trying to clean up some of this mess. Because you have a fabricator, and a cryo-slicer, there are some very important readings you can make that might go a long way toward this war effort.

I don't have time to go into the science of this right now, I'll attach notes you can read at your leisure. I'm also attaching an intermediate compilation of a fabrication file. It will produce a pair of sensors.

Get your service android to aim those sensors at the head of the subject of your next cryo-slicing. Get me both a resurrection and an ascension. It is also very important that you take readings from a death you did not slice but had a couple days to decay. I'll attach a diagram showing how to do that. Send me the readings you get. This is of utmost importance to the war effort. Our ship's and your survival may depend on it.

Oh, and the 61 Cygni thing, they say it was all a hack made up by one of our crewmen. He's been sentenced to

three-d reality in that hack for eternity because of it. There's a three volume report on the whole dust-up, I'll attach a copy of that too.

Please fabricate those sensors and take those readings. It is possible that doing so may prevent our extermination.

-Thom

He searched for the fabrication package for the hand-held sensor and made sure it was correct before attaching it. He put a copy of the expedition's report on also. The message would take a day to get there, it would be some amount of time til he could perform the experiments, and his reading would take almost a day getting back. In a week or two they should know if the wild tales Ava was telling were true.

Book III.

The Captain's War

9:51am Mon Jan. 23, 2384

Captain Kelvin M'Kintre reviewed the situation in his mind on the way to the meeting. The routine of getting his personification ready to present to others was comforting. He still thought of it as grooming, and he could think while he did it.

The most important thing on his mind was that they had been redirected into combat. The attacks on the League's main veron banks were coming from beyond any known outpost, so that meant the Kuiper Belt or beyond and Gordon's Lamp was being redirected to decelerate into the Kuiper Belt as far from Sol as they could park and try to gather information on the weapons that were being used against the Angel worlds.

He knew many Angels were fleeing to smaller bodies, the size of Gordon's Lamp, in hopes of escaping notice, but he knew billions would not escape in time from the killer comets that were already on the way from regions light-days out of the solar system. He knew that his was not a military expedition. It was a prospecting expedition that had failed to find exploitable resources, a biological expedition that had

been duped by their only seedchild, in a ship that might still be haunted by more than Angels. He was limping home in shame and despaired of being able to contribute anything to disabling any doomsday weapon system out here. Instead he worried that his vessel would be lost to the defenders of that doomsday device.

His high forehead had just enough texture to show wisdom and dignity, his halo of greying wool neatly trimmed a curl and a half deep. His captain's uniform was well tailored, sumptuous, but comfortable, his boots bore a soft shine on leather little darker than his forearms. He adjusted his ascot, he allowed himself enough magic that he could draw it into position on his mirror and not have to have his hands fumble with it. He knew he couldn't let any of his misgivings show, he was a military officer after all, though most of his career had been in logistics. He had to project the air of a confident and experienced battle captain ready to identify threats and respond to them decisively.

He was going to have to rely on Heymon to give them some type of military capability for the upcoming encounter and their docking was less than a year away. He had a few bright engineers on his staff, including Alan, who was still under sentence and probably couldn't be trusted with sensitive data.

He had to trust Ava, even though he didn't.

Kelvin didn't do meals unless it was a social ceremony. He reset his hunger with his med panel and stepped thru into

his public space. As captain of the ship, his public space was the space the ship was in, undergoing the acceleration the ship was. This room had been in zero gee during the years they were being duped at the study planet, it was now at one percent gravity with Sol directly below them as they decelerated into its orbit. Their diversion to the Kuiper Belt was barely detectable with astronomical instruments at this point. He adjusted the gravity to put Sol straight ahead of them so people wouldn't be 'looking thru the floor', though he did not have a floor visualized in his public space. In fact he visualized only the personifications of those present and any pertinent paperwork or screens. Nothing else was rendered in visual channels at all, only the snowflakes they were cruising by were seen. He went to the head of the table with Sol behind him.

Alfred seemed nervous at this morning's meeting. The only duties Biology had left were the studies of the real data that Alan had shunted aside, and monitoring the enforcement of Alan's sentence. Kelvin noticed Alfred's agitation and called on him first. There was no gain in letting the man sit there and sweat, even though his department could hardly be considered important with the war going on.

“We may have a security breach sir.” Alfred said.

Suddenly he was very important, “You have my undivided attention,” Kelvin said and stared straight at him. With his left hand he motioned to Glayet to pay attention.

“Someone visited Alan’s quarters Friday night without proper clearance.”

‘Oh Jesus, help me now,’ Kelvin preyed to himself. Elmore had complained that he suspected Ava was seeing someone. The last thing he wanted was to have that blow up when they were passing thru enemy territory, and that could be anywhere out here. Even though they were mortal, Brasil was an interstellar power, and Kelvin was very aware that his ship was now two hundred years out of date, and the last ship to come this way had been Brazilian, the advanced bussard mortal seedship Curitiba. If this security breach was a Brazilian tap, he had to know about it. "Did your people pick up anything from outside?" he asked his colonel of security.

Glayet consulted her devices, audio channels using a headset wrapped around the base of her iron-grey flat-top. "No sir, nothing but six dimensional noise on all bands."

Perhaps the best thing for him to do was hand the ball to Ava and see how she wanted to run with it. “Colonel Bancour, do your records show that?” he asked.

She stared into space and poked at the air. Her eyes stared thru them all for a few seconds as she consulted her one-sided screens. She was fun to watch, he should discipline her for the clothing she wore on duty, but it was all perfectly legal. It was something about the Caribbean breeze that seemed to follow her everywhere and press her robes against glimpses of her body. “I have the record here,” she said. “When I first met her I thought she was a cherub until she winked out, but

now that I know she was there, I can get a hook onto her veron grant record.” She was busy with a screen no one else could see for a few more seconds. “Yes, that record exists, a second soul in Alan’s universe on the 20th.”

“Colonel Bancour, we need to know who that individual was,” Colonel Samrova said.

“It was an external request, but it’s League, unless Brasil has cracked our private keys. A remote soul couldn’t have worked over this distance, not without a whole soul download and none took place.”

“Do we have an antenna report on that external request?” Heymon asked Ava, but was looking at Glayet who claimed all channels were clear.

Ava worked some more on screens no one else could see. “Uh,” she gulped, “Yes we do. We should have been alarmed for this but I never would have suspected.”

“Cut the suspense, Ms. Bancour,” the captain said. He was beginning to feel like the only one in the dark. Heymon’s face said he already knew.

“She came thru the data tap on Thom’s entangled condensate,” Ava told him.

He wasn’t the only one surprised. Her husband Thom had caused her no end of grief with his obsession with signals here in the dark matter. If what Thom claimed was true, those signals were fast enough to run a remote soul over these distances. Heymon was pretty sure that myth had been busted three centuries ago but Kelvin couldn’t follow the proof. “So

are you saying these dark bodies can relay network traffic at hundreds if not thousands of times the speed of light?"

"We would have to admit that," Ava said, still poking at her invisible screens and hammering her invisible keyboard, "if we were sure there is no outpost nearby. That intruder's been all over the ship by the way and visited a few more people," she said with an intense frown.

There was hubbub and side discussions. Kelvin wasn't going to get distracted by that right now. "I'd like a full report from Thom on his findings in two weeks," he said, but didn't want to get distracted by that now. What he had to know now was what agent had been having intercourse with the most rebellious member of his crew. "Putting aside the wonderful science of all this," Kelvin said, "can we get her ID?"

"Yes," Ava said, "but it's obviously fake," She turned the screen around. It was a standard Pan Solar League Soul Registry record with all the right keys and holograms and challenge questions. It was just the data that was nonsense.

Name -Yellelle L'Noropi mortal 1431bc - 1344bc
Father – Dirilo T'Noropi, Mother – Noropi L'Yeena
Children - Myoma, Mytana, Ylooba, Dimini. All deceased.
Occupation - Temple girl, Knossos. Farmhand, housewife and mother, Isle of Yssa.
Ht 5'6" Wt 118 Eyes Br. Hair Blk.
PSLID 9917 4866 7170 7887

Ava slapped her forehead, went back to work on the invisible screens. "I'm putting in some traps now so she won't get thru again."

"I trust this condensate will be added to the possible external signal source watch list?" he glowered at both Ava and Glayet.

"Yes sir. This attack has taught me at least three new challenges to code for," Ava said. Glayet just nodded smartly and watched Ava with a frown on her face.

"Do we have an idea who it was?" Kelvin asked.

Ava answered. "Sir, you better go with Brazilian Intelligence because otherwise we have to bring in LGM."

He would go with Brazilian Intelligence, basically the worst case. "Can we find out what they learned?"

"Those audio stream buffers have been re-used many times since then, unless Alfred has a security tap in Alan's home?"

"Bishop Rendellyn made me shut those down," Alfred reminded them.

"Audio would probably be..."

"I tried that, he made me take that out too."

Kelvin looked around, but Arthur was the only senior member of Theology at this meeting. "Did you get involved in that?" he asked.

"Not the audio. Having the video recorded from Alan's home was clearly far too prurient for our standards. The audio

was far too risqué also, but I would have kept that in the main log. I am remiss in not knowing that decision was made."

"It may have been a costly one."

"We can question Alan," Ava suggested.

"We will," Kelvin said, "but I'm sure that will be less than useless. We have no way of verifying anything he says, we know he willfully faked our whole data stream."

10:54am Sat. Jan. 28, 2384

On a Saturday Kelvin didn't need to appear for duty unless called, but he liked being in space as it appeared around them. This was the only place he ever felt like he was really in a starship. When he had been young, in the dog days of the Nigerian occupation, the stars had been lights in the sky. A half-American camp brat had no interest in them. But his mother had been a Senator from the late great state of Ohio, his father an officer in the occupation in charge of keeping order in the senate chamber.

He first saw the stars after his father was e-vac'd back to Nigeria when Washington was burned again. He and his mother slept in many a field under the stars on the way to Mississippi, the only state south of the Ohio that was accepting half-Americans. It was cold on those nights, and there was no power in the rural counties in America by that time.

Because his mother had been a senator back when Ohio was a state, they were housed at an army barracks. The post survived by collecting 'taxes' from the most prosperous farms around. By the time he was of age, they had been re-united with the American Army under the new capital at Dallas. He joined that army as soon as he was old enough and his military career eventually lead here, so that now he was over the stars, and they were coming up at him. He knew these were all dark objects, snowflakes that the screen visualized as bright as stars, while they might be as black as lamp soot.

Still they came up from a point directly below him, all around them. By looking straight down he could see where they were headed, almost exactly toward the brightest star in view. He could see what objects the helm was reacting to. It cared about the ones as far away as it could detect, directly in front of them. They were still moving at almost ten percent of the speed of light and striking a snowflake at this speed could very well destroy the expedition.

There were some reports he should go over instead of staring down between his feet at Sol and the trouble they were descending into. He wondered if it all mattered any more, if maybe memories were all they had now. Every report sounded more grim than the one before so he wondered if there was anything to go back to. What if Alfred had been right and they should have stayed and studied the planet at 61 Cygni until the next expedition arrived? True it wasn't the wonder Alan had imagined, but it was still the only place

outside Earth where macroscopic biology had been discovered. And the next expedition would make it, the Heavenly Mother had gotten away well before the war started. They might have been able to terraform what was really there, the zygotes in their hold might be all that was left of humanity.

He could easily get into a downward spiral when he contemplated the disasters his expedition had suffered. He was sure it had failed because of his leadership. He had been too timid when they were taken in by Alan's fantasy, he had been too timid to turn around when they learned the truth and had come crawling back home, only to become embroiled in this war in Heaven.

"Sir?" It was Colonel Samrova at his door.

"Yes Glayet, do come in." He didn't change the gravity to put Sol in front of them and an Earth-normal one g like he would have done during normal duty hours. This was the way it would actually look and feel if this furniture really was out in space in place of Gordon's Lamp.

She came inside and took his guest chair. She was used to the way he kept his duty space during off-duty hours. He thought she might even like it, the tug of one gee could get boring at times. He was very comfortable with Glayet. She never felt the need for irrelevant personal chatter, she never mentioned his personification, never said a word about hers. He had never married in the Afterlife, nor did he feel the

need. He set his hormones to only thirty percent, enough so he could tell which personifications were more biologically stimulating. Glayet was pleasantly neutral. Not repulsive like lieutenant Tengine, but having no effect on the hormonal system. "I chased down all the sightings of our possible spy," she said as she sunk into his guest chair at one percent gee.

"What did you learn?" he asked, leaning forward with his elbows on the desk.

She had a notepad as part of her personification, and consulted that rather than rely on her own memory. "She's definitely here after Thom's experiments, that's all she would discuss. Anderson turned her in as soon as she mentioned them but she blinked out before anyone picked up. Maples knew she was a cherub and just used her as a sex toy but says he couldn't tell her anything because he had his mouth full the whole time he was with her. There was a little more discussion with Alan and Thom. She's very good, Alan claims she didn't get much from him because he didn't know what clearance she had, but she discussed what has been made public intelligently. They both think she's a crew member running a cherub. Thom has no idea she came in thru his apparatus."

"It should stay that way," Kelvin said.

"Of course," she replied.

"Go on."

"From Thom, she may have learned much more. She pretended to know more than he did about the subject and he

jumped in and debated her about methods and theories. He seriously believes he wasn't giving anything away by doing that. I think we should take some action to teach him to pay attention to security issues, especially if what he's doing might have some importance to the war effort."

"The fact that a spy came in thru his device is enough to make him important to the war effort."

"Yes sir, but you turned the point to let him study an impactor," she said, "which means there is a chance it may be more than that."

"Do you think Ava has that breach the spy exploited blocked?" Kelvin asked.

"She was able to explain something that made sense to me, but it was at the block diagram level. We really should have someone else on the expedition that can speak her language."

"Besides Alan."

"All the more reason we should have had more people in her department," Glayet said.

"There is a whole department on Heavenly Mother with anti-hacking operatives and a no-nonsense colonel in charge. But what of this Yellelle, have we made any progress determining where she's from?"

"No sir, other than what was at the first meeting, we only know she came in thru the data connection to Thom's antimatter traps."

"Which means it has to be something illuminated by the

tangler beam, something within a few million miles."

"We should get Heymon up here, and bring in an egg head."

"Clearance," Kelvin said, "but I'll see what Heymon's doing." He beeped his Mechanics officer, who knew the most quantum mechanics of his senior officers. He was on a hunting expedition on one of the uninhabited planets in his universe.

Heymon paused that, put down the massive energy weapon he was carrying and stepped thru into Kelvin's office. "What's at issue?" he asked. He looked like he could be Glayet's younger brother, but the resemblance was only physical, he was barely political. His broad personification was clothed in safari jacket and britches. He wondered if Alfred was hunting with him.

"The intruder," Kelvin said.

"Who we now think is a Brazilian spy," Glayet added.

Kelvin frowned a bit at the 'we', but he was suspicious enough to avoid putting words to it. He told Heymon what they knew so far and said, "We were about to speculate where she might be hosted."

"It couldn't be remotely because there isn't enough bandwidth thru that connection," Heymon said. "She had to transmit herself and build herself back up on the ship somewhere."

"Do we need Ava here for this?" Glayet asked.

"I'll ask her," Kelvin said.

"Not if the systems questions are at this level," Heymon started to say, but Kelvin had already placed the call.

"Yes sir?" Ava's voice said. She sounded like they'd woken her.

"We're having a discussion," Kelvin said.

They heard a man's voice in the background speaking the language from Alan's universe. They heard Ava answer away from the phone in that language. "Not a good time for me," she said when she came back.

"Then if you could answer one question, could Yellelle run over the link thru Thom's antimatter trap, or would she have to be copied in?"

"She was running over the link. She was using our veron store and rendering hardware. My best analysis so far is that they activated a cherub in Alan's space and drove it using the link thru Thom's condensates."

"So it was a driven cherub?" Glayet asked.

"Yes ma'am, that's the only thing the bandwidth allows," Ava said, with some more sleepy mumbling in the background. "Is there anything else?"

Heymon was poking his screen. He decorated his as a small tablet device.

"We can always use your expertise," Kelvin said.

"Sorry, Thom and I had a little incident yesterday evening and I'm afraid I don't have much intellectual expertise to offer today. If there's no emergency that only I can handle, I could really use the day off."

"Sure, Ava, this is just a few of us sitting around gabbing."

They said their good-byes, Kelvin looked to Heymon. "She's not guarding her location, she's about fourteen hundred miles west of Alan on the surface of his planet."

"Alan isn't with her?"

"Unless this gear has been tampered with, Alan is in his universe within fifty feet of his gate. The gate is still location-locked."

"I was worried that she transported Alan to meet the intruder."

"Sir, I think the possibility exists that this agent that arrived by Thom's condensate transported Alan to the distant site in his universe," Glayet said.

"Alan has a history as a hacker," Kelvin said. "We need to consider the possibility that he has found a way to thwart our efforts to sentence him to three-d reality."

"Then he should have transported himself back before he was caught," Heymon said.

"He was too wrapped up in Yellelle," Glayet said. "One look at his cherubs and you'll understand how wrapped up he is in female appearance."

"He couldn't generate all the scenes in his universe if he wasn't there," Heymon said.

"He says the only way he sees the distant areas is in the setup screens when he details them," Kelvin recalled Ava telling him, "but I tend to agree with Heymon. He could have

help, there are several people who use his universe with the necessary privileges to teleport to any part of his universe, and any one of them could bring him with them.

Glayet poked some screens of her own. Kelvin knew she preferred to model her screens as an old fashioned monitor, but she preferred to keep her screens in the air to making the old plastic case appear when she was out of her office. "Of those with the necessary privileges, Heymon Kruger, Morgan Evans, Alfred McReady, Victoria McReady, are common users of his universe, but there is one of the senior crew who's usage of Alan's universe is among the highest of all the crew and that is Ava Bancour."

"She's there now," Kelvin muttered. He was lost if he couldn't trust Ava.

8:47am Tue. Feb. 7, 2384

The officer's meeting got started a few minutes late today because Heymon wasn't there. This was the day Thom was to make his presentation and most of the crew was here. Thom looked a mess and Kelvin had to admit that made him a little suspicious. He could understand someone's nerves at making a presentation before the whole crew, but he looked as much dejected as nervous, in fact he hadn't seen that kind of face on a man since he was mortal and saw someone who just had a close family member die.

Finally Heymon burst into the meeting saying, "Sir, we have confirmed a possible bogey on our course." He turned and pointed before he even got to his seat. "It is right there," he had focused a cross-hair on it and made a single-point dot blink. "It is still three hundred million miles away but closing with us at about fifteen miles per second. It will intercept us before we reach Sol."

"And it is also decelerating?" Kelvin asked.

"Yes," Heymon answered.

"Then it can only be another starship returning from a similar destination," Elmore said. "There was an expedition to 16 Cygni wasn't there?"

"It couldn't be them," Ava said. "It was launched a century earlier and would have vastly different..."

Kelvin had to butt in, that wasn't something to air in front of the whole crew. "Excuse me, I think this is a matter for a moment's private discussion. If we could go into my office for a minute." His private office began wherever he held the door open. It was the same view on either side of the wall, the view continued on the wall, but his senior officers stepped thru into a section of space toward Sol that was partitioned from the remainder so they could have privacy. As soon as he shut the door he said, "Sorry Colonel Bancour but we don't want the remainder of the crew to hear that."

"Why?" Ava asked. There was a table and chairs in here, they were all getting their personifications into them, feeling their way because they were invisible.

"This," Glayet unrolled a large poster. Ava scowled that it wasn't a projection, but Glayet wasn't really comfortable with technology. The poster was of an advanced bussard craft, tripartite, with point, collector and combustor modules with a hotter reactor and point-loaded instrumentation. "This is the Curitiba, the third of the three eternal youth ships Brasil launched before the war."

"It should still be on its way out to 61 Cygni," Heymon said. It isn't scheduled to arrive until 2455."

"The possibility exists that it could have been ordered to intercept us."

"They are several years out," Ava said. The whole crew probably knew they launched in 2376.

Heymon was poking a one-sided screen of his own. "To intercept us here, that order had to be given when the Talstanian martyr's blew up the labs in Teresina." Everyone agreed that was the act that triggered the war.

"Why would they do that?" Ava asked.

"We don't know, but the possibility exists and we have had a spy on board," Kelvin said.

"We've had an unknown on board. We have no evidence that the Curitiba or the Pink Dawn possesses that technology," Ava said.

"If they did, would they publicize it?" Glayet asked.

"Something similar would have been in the scientific literature."

"Not much of today's science is published," she said in a

way that said the subject was closed.

"I believe we should identify it as the Pink Dawn," Kelvin said, "at least for the crew's sake. I don't think our crew's morale would hold up if they thought we were up against the Curitiba."

"No armaments are listed on that vessel," Ava said.

"Listed," Glayet said.

"So you don't believe..." Ava started to say.

"We are at war," Glayet pronounced slowly and carefully.

"We need to stay away from the subject of probabilities," Elmore added. "The odds of us coming within scan range of the Pink Dawn are less than one in a billion."

"So you're saying it has to be the Curitiba?" Kelvin said.

"I don't see how we escape that," Elmore said, "unless it is some unknown."

Heymon added, "In which case the odds are even lower that we would encounter it."

"Unless it was looking for us and not Sol," Glayet said.

That caused a lot of rustling of chairs, but no actual comment. Thinking of that was too uncomfortable. A known entity like the Curitiba was safe compared to that. So far there had been no real fear of encountering a hostile alien power out among the stars, but that confidence was groundless, based on the presumption that any civilization capable of space flight would broadcast signals that human science could detect. Now human science can detect quantum signals that could not be detected when they left.

"We can't tell the crew about the spy," Glayet said, "but we do need to be on heightened alert."

"The Pink Dawn could side with Brasil because they are mortal," Kelvin said. "We can use that as a reason. We could also say they were told of our position and used it to intercept."

"Yellelle didn't look Chinese," Ava pointed out.

"You said the cherub was probably picked up somewhere among the crew," Glayet said.

"She has to be one of Alan's," Ava said, "since she first appeared in his universe."

"I should have never let him keep it," Kelvin mumbled, about Alan's universe, but not loud enough for the others to hear. It was too late to shut it down now, too many of the crew played there.

"So we are agreed we believe it is the Pink Dawn?" Kelvin said. "I want to make sure I never hear the word 'Curitiba' outside this room. They all assented, even Ava, though she didn't look happy about it. His look told her that if he did hear the word around the ship, he'd know where it came from. She snapped her gaze from his and went back to the main room.

After they presented their explanation to the crew, the Captain looked to his papers again and announced, "Our next issue is the relevance of some scientific discoveries that have recently been made by our signals department." Kelvin

looked at his virtual paperwork again, thru the half-glasses he decorated his personification with today. “We have the honorable Major Thom Husband with us to make a report.”

He noticed that Thom was careful to draw out every step on the way to the podium. The only thing he allowed himself was a magic wand to project his facts and figures during the presentation. He paused an uncomfortably long time before beginning. He started out with a technical discussion of his experiments. Kelvin watched to see who among his senior people understood him and who didn't. Only Heymon, Elmore and Ava seemed to be following it. Quite a few of Heymon's people were, Alan was also. Alan was trying to play down his interest and understanding. A lot of the remaining crew were pretending to follow it, with Delos Alvarez trying especially hard to look like he was not only following, but grading it. In reality he could see Delos was just taking ques from Elmore.

He did understand what Thom got to at the end. He seemed to be saying that the information transfer he had discovered was controlling the impactors that were aimed at the Angels. He wondered how many in the crew might be thinking the same thing. He didn't want to get into a general discussion of that, but he needed to know what his senior people thought about it. As soon as Thom was done with his direct presentation, he went to the podium and said, "This is all very interesting and sounds like it may well be significant, however, we still have a possible enemy warship on our flank

and my senior officers and I need to continue our discussion of that situation."

With that he opened the door to the private space and ushered his senior people in. He thought they should probably get a theoretician in with them, but they could always call one if they needed.

"So what do we have here?" he asked as they took seats around the table. In here he also had down rotated, so Sol was right behind his chair at the head of the table. They were working their way thru a rather dense veil of snowflakes at the moment and some were passing by only a few thousand miles away so they hurtled by like they had in mid voyage.

"First thing to keep in mind is that these studies aren't verified," Heymon told him as he settled into his chair.

"What is most questionable?"

"That these signals have anything to do with the impactors," Heymon said. "No one else has duplicated Darryl's work and found that the impactors are in fact being guided, much less found changes in that guidance. A one percent error in our mass estimates could also account for the perturbations we see in the dark bodies' orbits. And that's if those perturbations are real. They are at the limits of our instrumentation."

He turned to Ava, "What does Thom think he's seeing."

"Sir, I hardly want to answer that question. Even though we aren't getting along right now, I think Thom is a good and

pious crewman and can carry out his duty in spite of getting a little too carried away with what he's finding."

"Colonel Bancour, what does he think he's seeing?"

She compressed her lips but replied, "Some alien artificial life form in the information domain."

"I see," Kelvin said.

"But I really don't think that belief is interfering with his ability to carry out his duties."

"Alfred, what is the possibility of life in these bodies?" Kelvin asked.

"Liquid-water carbon-chain biology is nearly impossible. It would have to be a very high technology of very small creatures. They would have to be incredibly advanced to be dumping their waste heat somewhere we don't see it. At the same time, biology is impossible on Gordon's Lamp, but are we life?"

"Yes Colonel, of course we are, and I see your point, there may be life but it won't be biology."

"At least it won't be protoplasm," Alfred said.

"There is no energy out here," Heymon said. "The power available from starlight is so low that they couldn't generate visible photons. Information flow can occur only because the condensates are superconducting and superfluid. Any heat at all would kill them and even the tangler beam probably carries more heat than they want to deal with."

"Is computation possible in this domain?" he asked Ava.

"Yes, there has been work done on this since the year

began with a '1'. It was never used because it is impractical to maintain this environment on Earth, but it has tremendous potential."

"How much compute power could be out here?" he asked.

"Are you saying 'computronium'?" Ava asked. "Do you mean if all the bosons out here were in condensate and they were all entangled with each other?"

"What is the ultimate?"

Ava went to work on her screens. He knew that she used an invisible keyboard all the time and only touched her screens to select them. It took her some time. She didn't like her answer. "It's about two orders of magnitude larger than the silicon and aluminum semiconductor regime we use, in this galaxy anyway. If the amount of signals he sees are computation, what can it possibly be doing?" Ava asked. "If all that compute power had any visible effect at all, we would certainly see it."

"Maybe we are seeing it," Glayet said, "the course corrections on the impactors."

"How did the Brazilians get this all done?" Kelvin asked them.

"I don't think they did," Ava said.

"So now you're saying we have LGM?" Kelvin asked her.

"Sir this has probably been here for billions of years. I don't see how it could have evolved..." she looked at Alfred.

"I don't either sir," he added.

"But it didn't have to," Ava went on. "If any civilization

anywhere in the galaxy used this compute resource, they would have spread to all of it. Even an artificial life form will expand in numbers to fill its niche."

"Are my science officers seriously telling me we are being bombarded by an alien species?"

"Possibly an alien afterlife, like we are, more likely alien devices."

"I hear what you're saying," Kelvin said, "but I'm not sure I believe you. We may have a new enemy, but we still have an unknown ship on our flank. We haven't transmitted this data back to H.Q. yet have we?" he asked Colonel Bovok.

"Because they don't stay at one site long enough," Elmore said.

"I don't know as I believe it anyway," Kelvin said, "What about you?" he asked Heymon.

"I'll have a few of my math guys look at it. I think the data Thom's getting is real but it may not mean what we think it does, for instance, there could be a guidance unit on that iceberg but the state changes in the condensates are a reaction to it and there may be a lot less of it because of the heat imparted by the guidance unit. My gut tells me that the magnetic fields between these bodies are not enough to move them, but I'll have somebody check that. It certainly wouldn't have been enough to cause the earliest impacts."

"Because we think it started with the war," Ava said, "but what if these bodies started targeting our installations as soon as they went in? The paths of all the impactors are consistent

with halo objects, they could have started on their way before we even left. The fact that they started arriving during the war could be coincidence."

"That's too much coincidence for me to believe," Kelvin said, "just like I don't believe that ship on our flank is the Pink Dawn because it would be too much of a coincidence for us to be here at the same time."

"A torch would be slowing at one half gee," Ava and Heymon said at about the same time.

"So that ship must be the Curitiba."

"We are still receiving signals from Curitiba," Heymon told them, "and their doppler does not match the bogey."

"Then who is it?" Kelvin asked them. He turned to Glayet. "What else is out here? Give me every ship the laws of physics would allow to get here."

"I uh..."

"I think I should get you that," Heymon said, "I've got apps to do those calculations."

"Glayet has the complete list." Pan Solar League Intelligence had compiled a list of every starship launched, "Don't forget the unmanned ones."

"Sir," Heymon said, "the ship on our flank is almost certainly a bussard, any daedelus would have to be running on ions to perform the way that ship is. There were only two unmanned bussards ever launched, Elvecta is still at Nemesis and Ailouk B was destroyed at Procyon."

"Yes colonel," Kelvin said. "Just go thru the list, don't

neglect anything."

Glayet and Heymon put up a common screen. There were fifty two ships on the list. Heymon noted that, "All but seventeen were either confirmed at their destination or destroyed en-route. Of that seventeen, I'm getting signals from all but the Pink Dawn, Splendid Serenity, Glorious Morning and Al-Harron. Glorious Morning was presumed lost and Splendid Serenity could not have reached this position in time. The only other ship the laws of physics would allow to reach this position besides Pink Dawn and Curitiba is the Al-Harron.

"I have signals from Curitiba sir," Heymon reminded him, "they are half a light year beyond us at this time doing .21c away from us. I can tell you that just from looking at their drive flare."

"Yes, but what about Al-Harron?"

"They're shielded," Heymon said. "They are meant to be undetectable by the Kassikan. They are not signaling but their mission orders are still being transmitted."

Kelvin just snorted. Talstan took the threat of Alan's hack seriously enough that the Al-Harron was more warship than seedship. It was an even more aggressive design than Curitiba with seven parts altogether, four in iron asteroids, with a deployed length of 385,000 miles and a top speed of .4c. Talstan had invested a large part of its budget and the cream of its military in attacking a software hack. "So it could be Al-Harron that we're seeing?"

"Why would they have dropped their shields now?"

Heymon asked in response.

"I don't care why, they could be out there."

"They are supposed to be our allies," Glayet said.

Kelvin paused. They all looked at him. He tried to appear that he was digesting that. The only one of the three ships it could be with a reason to be approaching them was Curitiba. If it had to be someone else, it would be Pink Dawn. Talstan was too intent on getting the Al-Harron to 61 Cygni, he was sure it wasn't them.

"Do the laws of physics allow Pink Dawn to be maintaining that acceleration?" Kelvin asked.

"They would have to re-work their reactor, or they would have to be bringing something big home with them. If they were doing that, they wouldn't have the fuel, and they couldn't have made it here yet."

"How long could they run at this level?" Ava asked Heymon.

"A few days if they have good fuel reserves. They wouldn't be here now, if they temporarily dropped their deceleration to one percent of gee, their current velocity would be much higher at this distance, they'll have to coast before resuming the half gee decel. It will delay them many months."

"But it can be done?" Kelvin asked.

"But why?" Heymon asked.

"To make us think they are the Curitiba," Kelvin said.

"Why?" Heymon asked again.

"To scare us off," Kelvin said. "It is possible that they have been planning this encounter for some time, thus it is not coincidence that we are here together."

"Why would the Curitiba scare us off and not the Pink Dawn?" Ava asked. "That old thing's just big fusion torch with an apartment building welded on top of it and three feet of pig iron on top of that to deal with the snowflakes. It can run rings around us in the short term. It can hurt us a lot worse than Curitiba."

"We are sure the Pink Dawn is not armed, we cannot be sure about the Curitiba."

"We still need to figure out who was running that cherub," Ava reminded them. "The Pink Dawn doesn't have that capability."

"But the Curitiba does," Kelvin said.

"But it's not here," Heymon said.

"Could the Curitiba have left a decoy generating the signals you are using to track it?"

"That decoy would need a fusion drive the size of hers and an interstellar microwave link."

"Is it possible?" Kelvin asked.

"Yes it is, but unlikely they carried such a probe with them."

"But with that we have something possible that fits the facts."

"As best we know them," Ava said.

"Always that," he said, "but something possible that fits the facts as we know them." He didn't let anyone grab the floor, but went on with, "We have a Brazilian spy hosted on Curitiba, and we have an explanation for the crew of how the Pink Dawn could be paralleling us in spite of their daedelus drive."

He looked around the table. No one seemed to have anything more. "Good, that's what we'll go with. Once again, no one uses the word 'Curitiba' outside this room."

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"So what are you seeing?" he asked Heymon. It was rare that he came down into the bowels of Heymon's duty section during duty shift, but for the last three weeks he wanted to see what his de-facto science officer was doing about the bogie. Thus he was here watching it with him when a signal level dropped away.

"Their reactor shut down or they shielded it," Heymon muttered tersely.

"But you still have a comm signal?"

"Yes, they're still there but their fire's out, they're going ballistic I think, let me watch a little longer. This can tell us whether they shut down or shielded." He brought up a precision tracker.

"Did Curitiba have shields?" Kelvin asked.

"They were not listed," Heymon responded. He watched a screen with cross-hairs on it for a few seconds. "Yes, they have shut down their drive, they are not decelerating. In a day they will be a quarter million miles ahead of us. In a week they could maneuver themselves in front of us."

"If it is the Pink Dawn."

"Yes."

"But," Kelvin said, "the Pink Dawn could not host that cherub."

"The Curitiba has more boost than we do, it would take longer to perform this maneuver, but they can still do that. It cannot perform a turn-over quick enough to fry us. For the Pink Dawn it is trivial."

"I say it is the Curitiba, because something had to host that cherub."

"That's a big chance if it is the Pink Dawn and she intends us harm."

"If it is, what can I do?" Kelvin asked.

"Shut down our drive too, do not let them get in front of us. We can also vector off from them, but if they are Pink Dawn, they can vector a hundred times faster than we can because we're eighty five thousand miles long and they're only three thousand feet."

"We'll miss Sol," Kelvin said.

"We'll miss it sooner if we get in their drivewash."

"Point," he admitted. "But that cherub is damn near proof it's Curitiba."

"We don't know that cherub wasn't run by someone on the ship who hacked into Thom's equipment to make it look like it was coming in from outside."

"Ava has a proof that we can never be sure of anything."

"The second theorem of virtuality," Heymon told him.

"Should we meet on it?" Kelvin wondered out loud.

"I wouldn't, I would take evasive action and keep your seniors informed."

"Let me at least get Elmore's opinion, you don't mind him in here do you?"

"Of course not," Heymon said. "In fact he was just here earlier today."

"So they shut their drive down?" Elmore repeated once he was informed of the situation.

"That's what our instruments are telling us."

"And there is no way we can out maneuver any of the ships this could be?"

"That is our belief."

"We should have a torch for emergencies like this," Elmore said. "If we hadn't left the shuttle at 61 Cygni we could have used that."

"For what?" Kelvin asked.

"We could defend ourselves with it. We could cross to the other ship in days with that."

"Unless that is the Pink Dawn," Heymon said, "our shuttle couldn't boost long enough to close with them if they fired up

at full thrust."

"Pink Dawn can't host that cherub," Kelvin repeated.

"What if they received updates?" Heymon asked. "Thom didn't know how to build that equipment without new texts transmitted from home. As far as the outside world knows, WE don't have the technology to receive the signals to drive that cherub."

"And Pink Dawn has no fabricators," Elmore added.

"So you still think that is the Pink Dawn?" Kelvin asked Heymon.

"I have signals from the Curitiba," Heymon repeated.

"What if they are fake?" Kelvin asked. "Someone could just as easily undermine your instruments as Thom's, maybe even easier since it is known technology."

"They are better protected also," Elmore pointed out.

"It is not a warship," Heymon said. "The Brazilians believe completely in the Kassikan and all the rest of Alan's hack. They're a scientific mission and a seedship. They intend to bring a thousand more settlers to the Brazilian colony already on Alan's World."

"I thought it was called 61 Cygni Ae," Kelvin said, "I don't think someone who did what he did should have the planet named after him."

"He said the natives called it Kassidor," Elmore chided. "He probably knew '61 Cygni Ae' wasn't going to stick. The Brazilians were following Alan's hack and calling it Kassidor, though they were spelling it differently, it sounded close

enough to grate. He would rather use that name than 'Alan's World' but 'Kassidor' sounded like some kind of beach toy to him.

"I think we should still look for the driver of that cherub on Gordon's Lamp," Elmore said. "Five weeks ago planting signals in Thom's gear wasn't very hard."

"The signals are still there," Kelvin said.

"The pulse trains," Elmore said, "but the incoming signals that drove that cherub are no longer coming in. But the protection applied would work just as well against signals that actually originated in Gordon's Lamp and bounced off Thom's gear. Thom attached his gear with a DNA, a Diagnostic Network Adapter, and one of the functions in that device is a remap block. The hacker would only need to set that up to reflect his packets thru Thom's device and on to the controls of that cherub."

"Yeah, you've been talking to Ava?" Kelvin asked.

"As a matter of fact, no, it was someone else, but it was about this."

"Someone else knows about this?"

"The DNA, yes," Elmore said. "Sometimes it takes a thief to catch a thief. But I looked up the properties of that adapter. I was able to follow the manual and set up a remapped address space and drive a cherub thru it, so I know it can be done."

"It is hopeless," Kelvin moaned.

"That can't happen now," Elmore said, "The DNA

interface has been reconfigured. Ava put his gear in a separate address space that can't be mapped in. No signals from this side can get to it."

"I thought you said you talked to Alan?" Kelvin asked.

"Ava told him all this during duty hours."

"Uuuu," Kelvin groaned.

"They talk a lot," Heymon said. "I think Ava needs someone who can listen to her and help her think."

"Why can't you listen to her?" Kelvin asked.

"The same reason I can't listen to Darryl. My side of the conversation will be, 'huh?' 'OK,' and 'if you say so.'"

"She does that to everyone," Elmore said.

"I don't know how Thom can live with her," Heymon said.

"Yeah she's in a sleek package, but she can be a hard bitch."

"Thom's losing her," Elmore said. "He doesn't want anyone to know, but he followed her and saw her meet someone. She's applied for separation and divorce. She slapped him with it on his way to give his presentation."

"Eeeww," Heymon cringed, "and to think he pulled off the presentation in spite of that. Good for him."

"I'm sorry to hear that," Kelvin said. He knew of their friendship. Though he had come to the Pan Solar League from south of the Ohio, he respected them.

"Thank you sir," Elmore said. "It promises to be messy, Thom picked up a Shark IV."

"Eeeww," Heymon winced.

"Could Ava be driving the cherub that calls itself Yellelle?" Heymon asked them once they were done gossiping about Thom's personal problems.

"Both she and Alan claim that she and Yellelle were in the room at the same time." Elmore said.

"I'm sure she could program that cherub to run autonomously long enough to burst in on them," Heymon said.

"Motive?" Elmore asked.

"Just to fuck with us," Heymon said. "Sometimes I think she's just playing with all of us."

"I don't buy it," Elmore said.

There had once been a time when Heymon was all for Ava, he wondered why he was now so eager to find fault and suspicion. Kelvin tried to remember when the change had happened. Before they reached 61 Cygni, Heymon had been a staunch supporter. He wondered if they had been seeing each other before she married Thom. Heymon's wife Marjorie did not present herself as well as Ava and Heymon had once complained that she did not modify her personification at home. Not that Kelvin approved of doing so, but he didn't hold it against Heymon that they disagreed about that. If he had a wife, he'd want her to present herself at least as well as Lieutenant Mason.

They had argued some more about Ava's loyalty while he had that reverie. Kelvin didn't know anything about Ava's technology and he knew it, but he did know a thing or two

about Ava. Other humans were merely clutter for her. She chose Thom because he wasn't much clutter and her sexual needs were modest. She probably had her hormones set at about 30% like most of the senior officers. She acted like it anyway.

He knew that Ava would be loyal to the mission because she had no reason not to, not because of some heartfelt camaraderie. Her friendships were tepid, but she still needed them. "Let's not keep harping on this," Kelvin said. "If nothing else it's a waste of time. We all know that if Ava is against us we'll never receive another time slice. Since we are still receiving time slices, we have to assume she's on our side."

"She could have created this whole war for her own entertainment," Heymon said. "She has the power to do that. She has the power to contain Alan, and he had the power to make us see a huge and ancient civilization in place of a biodisaster. She could be storing all the real signals from Sol and feeding us this script."

"The laws of technology allow it," Elmore said, "but I've seen her soul and know she hasn't got the ambition."

"True," Kelvin said

Heymon appeared in his space, less than ninety seconds after he pressed his summon button on his phone. The phone was old fashioned technology that he could handle. He had left his space as is, the snowflakes were coming up from below at one percent gravity, Sol was a bright white point at their feet, their diversion just starting to be visible. Heymon stepped from normal gravity at his door and drifted to the invisible tufted velvet seats Kelvin had adorned this space with today.

“You haven’t switched over to coriax fur either have you?” Heymon said as they clasped hands across the table.

“From Alan’s World?” Kelvin asked.

“I thought you didn’t want to call it that?” Heymon asked.

“And I’m the one who uses that name,” he mused.

“A lot of us do, that and ‘Kassidor’ might stick, 61Cygni Ae hasn’t got a chance.”

“Yeah, that would work as a name for a sports car but not for a planet.”

“Right sir,” Heymon agreed. “And you’ve still got Earth style tufted velvet on the upholstery, even if we can’t see it.”

“Why be on a starship if you can’t see out. We could be in a tin shed in some New England tribal zone if we can’t see the universe we’re hurtling thru.” Of course he knew they could still see this same image if they were running on

processors housed in a tin shed. That never stopped bothering him, but he didn't want to talk about it.

"True," Heymon said. "But you called me here?"

"Yes, about the enemy warship."

"We don't know it's a warship," Heymon said.

"There's a war on, we have to assume..." He didn't finish, but just looked Heymon in the eye.

"Glayet's not here."

"What has that ship done?" Kelvin asked. That was what he needed to know and it wasn't going to do any good to get distracted into a game of name calling.

"Nothing, it continues to free-fall, steerage thrusters only, same as us. No signals being transmitted in our direction. They may have a directional antenna in use directed towards Sol. There are no transmissions that we can detect directed toward them, they can read everything directed toward us."

"All our mail?" he asked.

"If they can get past the encoding and passwords," Heymon told him. "They probably can't decrypt our mission correspondence, certainly not if they are the Pink Dawn."

Kelvin stood and paced. "This could still all be the work of the Curitiba, taking us out to defend the doomsday devices."

"It would take them months to turn over," Heymon said.

They don't need to turn over and burn us with drivewash, all they have to do is drop a screw when they cross our path and our point will vaporize."

“Our relative velocities are not different enough,” Heymon said. They could drop a sofa and it wouldn’t hurt us. Besides, I have signals from Curitiba.”

“If they can hack a crewman into here, they could certainly hack your instruments to show their signals way off in the distance like they are supposed to be.”

Heymon paused a while. He had to admit he was right because of the second theorem of virtuality. “The laws of physics allow that,” he said. “Why is it so important to you that we are fighting the Curitiba?” Heymon asked.

“Why is the Pink Dawn so important to you?” Kelvin asked in return.

“It is not,” Heymon said. “It is not my first choice for the origin of those signals.”

“What is?” Kelvin asked.

“Some game Ava’s playing, probably something to discredit Thom.”

“You’ve been talking to Elmore,” Kelvin said.

“I was there with you just a few days ago. I saw Elmore yesterday, Thom was complaining about his problems with Ava and Elmore told him to keep his eye on her.”

“He’s stirring up trouble,” Kelvin said about Elmore.

“Ava’s too hot for Thom, Elmore can’t admit that.”

“What is your personal opinion of Ava?” Kelvin asked. It would be good to see what he would put into words, his actions said he didn’t trust her.

“She’s good, she’s given us no reason to doubt her loyalty

to the mission, but she's something of a loose cannon. She plays in Alan's universe a lot, she went thru that whole game of her and Thom introducing electronics to Alan's World."

"You call it that?" Kelvin complained.

"You do sir, do you want to agree on 'Kassidor,' but it is his universe after all."

"There is a real planet there, one Alfred annoyed me about for the first four years of our climb out of there."

"THAT is 61 Cygni Ae."

"That's the one I really worry about. I still worry if I did the right thing."

"You shouldn't second guess yourself, and how were you to know this war would happen? Yes we might have guessed that Alan's hack would take over the Brazilian expedition when it got there, but how were we to know they would convince the Brazilian establishment to put a viral complex transmitted from that hack into production?"

"Why couldn't Talstan have waited to see if that virus even worked?" Kelvin asked rhetorically. "I'm sure our government tried to warn them it was all a logic hack."

"They didn't care whether or not it worked, it was the mere desire to prolong mortal life that was the unpardonable sin."

"You're right," Kelvin sighed. "But about that warship..."

"It's still out there dodging snowflakes with the main fire ball cold. If all the sensor readings that show it are not one of Ava's tricks..."

“She’s never played tricks on us...” Kelvin started to say.

“What do you call making a clone to stay on Biology

Base?

“She had a legitimate reason for it, and she recovered it.”

“She says,” Heymon pointed out.

“What have you got against Ava?” Kelvin asked. He

needed to believe in Ava, he didn’t have any choice. He had to keep on hoping she would never know the power she really had over them. “Did she say ‘no’ to you at some point?”

Heymon kept his demeanor under control, but Kelvin was pretty sure he used his med panel to keep the blush from showing on his face. “That has never come up, I’m a married man as you know.” Kelvin only snorted. Both the Krugers used cherubs to excess, in his opinion anyway. “You’re a single man, what has she told you?”

Kelvin had never given a sexual affair with Ava a second’s thought. “That has never come up.”

Heymon only smirked. “We have no way to tell if that ship really exists, when you get right down to it. When you get *right* down to it, we have no way to tell if the material universe really exists. We could all be a simulation in God’s mind.”

“It’s even worse than that,” Kelvin said. “I read a story, fiction for sure, but it could happen. Anyway, there was a billion year old race of creatures called Pronna that ran an unlimited number of simulated universes in their minds. They kept humans as pets, most humans in the universe were their

pets, and they ran many levels of simulated universes in their minds in which there were humans on many planets of the galaxy. We cannot prove that we are not a simulation in the mind of a Pronna or some being like that, much less the mind of God.”

“We have to believe the universe is real or we will go crazy.”

“We are already one level of simulation removed from reality,” Kelvin said, “though Arthur doesn’t like people to point that out.”

“Whether it is correct by the church does not change the facts if we believe in reality.”

“As long as I can believe that reality had a creator, I can believe in reality.”

“We are Christians after all,” Heymon said.

“Once again,” Kelvin said, “I need to bring us back to that ship, the potential enemy ship, a ship who’s mission may be to intercept us because of our new course to the Kuiper belt. We didn’t see them until after we were diverted.”

“Whatever ship this is, they have been trying to close with us for years by now, if it is Pink Dawn diverted to intercept us, or if it is Curitiba or even Al-Harron turned around to intercept us. The All Heaven treaty binds us to Heavenly Talstan I know,” Heymon said, “but I don’t trust them in the least. I would be more surprised to find the bogie is Curitiba than Al-Harron.”

“Talstan is too intent on the Kassikan.”

“So they believe it is real?”

“That would be the only thing that would explain their actions,” Kelvin said. “Maybe they believe their own propaganda, that the Kassikan is the great Satan that has corrupted America, then Europe and now Brasil with their enticements.”

“What’s the realpolitic of it?”

“That may be it,” Kelvin said.

“It’s all a hack.”

“But he used a lot of what was there and combined it with a lot of archtypes. The historical events happened,” Kelvin lectured. “We don’t like to admit it, but America had fallen, even before this war. Talstan thinks we fell in the 1960’s, they think 1969 when an American walked on the moon was America’s high water mark. Europe was a generation behind, Asia one more after that. It was all because those cultures had religions that couldn’t adapt to science.”

“What historical events?” Heymon asked.

“The revolution in music and society. Alan used all that in his hack. The extremists in Talstan don’t see it that way, they see all those societal changes as tampering by the Kassikan.”

Heymon laughed loudly. “You think they are that deluded?”

“I do, and for that reason I don’t think they would have aborted the Al-Harron’s mission. I’m very convinced that ship out there,” he pointed to the dot representing the bogie on his

screen, “is the Curitiba and that it means to take action against us, if it hasn’t already. If it does no more than it is doing now, it is preventing us from achieving a parking orbit in the Kuiper Belt.”

If we were to light the burner now,” Heymon said, “We would come very close to frying them.”

“I think that is a good idea,” Kelvin said, “If nothing else it will prevent them from getting in our path where they could drop something on us.”

“It will also make sure that if they do drop something, it will never reach us because we will soon have less velocity than they do.”

“In that case, re-light the drive.”

“If you’re sure sir.”

“I’m sure,” Kelvin said.

“If it is the Pink Dawn, they could interpret that as a hostile act, and we will be almost helpless against them.”

“The Pink Dawn cannot host that cherub,” Kelvin repeated. He wondered why Heymon could not understand the significance of that point.

Heymon left to supervise re-lighting the drive. If that was the Pink Dawn, it was far enough away that Gordon’s Lamp’s drivewash was probably not as lethal as the leakage from their ancient torch. Their logic devices had traces hundreds of atoms wide, they would hardly be effected. Kelvin worried a little about it, but didn’t let it paralyze him. He kept coming

back to that cherub and the fact that only the Curitiba and Al-Harron could host that cherub. If it was the Al-Harron, it was nominally an allied ship, but in his heart Kelvin trusted the Curitiba more than Al-Harron. He still believed Al-Harron was on it's way to 61 Cygni. They weren't receiving signals from it, like they were from Curitiba and Heavenly Mother, but he was sure that was because they thought of themselves as a military mission.

He thought he was not going to worry, but after a couple hours, he found he could think of nothing else. He put a voice call to Heymon.

“Yes sir?”

“How long til we know what action they are going to take regarding our engine start?”

“It is going to take us a day to get our burner going, a few minutes round trip to the bogie, so the soonest we could know would be tomorrow, but that would mean it is the Pink Dawn. If it is the Curitiba, it will take them a day to re-light their burner, if they do, so we won't know anything before Monday at the earliest.”

“Thanks,” Kelvin said, and cut the channel. He would have all weekend to worry.

Kelvin had called Heymon twice before the morning meeting, but he was still getting dressed and having breakfast. He hadn't picked up the night shift logs yet, but promised to have them at the meeting. Kelvin always wished he didn't have to go into these meetings cold. It seemed like no one would share information with him until the meeting while everyone else always seemed to know everything ahead of time. While they waited for Heymon, Elmore was just asking Imogene about the level of phosphorus aboard. The space they were crossing was low in it and Elmore was starting to get concerned. They stopped their discussion at seven after when Heymon appeared. All eyes were on him as he took his seat.

“Good morning,” he said as he looked at all the faces. After seeing that, Heymon looked to Kelvin.”

“We're all concerned about the Curitiba.”

“If it is the Curitiba we are tracking,” Heymon said.

“Whatever it is, we're curious as to it's actions,” Kelvin said.

“So I see. So I'll cut to the chase, it's drive has been re-lit. We have established that much. Benton had the duty last night and detected ignition at 3:51:17.427am, he and Lieutenant Randerhoff also attempted to match their startup signature with that of the known ships. We believe it was a bussard start

up, not a daedalus on ions.”

“That is encouraging, can the signature tell us anything more?”

“It doesn’t match that of Curitiba or Al-Harron. It’s a little closer to that of Heavenly Mother, but not a good match for that either.”

“Go on,” Kelvin prodded.

“The readings we got are most consistent with an early bussard, something more like our own.”

“Who is out here?” Kelvin asked.

“We are the only one of the early bussard ships to ever return to Sol. Gabriel’s Lamp was lost, Abraham’s Lamp and Joshua’s Lamp are still at Alpha Centauri, along with the Lotus and the Henri D’Angelou. The Petrovak has ceased transmitting, but as their ground station was lost to Talstan in 2206, I don’t think that means they were lost.”

“Could we be tracking them?”

“It is doubtful sir.”

“What of the Zealand and the Thurston Har-Aldi?” Kelvin asked. They were ships of secular simulate corporations located in the asteroid belt.

“Both presumed lost. There is also the Sao Luis, if you want to call that an early bussard.” It was built in 2238, not much earlier than the initial construction of Heavenly Mother and Al-Harron. “It is inbound to Alpha Centauri on it’s second trip, we have confirmation from our people out there that they can see its drive. It should be in in less than two

years.”

So far peace was holding among the parties at Alpha Centauri, but he knew there was a lot of tension. Sao Luis had begun its second voyage in 2361, well before the war started and before the Brazilians put the Kassikan’s virus into production. If they had the virus with them, he didn’t know what would happen. There were over a hundred mortals already alive in the Alpha Centauri system in the various space colonies, including eight in the huge life support area on Abraham’s Lamp. There was a dome on the surface already, and a dozen mortals on the ground, all seed of various secular simulate corporations.

“What would it take to make the Curitiba’s burner have a power up signature like an early bussard.”

“Why would they...” Heymon started to ask.

“To disguise their identity.” Kelvin told him, nodding to Glayet.

“They would have to run their burner cold,” Heymon said. “I don’t know if it could take it. Their mass to energy ratio is too low for such cold fusion. They’d burn thru their lithium in no time if they stayed lit at all.”

“Is there any way the Pink Dawn could have generated that startup signature?” Kelvin asked.

“No sir, I believe there is not.”

“Thank you. Now, is there anyone outside this room who knows that?”

Everyone shook their heads. “Is there anyone outside this

room with access to the raw data? The recording of that startup signature.”

“Yes sir,” Heymon said.

“Please take care of that immediately,” He told Heymon and Ava. “Blink out and get that done, reenter this meeting when that information is secure. Glayet, I’d like you to watch them.”

“Why are you wasting people?” Ava asked. “I can get that recording quarantined.”

“I want to insure someone else can get to it,” he said. Heymon had made him paranoid about Ava, he didn’t want her doing any more than she had to alone.

While they were gone Alfred and Elmore brought up the current element balances and what form they were in. It was the fosgene precursor that was actually lowest, and they discussed ways the biology lab could have been used if it was brought home with them. Kelvin was still convinced it wasn’t worth the weight and sure it wasn’t worth the worry of contamination. The fate that had befallen the Brazilian expedition showed that his fears were based on fact. It was during the reunification that Ava made him really understand how virtual they all are. They were not in danger of running out of elements, it was just that the fabricators were slowed going thru extra steps.

“Besides, I’m not sure that station isn’t haunted,” Kelvin said.

“I stayed on that station seven years,” Alfred said, “and I

never noticed a copy of Ava there.”

“Ava’s as much as admitted that avatar that she left on your base was a clone,” Elmore said. “For legal reasons she can’t actually admit it, but I was with her one evening when she was trashed enough to admit there was no external test that could tell them apart. She left us with the knowledge that we can never know which of the copies had actually won the battle of the bus.”

“She said the same thing to me also,” Kelvin said. He wondered if Elmore had been into her. He would never admit it because Thom was such a close friend.

“She’s a heavy bitch sometimes,” Alfred admitted.

“You’re talking about Ava aren’t you?” Heymon re-entered the room.

“That data is secure?” Kelvin asked.

“It’s re-labeled as fake,” Heymon said. “You can never get it back once it’s recorded, but now it appears as if someone put fake data in to implicate another ship when it is really the Pink Dawn. We put a copy of its start-up signature in as the real data.”

“Why do we still need that charade?” Ava asked as she also re-appeared at the meeting.

“The crew would panic if they knew we were being pursued by Curitiba.”

“They should be more afraid of Pink Dawn,” Heymon said, “we are helpless against them.”

“They can’t host that cherub.”

“I swear sir, if you tell me that one more time...”

“You seem to forget it often,” Kelvin stared at him.

Heymon was a loyal officer, he knew he would never openly rebel. Sometimes, as now, they disagreed. To his credit he admitted that his own data showed their bogie could not be the Pink Dawn. Kelvin knew that if he gave him some space and time, he would soon embrace the belief that the bogie was Curitiba, as he had done, and support it like it had been his own idea. He just had to give him some space right now. “I’ve had Glayet looking into that cherub some more,” Kelvin said to change the topic. “She hasn’t been seen since Ava put the safety devices on Thom’s equipment.”

“I’ve personally asked every member of the crew if they’ve seen her in the last two days,” Glayet said. “I don’t think any of them were lying.”

“I’m pretty sure I would get an alarm if she re-entered the ship,” Ava said.

“We need to remain vigilant,” Kelvin said. “We must treat her as an enemy operative.”

“Thom says she’s helped him in his studies,” Glayet added.

“Since she ‘helped him’ his findings have defied the laws of physics,” Kelvin said. “She may have lead him down a false trail, or even into a hack of some kind.”

“Oh I agree,” Glayet said, “I just wanted to share what he was thinking. That’s why I have his connections checked every day, it’s not that I don’t trust his loyalty, it’s just that he

may not feel the need to be as diligent.”

“Thank you colonel,” Kelvin said. She was the only one he would ever trust to have security and military matters firmly enough in mind. If the ship was armed, he’d want her as his weapons officer. “Have we any evidence that the enemy vessel has been interacting with the dark matter in any way?”

“Heymon would be more on top of that than I am,” Glayet said. “He has Major McFerdie and Lieutenant Maples assigned to that question I believe.”

“Heymon?” Kelvin turned to him.

“The bogie is using nothing in the electromagnetic band. They are not in contact with Sol on an electromagnetic band either. However, if they are using quantum entanglement to communicate, only Thom’s instruments would detect it.”

“And he is not ready to probe them yet?” Kelvin asked.

“No sir,” Heymon answered firmly.

“Have they found out anything?”

“The bogie has no synchrotron shadow,” Heymon said.

Kelvin was about to ask what that means when Ava said, “So it can’t be a bussard.”

“As far as we know?” Kelvin asked.

“Unless we re-write the laws of physics,” Heymon said, “and we may have to re-write a lot of the laws of physics if we can’t find the bug in Thom’s instruments.”

“I’d sooner believe there was something about his instrumentation or even our instrumentation that we don’t

understand,” Glayet said.

“What problem could we have with our instrumentation?” Kelvin asked her in response.

It was Heymon who answered however, “The theory that lets us determine the remote results of an entangled interaction is shaky I think. Back at Sol they take it for granted now because it was discovered a generation ago and has always agreed with theory. Just because it spews the numbers we expect doesn’t mean it’s measuring what we think it is.”

“Isn’t rejecting that also rewriting the laws of physics?” Kelvin asked.

“Not as much as finding that quantum information can be created.”

“And I believe you approved a lot of fabrication to try and verify his results. That was a large requisition, do you know if it has lead to anything?” Kelvin asked.

“As far as I know, he’s still testing his apparatus,” Heymon said.

“That’s what Thom tells me,” Elmore added. “I think Thom needs another couple weeks just to get the equipment past a few more tests.”

Kelvin watched them and thought they were hiding something, but didn’t have a way to call them on it. “When can he scan the bogie?” Kelvin asked.

“As soon as his gear passes one more test,” Heymon said.

“Do you concur?” he asked Elmore.

“Yes sir,” Elmore said with a glance at Heymon, “but the testing is difficult, it could be some time.”

“We don’t know if we’ll find anything,” Heymon said. “I had to sign the requisition because he’s in my chain of command. It’s a science project, it may or may not bear fruit. I want him to scan that ship as soon as he gets it working, but I don’t want data from devices with faulty physics. I thought he’d have about a fifty-fifty chance of ever getting the new setup working, but I thought the potential benefits were worth the gamble of a few fabricator hours.”

It was manly of Heymon to be ready to accept the blame for Thom’s failure, but Kelvin wasn’t after someone to blame, he was after military intelligence. “I think you should see if you can get him some help,” Kelvin told Heymon. “See if you can spare a couple competent people to try and get him over the hump.”

“Yes sir,” Heymon said, and brought up a one-sided screen to send off that note.

“What do you think?” Kelvin asked Ava. In normal times he would have expected Ava to be right in the thick of this, back in the Cygni system she and Thom were inseparable, but after turnover he knew they weren’t getting along and now their relationship was all but over if she was frequenting cherubs in Alan’s world. They were still sharing a home however, so she should know something.

“He’s plugging away in his lab. He says he managed to get a fourth order condensate contained, he has the largest

chamber cooled and he's having some trouble with the instrumentation."

"Why does he need a forth order?"

"You'll have to ask Darryl," she answered. If he didn't miss his guess, she was trying to hide a smirk as she said that. Heymon's observation that this whole thing could be Ava playing with them came to mind.

6:17am Mon. Mar. 12, 2384

First thing every morning Kelvin picked up his phone and checked his mail. Usually it was notices of more processing nodes smashed to rubble and additional delays in getting souls into smaller targets. There was usually a list of important souls who were only on backup, and a count of all the civilians who existed on backup only. A week after seeing the Curitiba re-light, he found something different, a letter from Thom Husband of Signals. He hoped it was some breakthrough that had allowed him to scan Curitiba. He eagerly opened it.

Your Honorable Captain Sir:

I found the following message addressed to you on my front desk this morning:

There was an inclusion in a plain-paper envelope. Since he had been an Angel for more than two hundred years now, he was no longer amazed by the fact that he could pick up the plain paper envelope from the screen of the phone. Inside the envelope was a handwritten note. Since he was a little boy he would always recognize his mother's handwriting, and this was the same strong but dainty style she'd had when he was a little boy. He had a hard time getting to the words in the letter, he was reeling just from the impact seeing her handwriting had on him. There was no need to ask Thom to provide more authentication for this note, his mother's handwriting was all that he needed.

My dear wayward son,

God asked me to write to you Kelvin. Now that we're here in heaven we can speak with God in every prayer and hear him clearer than the telephone, so that's when he told me, when I prayed for you. He told me you're near us right now, though you're not in him like we are.

I've never been hurt so bad as I was on that morning in 2174 when you strode so proud and straight into that freeze chamber and gave up your soul for that false church. I don't think you even knew that my attendants had taken me out for the ceremony. You probably didn't

recognize me in my wheelchair with my oxygen. The blanket I had over me was from the home.

God said you might get this if I wrote it even though you're not here. Everybody else is, Uncle Robbie, old Mrs. Tisdale, even my Ben, your father, I swear is here. All our dogs are here, and all the cats Mrs. Tisdale had are here, so is her parrot. You are not. I lived long enough to see your frozen body my son, I saw your headless frozen body before I died.

Yes I died and went to heaven. Not the false heaven of that media showman you followed, but the real heaven our folks have been going to since time immemorial. I've been all the way back. I've met our ancestors that came over on the boats. And the ones before that, that was slaves back in Africa. They're all here.

It's perfect here, just like the preacher said. The sun shines and family and friends are all around us. There's all we want to eat from larder or fields, which ever you prefer. Nothing ever breaks down, no one ever gets sick. It's all like we were promised. We're all young and pretty again if we want to be, even though we're all retired. Some of our really old folk don't have much, but all they want's a hut and a fire and a good dancing circle with plenty to drink. I'll tell you we've had some beautiful long-swaying ya-ya's in our ancestry, but some white owner got in us somewhere

along the way and wiped that out.

We're all here, good or bad, smart or stupid. The only ones who never made it here to heaven are those who froze their brain and put it in that god darned atom slicer. As far as we can tell everyone else we know made it thru. I've settled with my folks in the house they built in Ohio. The one where I was born. We've only got fifty head of Holsteins now, but we always get what we need from what they give. My dad's gotten into the latest automated stuff so we never have to do anything more than sign when Jake picks up the barrels. That's your brother Jake, the one that couldn't watch you end your life because he was doing a twenty for landscaping without a license. Well he's here and he's doing fine. Faith in God is all the license we need here in heaven, the cops are having as good a time as we are and they're always polite. Jake has a regular route with his own truck and bought the old Kaven place for nothing since they all died in Florida so their souls settled there.

A lot of us miss you, I think I miss you the most. Your father misses you badly also, but he won't say more than to spit on your false faith. He told your sister Karly. She was here when I got here, been here since her pimp shot her. They're married now and he hasn't so much as slapped her face since he got to heaven. He was scrooched back in 2171 in case you lost touch with the going's-on back there

in San Bernadino.

You brother Ike died in a bar fight with a biker, his sleeves were wired. He always was a stupid punk anyway. He's still stupid here in heaven but he's not a punk any more. He still hangs out at the table late and doesn't help with the clean-up unless you directly ask him, but he's not as skinny as he was either.

I'm rambling because I miss you son, I wish you were here with us. I've heard a rumor you actually want to fight us. They said you are in some false heaven and you want to destroy the real heaven, the heaven God made for us where we all live happily ever after. What could ever make the son I raised turn into someone like that?

You loving mother,

Rosalie Tanisha M'Kintre

Kelvin sat looking at that for a long time. He understood on too many levels at once. Number one, what Ava had hounded into him for two hundred years. We have only a digitized recording of this paper. He knew he had no way to tell if this piece of paper ever actually existed, or is it a digitally constructed image of this piece of paper. Still, his

mother's handwriting.

He pinged Ava. She was still unlocated. He was going to have to speak to her about that. She could almost always get a location on any member of the crew, but when she was off duty, it was often hard to get a location on her. Instead of answering a channel and giving a location, she stepped into his office, wearing a very stylish shimmering black suitcoat with a generously padded white fur collar that continued down the front. It was buttoned from her breast to her waist. She had snug shimmering suitpants under it with matching fur around the ankles. But her hair was a mess. As soon as she saw his eyes go there, it magically became the gleaming fall it always was, but she had arrived in his universe with hair that had been on the bottom of an encounter or two.

“I really didn't need to bother you with this, but I was curious how it was done?”

He handed her the letter. She took it in her long fingers with the long but natural nails of perfect streamlined shape. "I think it was physical paper once along the way. The digitization is faithful enough to show the impression the ballpoint made in this paper when the note was written."

“But it came from the depths of space?”

“We do not know that.” She brought up some screens, “You got this in an email from Thom?”

“Yes,” he answered.

“Mind if I see it?” she asked.

“Go right ahead.” He knew if it interested her she would

examine it to her heart's content when she was back in her space, and he would not have the information she might glean from it.

“The file name says this inclusion is a data file from his newest instruments.”

“So it came from one of those dark bodies?” he asked.

“We are pretty sure it came from Thom's condensate chamber, but you must remember Alan filled our data banks with twelve years observation of his universe before we caught on.”

“That IS my mother's handwriting,” Kelvin said.

“Any word processor has a cursive library that allows you to add a sample of anyone's handwriting to make a font. It also could have been coerced from your mother before we left and stored in a que under a timer til now and we never would have noticed.”

“But it came in now.”

“It is dated as such,” Ava said.

“What if these condensates out here really do contain the heaven we've always been told of?”

She had to pause there, she made an admission that was significant, “We are proof that it is possible.”

“What would be their motive?”

“Our church always did say we could never understand God's motives,” Ava reminded him.

He spun, he had to walk away. There's no away in his

universe. His universe is the universe as it would be seen by some one standing in place of Gordon's Lamp as it exists today. But he could turn and step away from Ava and leave her holding that yellowed and wrinkled piece of paper that shouldn't exist.

“What are we fighting in this war?” he wondered.

“So far we think it's a doomsday device set up in the Kuiper Belt, which was why we were changing our course to stop there. You seem to believe the bogie we are tracking is involved in it. Thom and Darryl seem to think we are fighting whatever is causing all the state changes in the condensates in the dark bodies.”

“What if we are fighting God and heaven, as humans used to know it?”

“You might want to get the bishop involved in that,” Ava said, “I'm the Systems Administrator and software engineer. I can testify that to the best of my knowledge our systems are free of God at this time, and we are running a simulation of what we deduced he meant for us based on what's come down to us in scripture. Revelation 21 and 22 isn't it?”

“Yes, and plenty of other passages. But what if there really always was something out here, in the sky, like God always was.”

“I'm calling Arthur,” she said, “Just to see where he is.” He picked up immediately and Ava explained the situation, “It's the captain, he might be having a crisis of faith right now.”

“RIGHT now? I’m at my desk.”

“That’s him raving in the background...”

Kelvin was saying, “New Jerusalem is the only firm connection we have with scripture and you are telling me that it could have been here before we built it?”

“What’s this about?” Arthur asked.

“He got a letter from his mother.” Ava held it up. They each allowed themselves magic windows at their comm so they could show a view thru from their universe to yours. They each allowed virtual object transfer so he was able to take the piece of paper that was the letter from his mother and put it on his desk. Kelvin could see thru to the colors of the sunlight filtered thru the stained glass in the bishop’s office as he took the letter and read it. They both stood silent until he was done.

“And you’re sure this is real?” he asked Kelvin, Kelvin could only look at Ava.

“It’s scan date property is 2383, is all I can tell you. That and it has no protocol errors that I can detect.”

“It’s my mother’s handwriting,” Kelvin said. “As a son would know his own mother’s writing.”

“I don’t particularly recall my own mother’s handwriting,” the bishop said.

“She left us all notes daily,” Kelvin said.

“So someone who wanted to imitate it would have no trouble finding writing samples?” Ava asked.

The bishop was one of the highest ranking members of

the crew, no one would ever question his authority to use all the magic it required to ‘step thru’ that opening beside his desk, without anyone noticing him actually doing it, so he was now standing here with them in his space with his hands down at arms length, clasping fingertips.

“So what is the crisis of faith?” Arthur asked.

“That the enemy we might be really fighting, the one Thom Husband’s been discovering, might be the real heaven.”

“Kelvin, The Deity is a matter of faith. We know the bodies that are destroying our people are coming from deeper space, we do not have anything more except what we feel, what we take on faith.”

“I have faith that that letter was from my mother,” Kelvin said. “I am not proud of much that she said, but that sounds more like her than any computer program could come up with. Certainly more like her than any of the speeches or statements her owners made her read in the senate. For one thing, she really is that plain,” Kelvin said. That’s why the campaign managers had chosen her for the senate. “I’ve played with a lot of cherubs that make brighter and more original conversation than that, and so have you,” Kelvin finished.

Arthur drew a breath, but he could see this was not the time to get into it. Maybe that had as much to do with his color as embarrassment. “I don’t think this letter was from a cherub,” Arthur said. “If the expedition has any cherubs that

blaspheme like this, I'd like them erased," he said to Ava. "I think your greatest contribution right now would be to go and get that done."

Kelvin could see she didn't like that, but she made it look like she complied. She probably would erase a few cherubs, probably all the naughtiest ones among those kept by anyone in Theology. Kelvin was not under the delusion that Ava wouldn't know all she wanted about their conversation. His knowledge of that fact is what made him feel so futile at times. This was much more important than that.

Kelvin went thru the case as well as he could. He thought that Arthur followed along. Finally Arthur said, "Look, you want to use science, I'll use science. At a minimum, I'd say God was the size of the universe. How big is this 'heaven' built in the Oort cloud around Earth? This is 2384 and right now two thirds of all the mortal souls that have ever lived, have been recorded in silicon. Most of the war dead have been taken to an ascension center. So at the very most that leaves one third. How big is God compared to that?" Arthur asked him. And this has been going on how long? Fifty thousand years, a hundred thousand? God is at least as long as the big bang til all the black holes evaporate, but myself, I think he's eternity before and after, and sees all time as one. I think science is great Kelvin, and it can tell us a lot about him, but this entire universe, thru it's whole eternity, is just a mote in His eye.

"At the same time Kelvin, God sees into every soul of

every self-aware being in this universe and knows if you believe in him or not. As Ava would say, he has a diagnostic port in every one of us. So he knows what you believe, no matter what you say and do.”

Kelvin sank back down to the couch. The furniture never had any manifestation in the visual bands of his universe, the view was always what Gordon’s Lamp saw. The furniture itself was changeable, but usually plush, overstuffed, leather and caught you wherever you threw yourself. You didn’t smell the leather until you sat on it, while you were standing was a whiff of whatever was around you in space at the time. Usually very dry and cold. The leather was always warm, as if it had been sitting in spring sunshine.

"Very well," Kelvin said. "He knows in my heart of hearts that I am sure that letter was from my mother."

11:43am Thu. Mar. 22, 2384

The letter had him nearly out of touch with the ship, with all of reality, for a week. He spent many long hours contemplating the situation. He read thru the entire New Testament once again, studying every reference to Heaven, not just those in Revelation. He lost a lot of time contemplating the fact that New Jerusalem was far bigger than Ceres, big enough that it would need Luna or one of the

Galilean satellites to house it. He wondered how many dark bodies they had passed on the way that were large enough to house it, probably a few hundred. He wondered why the Pan Solar League had picked Ceres instead of a body large enough to agree with scripture. He had no answers for any of that.

He looked up the date when his mother had actually died, it was later that same year. It was a shame the family had fallen apart the way it did. At least he arranged for his benefits to cover her, in spite of the fact that she disowned him. It was nine months after he went into the capsule, there was time for some operative to get that note from her.

There were other scenarios that would keep him from fighting his mother besides the letter being coerced from her while she was still alive. It could be the Curitiba that was steering the impactors using the same technology that Major husband was discovering. His mother might be in a heaven in the dark bodies out here, but that wasn't what they were fighting.

His mother might have been frozen and ascended herself, his benefits would have paid for it. She could have a universe exactly as she described, with cherubs for all her family and friends, she might not have noticed that they were cherubs. If no one from any other universe disturbed her, she could be totally convinced she was in the heaven she believed in while she was really in a processing node back in the League. If she was, she was vulnerable to the impactors that were aimed at

her today. She was one of the ones who were likely having the most trouble getting transferred to a smaller body.

The more he thought about it, the more he became convinced that was the case. The thing that bothered him, who had caused her to write it? Who had sent it? The only answer that made sense was Brazilian intelligence, but he didn't know how they would get to his mother's Angel. Of course Brasil had Angels of their own who were still loyal to the mortals of their motherland. If they had agents who were able to infiltrate his ship using instruments they weren't even supposed to have, they certainly had agents that could infiltrate the charity wards where his mother was kept. The thing that made him most confident he was on the right track, this had all started happening as soon as they were diverted to the Kuiper Belt.

He pressed the summons for Ava. Even though he had his hormones set at thirty percent, she was still a very pleasant presence to have in his space, especially if she came in a costume from Alan's world. She appeared at his door in a bit more than ninety seconds, but dressed in the flowing robes she often wore on duty. "I was in the middle of an install, I had to back it down."

"I'm sorry, I should have messaged you to come at your convenience."

"I'll finish it up later, a day or two wouldn't matter, none of the blocks are showing unacceptable error rates yet."

"I'll try and be more considerate," and waved her to a

seat.

“Oh you’re fine,” Ava said and sat where he indicated. She was caught by a plush office chair in kidskin. “This is nice, you’ve really been working on your furniture these last few years.”

“It’s been something of a hobby, not that I’ve had much time.” They laughed, the hundred years between stars was terminally boring.

“You ought to try coriax fur for these,” she said, “It’s really plush, even more than chinchilla.”

“So I’ve been told,” he said with a groan. “I’m going to live to regret letting him keep that universe.”

“Why? It’s got some good stuff in it.”

“Exactly,” Kelvin said. “We have little of our own culture left. I can’t figure how he ever made up all that music for one thing.”

“He’s probably got an old library from before the occupation.”

“Makes sense, I never heard anything banned. But enough small talk, I called you because I want to know if the signals from that starship are hacked.”

“As far as I can tell, the readings are coming from the physics of the instruments in base reality. If my diagnostics haven’t been corrupted, and I believe they have not, and I am not encapsulated, the instruments are seeing base reality and not a simulated signal.”

“The target is emitting electromagnetic waves into space,

not just into our perception?”

“To the limits of my technology to detect it.”

“You won’t REALLY be pinned down will you?” Kelvin said.

“Only God knows better,” she said, “but only He is sure.”

“OK, OK. The ship is real.”

“We can accept that the signals are real,” Ava said, “but we know nothing other than those signals have been generated.”

“What else could generate them? The power involved in that drive...”

“If it is spreading in all directions, but if the signal is generated by something small and local and sent in a tight beam toward us, not much energy is used.”

“But it is the whole spectrum?” Kelvin questioned.

“And?”

“So we could be chasing a probe with a recording.”

“A little more sophisticated than that, with a few recordings, tracking corrections.”

“Who would do...” he trailed off. Ava said nothing, just sat there with her long silky hair gently blowing in the Caribbean breeze, waiting for him to think up something.

“Why would they...” She still sat watching him. “It doesn’t make any sense.”

“The only part of that I can answer was the ‘how’ they can do that, who and why I can’t imagine.”

He was silent. He tried not to stare at her across the table.

If he could do it as if it was an intellectual argument and stare her down in the eyes, that would be one thing, but he had just noticed that her robes weren't quite opaque enough to completely hide the color of her nipples, and he had to bring up his med panel to make sure his hormones were properly set. He turned them down to twenty percent. He was able to ask, "Is there anything about the instrumentation you noticed?"

"There's a higher than normal rate of molecular level errors in the substrate their instrumentation is blown into, but it's still well within spec. It was probably a cosmic ray in a low order digit of a secondary cal somewhere in the fabricator when this went thru." Ava told him. "The error is within tolerance so no one was alerted."

"Could that be causing their readings?"

"If all the molecular errors were coordinated on an otherwise empty channel, it is possible the effect would be picked up as a signal, but the probability is about as great as a pencil spontaneously tunneling out of a pencil box."

"Is this another one of these things only God knows better than you but only He is sure?"

"Yeah," she said. "Every trace is at least eighty percent there, and they will work reliably with twenty percent. We're talking five atom voids at the most, most of the errors are only one or two missing atoms. It's scheduled for update in a month anyway."

He had no idea how many atoms there were in a

substrate. He understood the eighty percent and twenty percent and that put his mind at ease a bit.

They talked little more about that, he soon got around to another issue he wanted to know, “You know I’ve asked Thom to scan that ship as soon as he gets his own tangler working.”

“I was at that meeting,” she replied.

“Do you know how he’s doing?”

“I heard from Elmore that he’s having some trouble with the testing.”

“Do you know what the trouble is?”

“It’s still telling him that quantum information is being created in the fourth order. They’ve been thru his own gear, they’re going over the instrumentation that was sent over with the quantum mechanics texts now.”

“Can you be of any assistance?”

“Not that I know of.”

“If it wasn’t for your marital problems you would be right in there with him.”

“So you say, but I’m not sure. If we were working with a protocol of some kind I could help figure it out. Quantum mechanics isn’t really my strength.”

“But you are smart girl.”

“But I don’t have years of study,” she said. “I can’t even follow the math in the proof that an entangled state change can’t travel faster than light.”

“Yes, neither can I, but there are many things in this universe we have to take on faith.”

“Our nation is built on faith.”

She used to forget that more than anyone aboard. He wondered what she meant by that. He wouldn't get distracted into that. “Do you have any idea if they are making any progress?”

“You know,” she said, “I really don't see him that much any more. Since he bought that damn lawyer it's better if I don't see him at all so I don't take the chance of giving that damn thing anything else to use against me.”

“Didn't you get a lawyer of your own?”

“Yeah, but it's a Barrister XL 5.7,” she said, “so at least I have some control of it. *I'm* trying to keep this civilized. That Shark of his is more like a robot lawnmower gone beserk.”

“I need to know if that operative that got in here, the one in the Yellelle cherub, did something to his gear.”

“It will take some time,” she said.

“Can you give me just a simple diagnostic scan to start?”

“It's not the diagnostics that will take the time. I'll have to get my lawyer to file a bunch of injunctions or something to tie his up in court long enough for me to get into Thom's lab and get some work done.”

Kelvin sat with Heymon in the ship's lounge. There were few others from the crew in here today, just Greta and Darryl and they were speaking some language that only had an occasional word in common with English. Greta was nearly a regular here. He wished she would find a man and not turn into a barfly. So far she looked OK, but her personification seemed to be getting a little less wholesome every week. She'd lost the buck teeth and now had quite a cute smile. He and Heymon were far enough from them that they could converse without being overheard.

“So you were telling me that bogie can intercept all our messages?” He wouldn't name the ship out here no matter how far away the other people in the lounge were.

“They are well within the cone of the transmitter, even though it is a very narrow beam.”

“Then they have a copy of the letter from my mother. It has probably crossed their captain's desk.”

“That came in from Thom's instruments,” Heymon said.

“If they can put an operative on my ship, they can certainly put a false routing tag in a mail message,” Kelvin pointed out.

“That is true, they could have, if they could fool Ava.”

“So they could have that letter,” Kelvin stated.

“If they can decode it and get past the password.”

His mother's password was 'mom' so he didn't think that was going to hold up sophisticated software very long. He didn't let the silence drag on too long. "That also means that the laws of physics certainly allow that letter to have come from that ship."

Heymon stared a minute, took a sip of his bourbon. "In full virtuality, yes," Heymon said. "All they'd need is a copy of your mother's handwriting and expressions from any of the notes she wrote. Her senate career wouldn't have counted."

Kelvin was well aware of that, her career had been an acting job. "It was a Brazilian company that did the scanning application for the hospital my mother died in."

"So she could have written it while she was still alive?"

"Under coercion," Kelvin said. "She would never have written that willingly if she was still alive." He decided to try Heymon on his current thinking. "I think she was cryofrozen and set up in a universe like the heaven she believed in. She wouldn't mind that all the people around her were cherubs, in fact I think she would prefer it, that would make them perfect. All they'd have to do to make her think it was the Heaven she always believed in was hide their panels. It wouldn't take much of an expert to do that."

"No," Heymon admitted, "My wife could do it, she's almost as good with a scene generator as I am."

"So you could do it?"

"Yes," Heymon said, "If I was there. But why would I? Why would anyone?"

“My benefits would have covered her ascension.”

“But why wouldn’t they have just given her a blank universe and a scene generator.”

“She would think she was in hell,” Kelvin said. “Probably someone at the home where she died talked to her and knew what she wanted. They could have called just about anyone to set that up.”

“Then why did she write the letter and how did it get here?” Heymon asked.

“A Brazilian operative got to her. She was in Heaven but it was still long before the bogie left. The bogie had a copy of the letter, they knew we were inbound and they know I command this vessel. They used it on me just as we are about to discover their true mission.”

“Whew,” Heymon puffed his cheeks. “It’s a real contraption of an idea, but the laws of physics allow it. I still don’t think I’m ready to accept your explanation of the signals I’m getting from it light years out in the direction of 61 Cygni, but I agree they could be faked.”

“What other explanation of that letter do the laws of physics allow?” Kelvin challenged.

“This is all a hack, or these dark bodies do contain the heaven your mother believes in.”

“So you are telling me that Heymon has been covering up Thom’s discoveries?” Kelvin asked Ava.

“He doesn’t think of it as covering up. He’s saying the results are meaningless when the instrumentation violates accepted theory.”

“He could have let me know that much. Even if we don’t understand what it means correctly, we get the same kind of reading from our veron store and Curitiba.”

“Thom still thinks it’s the Pink Dawn,” Ava said, and that he is entangling ideas in flesh minds.

“That delusion won’t hurt him, let him continue to believe that. I don’t want the crew to dwell on the fact that we are now on a military operation.”

“Are we sure it’s the Curitiba?” she asked.

“It’s the only thing the laws of physics allow.”

She laughed, rather heartily. “We could all be in a basement in Scranton getting fed this starship-ride scenery thru a cable. Even now, even in Laurentia, they could find the processing power to run this expedition, so I don’t think the Curitiba is the only solution the laws of physics allow.”

“Pretend you believe we are only one step removed from base reality.”

“I do, but that doesn’t mean I’m sure of it.”

“What do you think it is?” he asked.

“I think Yellelle has more to do with Thom’s discoveries than meets the eye. I think Yellelle has more to do with it than that bogie.”

“Do you think she’s hacking us?”

“Oh she definitely hacked us. I’ve suppressed her symptoms for the moment, but I need to find her, encapsulate her and cut off her veron grants. I need to do to her the same as I did to my ...avatar during the reunification.”

“But we know that cherub was animated thru Thom’s apparatus,” Kelvin remembered.

“Or control was bounced off his apparatus. His diagnostic adapter could have substituted a signal from any source.”

“Could Alan be driving it?”

“If he was, he was definitely playing with himself the first time she showed up.”

“The time she moved him seven thousand miles across his planet?” Kelvin asked.

“Well sir, I have to confess that she did not teleport him.”

“How do you know?”

“Because I did it,” she confessed.

“What! Why?”

“He took me out to lunch but I drove, when I noticed I was late getting back for duty I forgot about him, or about his sentence anyway. It’s hard for me to think about someone being trapped like that in their own universe. They have to bring up whatever environment panel they use and dial it back. I forget what he’s sentenced to sometimes.”

“You, of all people, should know better.”

“I know sir,” she said. “But the real information here is to give you better information on Yellelle’s powers. She probably is not able to teleport members of the crew, either between universes or within universes. She has the power to animate a cherub, and it is one of Alan’s, he has thousands of stored settings packages, and as you know, he built that Desa cherub with very little help from me, so he’s an expert at cherub design.”

“Yes I know,” Kelvin said. “I think you’re telling me that Alan is behind it.”

“I actually don’t think he is.”

“But he has the ability to.”

“Only if he’s found a new way to get even deeper into the system than he did at 61 Cygni.”

“He fooled you once.”

“He had that Avatar to help him,” she replied, “I don’t think he could have done what he did on Biology Base without her.”

“He had us fooled before you built that Avatar, he had us fooled since he was sixteen.”

“We weren’t looking, we were too fascinated with his antics on the surface.”

Kelvin needed to get her attention, “he wasn’t on the surface for four years while he had us fooled.”

“But he wasn’t really doing anything then, he didn’t draw any attention. Like Yellelle isn’t drawing any attention right

now but she is still here. I didn't catch her, I just ran her off. She's still out there now."

"Just like Alan then. You're still trying to tell me it's Alan doing all this aren't you?"

"I've been watching him, he's still helpless under sentence. I can tap him any time I want, it's in the Bishop's sentence. He's not doing this."

"I want you to watch him more closely. I want you to find something."

She sighed. "It's the damn lawyers. If I see him while off duty, I give away even more of my universe to that Shark. If you could just set that judge to have the separation hearing on Monday, I can be seen with him. Otherwise I have to very carefully cover my tracks, and that's very time consuming."

"How do I program that judge?" he asked.

"Glayet should know, but I'll come with you down to her office."

The judge's control panel was in the office of the head of security, along with those of all the police bots. Glayet met them in the office. She had been exercising, though that did nothing for a personification, Glayet believed if did something for the soul.

She visualized the controls of state as an antique panel behind a heavy cast iron plate with a ten pound padlock on it. She made a flurry of getting the key out of her XXL a-cup sports bra.

“Why haven’t we set a separation hearing long before this?” Ava asked.

“I’m still waiting to hear from Theology. No one’s been going over there and pushing that form along, so it’s been languishing on desks.”

“What could it possibly get behind?” Ava asked.

“They just like to see your pretty face,” Kelvin said. “A little schmoozing never hurt anyone.”

“So you’re saying they’ll never move it along until I go over there and say a few prayers for our dead marriage and all that?”

“How do they know you really meant it?” Glayet said. She had put the lock down and lowered the heavy cover plate. It screeched horribly and there were spider webs inside the box covering the controls.

Ava could have hacked into this, he was sure, but it really was one of the most secure areas on the expedition, in spite of Glayet’s quirky rendering. There was a well-finished wooden panel under here, but it was old. On it were big brass knobs and levers, a few tall, cylindrical and deeply indented push buttons, and a few large meters with very thin needles that were waving slowly, but remaining in the green. Beside it was a big knob that Glayet turned, causing the whole panel to flip over and another similar one to appear. She kept turning that knob until the nicely engraved brass plaque at the top of the panel said ‘Judge’.

“What’d’ya want to do now?” Glayet asked the captain.

“Set the hearing on her separation from Thom to Monday morning.”

Glayet only grunted. She turned a knob on the panel and words started going by in the glass covered, brass trimmed window next to it. She stopped turning when the words ‘Separation Hearing,’ were in that window. She set the next similar knob and window to ‘Monday’, the next to ‘Apr.’ and so on. “Who’s his lawyer?” Glayet asked.

“I don’t know what name he filed, it’s a Shark-IV-e, a mean one.”

She got a loose leaf out of a stack of them in a box in the aged wooden control panel. She flipped thru it for awhile. “Ah here it is, a Shark-IV going by the name E. Clayton Barrimore attorney at law, representing Thom Husband in matrimonial matters brought by Ava Bancour.” She kept a finger on the page and dialed a ten digit number into some small dials along the lower left hand side of the panel. “and do you know your lawyer’s name?”

“L. Lincoln Fitzgerald,” she answered quickly.

She put the first loose leaf back in the box and removed the top one from the pile, flipped thru that about far enough to find the ‘F’s and put her finger on an entry. Using that handwritten entry, she then set the ten dials on the lower right of the panel. Lastly she pushed a big white button sticking way out of the panel. It went way in with a scraping sound, then there was a loud clunk. “OK, you’re on for Monday,” she said.

Kelvin was glad there was someone in the crew with an even more retro user interface than having an app on his phone.

“Somebody want to help me lift this cover back into place?” Glayet asked as she grabbed onto the right end of the heavy cast iron cover to the controls of state.

6:06pm Fri. Apr. 13, 2384

Kelvin saw that Ava had arrived. The first thing he noticed was that she wasn't afraid to let her body be more flamboyant these days. He blamed it on Alan again, she'd been staying there all week. The senior officers had gotten used to that by now. It didn't seem like it was going to matter any more. At least she was still wearing clothes to his dinner parties. In Alan's universe that was optional. Kelvin regretted his promise to let Alan keep his universe because his universe now attracted an alarming percentage of off-duty personnel. Bishop Rendellyn was delivering violent sermons again.

But he was not delivering them here. These were not what his breakfasts used to be, these were special invitation-only and they were not supposed to be related to duty. Of course there would hardly be a soul here who had an interest other than their duty, but here they could talk of it as they wished, carry on ad nauseam and expound their own opinions. These

had become the center of Gordon's Lamp's society. Most of the people here had been to Alan's universe and most agreed that he consumed an undue share of cherub space for his rank, but none was advocating shutting it down or banning his cherubs.

Jason made him also maintain a virtual model of the study planet as it actually exists, it had been his sentence to put as much time into that as he did into his imaginary one based on it. That was to be as accurate a model as their data allowed, to allow others to study it. Few did. Biology did all that was required, but they seldom visited the model of the real study planet in their off duty hours. They all visited Alan's universe and Glenelle was nearly a regular at clubs in his city of Zhindu.

For these dinner parties Kelvin did not put you in the black of space, staring at their situation with recent impacts glowing fierce yellows and reds. No, this was in a thickly paneled wonderland of sitting areas and low steps and comfortably firm leather lounge chairs, tiny nook bars serving only what you wanted in the first place, large tanks filled with large colorfully-striped glowing fish to provide the light, and the distant scent of perfumed pipe tobacco. The small lounge areas constantly opened to someplace different when you weren't looking, where the people you really wanted to say 'hi' to were hanging out.

Kelvin had worked with an architect on this, Donovan Axxis and had Ava research some socially predictive software

for him. Donovan was still working but he was going to be evicted any day. Kelvin was glad he was able to finish this project by mail before that happened. He wondered how Ava would enjoy her new found freedom on this first important social occasion since the separation was official and all accounts settled. He wondered if she would now openly take Alan's arm, but then remembered he was not invited to this soiree. He was still officially serving a sentence for a serious crime. Few knew it but he still kept an attorney, a Smith and Wesson Rottweiler 8.1a, to guard his universe rights.

Who would she take? He thought Alan and Morg had been the only men who had interested her, well, she also thought Colonel Bovok was attractive in some weird way, but he was very married to a woman who did NOT make any use of Alan's universe.

She appeared in the door by herself, wearing robes very similar to what she wore on duty. They were a little more sheer, the breeze pressed them to her body a little more closely than it did during business, and the colors were a little brighter and the patterns a lot bolder.

He wondered who would be the first to approach her. She hadn't made it to the nearest bar when someone did. Lieutenant Imdrun was a very needy soul, and represented himself as a slight man with a forlorn face and droopy eyes. He was here as a guest of Major Alvarez, but Delos was not with him at the moment.

“Ava,” Lieutenant Wies Imdrun said to her. “I'm sorry to

hear about your divorce.”

“The separation only became official three days ago,” she said, “But I’ve moved out of the villa so I guess it is functionally complete.”

“Well; I’m sorry.”

“Why?” she asked. “I’m the one who filed,” she said, looking as puzzled as she could.

Weis had hardly spoken to her in the two hundred years this expedition had been in flight, but pursued her anyway. “Oh?” he said it in a way that made Kelvin wonder how Thom was telling the tale.

Ava brushed passed him and headed for the bar. She came away with a tall decorative cup that had fumes rolling off the side. She inhaled some of them and then came their way. He noticed Heymon make subtle adjustments to his personification to give his chest a little more definition and his chin look a little firmer. He adjusted his coloring to the lighting a little more to make himself look a little more tan. A hole made by a tiger tooth appeared in his far epaulette. Still it didn’t make him smile.

“You look grim,” Ava said as she approached. Kelvin was suddenly aware that he was one of the few single men in the room.

“Benton was able to duplicate Darryl’s work on the impactor trajectories,” he told her. Kelvin wished he hadn’t brought that up here, this was supposed to be pleasure. She did have a right to know, and it had been the only thing he

and Heymon had really talked about since Heymon got here and Marilyn went off to gab with the women.

“The course corrections?” Ava asked.

“There can be no doubt about it,” Heymon said, “There are drives on those icebergs of some type and they are going to take them down into Sol. They are not aimed at Earth, they’re aimed at all Angel installations. The comet strikes we’ve seen so far are only the beginning.”

“We are going to be exterminated,” Kelvin pronounced. It was funny how strangely unaffected he felt. He had been away from it so long, what is a civilization anyway? A source of dire news. We have a motor, three fabricators still in perfect condition. It would be lonelier but Gordon’s Lamp was not in eminent physical danger. He could maintain a level of detachment.

“We can *fight!*” Heymon shouted. “A self-replicating fusion generator will soon melt those ice balls...” Even the captain knew that was only his emotions talking. As he was saying it Heymon must know they would set no such thing loose in the galaxy. Sol was surrounded on all sides. Heymon sank back down to a seated position on the left side of this alcove, his face in his hands.

“If we cannot save our people,” Kelvin said, “We must save our ship.”

“How?” Heymon asked.

Kelvin had no answer.

He had left his quarters natural again, in spite of the fact that this would be a large meeting. Maybe it was because he didn't dare monkey with his scene generator when there was no one to save him if he should mash something up. That meant one percent gravity, the glare of Sol almost directly below them, and the snowflakes rising slowly by them except when they passed thru a veil. For seating he had provided plush plumes with ornately carved wooden arms, ergonomic for one percent gravity, invisible of course. All that could be seen were the personifications of most of the senior people on the expedition. Kelvin was not going to delay the meeting. There were a few majors and lieutenants who had been invited that hadn't arrived, but Alfred, Heymon and Elmore were here so he called them to order.

"As you can all see, our Systems Administrator is not with us today. In case there are any of you who don't know, she was working with Thom Husband and Darryl Yorkum the day before yesterday and was lost. Thom and Darryl believe she is not dead but in a trap. Would you please tell the ship's officers exactly how it happened?" Kelvin asked them.

"The experiment we were conducting was to try and determine if logical simulations of fourth order condensates can be entangled with the fourth order condensates in the dark bodies. You see..." Thom went into a spate of jargon after that, but eventually it got down to something he could

understand.

“So do I have this straight, you deliberately entangled your estranged wife and our Systems Administrator with a dark body?”

“That’s a simplification...” Thom withered under his gaze. ‘He better not be calling me simple,’ Kelvin thought, but resisted the urge to bellow that out. “But yes, sir, you could say that.”

“Did any of the senior officers know you planned to risk the life of our Systems Administrator with equipment that hasn’t successfully met it’s initial testing specifications?”

“Lite Colonel Bancour sir.” Thom was trying to hide in the invisible feather chair.

“Major Yorkum, did you discuss this with anyone else in your department before undertaking this obviously high-risk experiment?”

“She didn’t think there was any risk at all,” Darryl said. “We were pretty sure she was not going to detect any effect. I especially didn’t think we’d see an effect as soon as the tangler beam reached the dark body, without the speed-of-light delay getting back.”

He remembered Ava saying she couldn’t follow that math, now that math had taken her.

“I know I directed you to get answers and told you that you had priority, but that didn’t mean you should have no oversight.”

“Sir, we thought Lt. Colonel Bancour was the oversight,

she's your direct report, the next step up the chain of command is you."

"Both I and Colonel Samrova should have been notified about this scheme."

"Then why didn't Ava tell you?" Thom said, probably the most defiant thing he had ever said to him.

"Enough of that," Kelvin said with a scowl, "We need to find a way to get her back."

"We need to bring in Thom, Darryl, Greta, a few of my math guys and anyone else who ever worked with Ava," Heymon said.

"Glenelle Mason was friendly with her," Alfred said, "and Ava showed her a few things."

"Alan is the most likely to get her back," Elmore said.

"I'm afraid Alan is the most likely to have her trapped," Kelvin said.

"You can't mean that," Alfred said.

"I'm afraid I do. There was a previous time on this expedition when too many strange things were going on. Impossible things were happening, Theology was getting involved. At that time it turned out to be Alan at the root of it all. Why wouldn't this be Alan's doing again?"

"He was just a kid then, he truly repents what he did," Alfred said.

"He chafes at his bonds, he wants to use magic," Kelvin said.

"He never displays proper obeisance," Elmore added, with

only a flick of his eyes in Kelvin's direction.

"Who do we have who can watch him?" Glayet asked.

"If Ava couldn't watch him," Heymon said, "and I know she was trying, then we don't have anyone."

"Do we even have people who could watch over his shoulder and be able to prevent him from keeping Ava captive?" Kelvin asked.

"Sir," Elmore told him, "if he put one over on Ava, we don't have anyone that can tell Alan hasn't left them a cherub to watch."

"So we are at his mercy."

"I don't think this is Alan," Alfred said.

"I don't think it is either and I keep an eye on him," Heymon said.

"Then who could it be?" Kelvin asked.

"I'm surprised you haven't already claimed it as an attack by the Curitiba," Heymon said.

He didn't favor that crack with a reply. "So you think Alan would help us get Ava back?" he asked Alfred.

"Yes I do, but he might ask for some reductions in his sentence."

"Like what?"

"He wants his med panel and he wants his day and night to line up with ship's clock, he doesn't think those are unreasonable demands."

"He told you his demands in advance?" Kevin asked.

"He's asked all of us, several times," Alfred said. "He's

also been wiping his ass longer in the Afterlife than he did as a mortal."

"He only spent twenty mortal years."

"I can't believe this comes down to an issue of wiping Alan's ass," Heymon groaned.

"What if this whole entangled signals issue is part of a new hack of Alan's?" Kelvin asked.

"He doesn't know enough quantum mechanics to do all this," Elmore said.

"He doesn't need to," Heymon spoke up. "He just needs to get signals into Thom's equipment. He doesn't need to fake his equipment, it could all be real. He's already shown us he can get into the hardware layers."

"So now you're saying you think it could be him?" Kelvin asked.

"I'm saying he could do it, but I'm also saying he didn't."

"So you are saying to use Alan to get Ava back out of there?" Kelvin asked.

"Look at it this way," Elmore said, "if Alan is behind this, we are all compromised anyway, if he is not, he can be of the most help."

"Do you have anyone who can look at it?" he asked Heymon. "I want you to find someone who can make something out of it, have them familiarize themselves with it before we let Alan even know this has happened."

"He probably already wonders why Ava has been away so long," Elmore said. "We *do* all know she's been living there a

week now don't we?"

There were nods all around the room.

That was to keep as close a watch on him as possible, he was grateful to her for doing that, hoped she hadn't paid too high a price. "Would Thom or Darryl tell him?" Kelvin asked.

"Thom certainly would not," Elmore said, "but I don't know about Darryl."

"I believe he would not if we asked him not to," Glayet said.

"If we want him to help with it, he will have to know," Heymon said.

"Let your guys look at it first," Kelvin said. "Report back to me tomorrow on what they find out."

The meeting broke up soon after that. He remained in his private office. For the remainder of the day he had nothing more to do but worry. He had no one he wanted to share that worry with.

3:04pm Fri. Apr. 20, 2384

He had tried to feel Alan out, trying to get some clue as to whether he might be the one who had her encapsulated, whether he could get her back. Alan guessed that she was encapsulated, or he already knew. Kelvin was afraid he

already knew and was only pretending he figured it out from Kelvin's questions. Kelvin tried to lead him astray as he thought about the possibilities.

It seemed there were only two, she was captive of Alan, or of the Brazilian agent from the Curitiba. Up until very recently he would have said it was the Brazilian agent that was responsible. The main thing that changed his mind was that very soon after he sent Ava to keep a close watch on Alan, she disappeared. It could be that she was getting too close to him. Since all Thom's discoveries were likely part of Alan's new hack, and Kelvin had asked her to work on those also, he was afraid he had lead his Systems Administrator straight into Alan's trap.

As he funk'd on that, he got a call from Heymon. "You'll want to pop into my instrument room sir," was all he would say.

Kelvin didn't pop. Since his door was wherever he reached for it, he reached for it and set it to Heymon's lab and stepped thru it. It took him less time than blinking thru because he wasn't familiar with the scene generator commands to get that done. "What is it?" he asked as he walked up to the large screen that Heymon was leaning over.

Heymon looked up, then stood up and faced him. "Over every signal we can find, the bogie has vanished."

"What do you mean vanished?"

"Like it blinked out," Heymon said. "Of course we never had more than a point source signal from it in any frequency,

but they have all vanished. At 2:11:12.177562 all signals from the bogie went to zero.”

“All at once?” Kelvin asked.

“Exactly, to the microsecond.”

“Does Thom have any probes in that vessel like I asked him to?”

“He still has a problem in his instrumentation sir, we can’t trust anything his gear shows us, we don’t know it isn’t all another hack.”

“You’re right,” Kelvin said distractedly, “but all the same, I want to know if he’s still getting signals from it.” He was getting out his phone and getting Thom on it. “Are you in your lab?” he asked.

“I’m right outside it,” he said. “Alan was over here trying to get in.”

“You didn’t let him in did you?” Kelvin barked.

“No sir! I quoted your orders.”

“Well done major,” Kelvin said. “So is she still encapsulated in that alternate veron store that’s in your lab?”

“Yes sir.”

“Are you still getting signals from the Pink Dawn?” Kelvin asked.

“Well sir, I still have that anomaly in the instrumentation that I can’t account for.”

“Never mind that, are you still getting raw signal?”

“I’ll look,” Thom said. “I was out front stopping Alan, not in here at the instruments.” They heard him flipping switches

and keying in commands. He kept his keyboards with audio feedback. The keys were old and loose. “There’s no change sir,” he said, “still the same old pulse trains.”

“Thank you Major,” Kelvin said and cleared the voice connection app. He looked to Heymon. “They could have turned on some kind of cloaking device.”

“We know Pink Dawn had no cloaking device and no fabricator to update themselves,” Heymon said. “We can be pretty sure Curitiba has no device that good.”

“Could they have hit something?”

“If it annihilated them the fireball would outshine Sol.”

“So we are left with Curitiba and a cloaking device?”

Kelvin asked.

“That’s your guess?”

“What’s yours?”

“A hack,” Heymon responded.

1:27am Sat. Apr. 21, 2384

Late that night he was still worrying. He had some taps into Alan's universe that Ava had given him because he needed a way to spot check that Alan’s sentence was being carried out. He looked thru them late in the evening. He had one right over the door, the house was quiet. The sun came from straight above. The hovel was open and a group of small

multilegged animals was silently prowling thru it, picking at crumbs. The sounds were strange, but pastoral. The probe manifested itself in Alan's universe in something called a wee-flutter. It could soar thru the house and found Alan sound asleep in his bedroom, covered with only a light flannel blanket. He was glad that only he and Glayet had these devices.

He was really faced with three choices to explain what was happening on his ship, the Curitiba, an alien power or a new hack by Alan. Some of his most trusted officers vouched for Alan. If they were right that left only the Curitiba and an alien power. An alien power driving a cherub from Alan's universe and guiding the impactors that were destroying Angel and secular simulate civilization. He took the flutter out of the house. Alan had picked the most majestic scenery on the globe for his home. The gaudy sun was high overhead, the air was still and heavy. In this probe he couldn't feel the gravity, but he had been to Alan's world twice, with women he probably shouldn't have dated, and knew what it felt like.

He replaced the probe and went back to his own universe, the real universe as his ship saw and felt it, as accurately as it could be relayed to his senses. Until now he had been looking at only the lights as they made their way thru space. It was really a drift of snowflakes, but it looked like stars. He could lie on his stomach on the table and stare into it. His table was as transparent as his floor, walls and ceiling. He tried to look away from the light and look at the black.

He knew this imaging did not illuminate the dust motes that were much more than twenty light minutes from the ship, all dots farther than that were in their own light. He tried to look at the black instead of the dust motes and he saw a rhythm in it, something like the billow of clouds or maybe rough building stone with the points of light being the mortar between them. He thought about what Ava had said, this dark matter potentially holds two orders of magnitude more compute power than all the silicon and aluminum in the galaxy can provide.

He wondered who he could talk to who would comprehend what that might really mean? Ava was who he would ask, but this was all about finding her wasn't it? If Ava was captive of an alien power, what did it want? What was she experiencing right now? He worried that she could be undergoing horrible torture. He worried that she could be telling the alien everything about them. He worried that this alien could be what was destroying them, and not the Brazilians, that it had somehow made an alliance with them, or, as Ava had said, had some motive of its own for attacking them.

6:01pm Mon. Apr. 23, 2384

Contrary to what some in the crew thought, Kelvin did not continuously immerse himself in the view of space as

seen from the ship. He sometimes rendered some quarters of his own, with walls and windows and views of his grandfather's plantation in Nigeria. Right across from the front door in the homestead was what he called his office. It was actually two rooms, the outer one a bit smaller, the inner one with a bay window behind him overlooking a scene of Bantu laborers toiling in the fields. They were simple projections, not cherubs. The house itself was long and sprawling, but at this point he was on the second floor.

Few had seen his private universe, Arthur, Glayet, Heymon, a few women who'd shared his quarters. There was none now, not even a cherub, and he was actually glad. True he got no chance to partake in fleshly pleasures, but his med panel was capable of dialing that need out of his life.

Most of his life now was the war, and he was going over transcripts of broadcasts that had been intercepted. He was selecting a lot of the jargon and having it translated, even though it made the text longer. He was hoping for something that would give him a clue to the enemy's vulnerability, or even some clue as to what it really is. Yes, all the brains of the crew had theories, but he could tell none of them were very confident of theirs but Thom, and his was too preposterous to take seriously, an alien intelligence lurking in the dark matter. He'd rather believe his mother and hope God was out here.

Even though he couldn't take it seriously, he tried to imagine what it would be like to be in the heaven his mother's letter hinted at. Everything as it was, everything

perfect. It would be as it was when he was a small child, before the local corporations picked her as their figurehead in Washington and before Ohio defected to Laurentia. If he could, he would go live before the Roberts court and the sell-out to the corporations, back when that farm had fourteen hundred head, but that was generations before he was born.

"Kelvin," a woman's voice asked tentatively from his outer office.

"Yes," he said, "come in." He didn't recognize the voice, but there were two dozen members of the crew he hardly ever saw.

"I hope I'm not disturbing you," she said. She had long, thick, dark hair, a bit tangled and without shine. She was light skinned but with thick lips. She had enormous swaying boobs that made him think she had stuffed balloons in her top. Her fashions seemed to give a nod to Alan's world, but at least those balloons were covered. The cloth clung like wet jersey, but it had glitter that flashed as she jiggled. The way she jiggled told him she was very firm for her size, and like cherubs from Alan's world, without underwear. The remainder of her figure was pretty good and strong. Not spectacularly streamlined, but she was shapely enough. He didn't know her, but people had been changing their personifications a lot lately. Major Tendine was rumored to use an alternate personification that was said to be as flamboyant as this one. She was vaguely familiar, like one of

his direct reports had used this personification as a cherub once or twice.

"Not a bother, how can I help you?"

"I understand we are at war?"

"Yes, of course. May I ask who you are?"

"My name is Yellelle," she answered.

"You're the Brazilian spy!" he shouted and lunged from behind his desk to grab her. She blinked over to the other side of his office.

"Ah, Kelvin, we're in Heaven now," she said, waving a finger, "and such brute things don't work any more."

Kelvin popped up his phone to call Glayet, this kind of thing was her responsibility. He had her call button on his front page and had just gotten his finger on it when the girl grabbed his phone. He immediately yanked it out of her hand, at least told his limbs to do so, but she had suddenly turned to bronze and he hurt himself on her. His whole body shook with the reaction to that yank.

"Captain?" he heard Glayet's voice come on the line.

He yelled, "We've been boarded, there's a Brazilian agent aboard."

She gave him a nasty grin as her bronze fingers crushed the phone to a used piece of aluminum foil wrapping broken fragments of silicon and plastic. He didn't know how much of that Glayet heard. "Captain? You are the captain of this vessel are you not?"

"Of course," he blustered. He already knew Saint

O'Connor outranked him and he knew he had little if any real control over Systems Administration, but Ava cooperated with him most of the time.

"Then you and I should talk."

"About what?" he asked.

"International relations."

"So you admit to being a Brazilian spy!" Kelvin said.

"Brasil is a mortal nation, we're not on that plane, you and I. The Pan Solar League and Gordon's Lamp are heavenly nations, and that is what Atlantis is today."

"What?"

"Egypt knew us as Keftiu," she said, "and some call us Minoan." She was slowly turning back to flesh, warm flesh. He didn't know his personification was sensitive enough to render the sensations he was getting from her flesh. He was suddenly very conscious of having her arm in his grasp. "We have been in heaven somewhat longer than you," she said.

"You're telling me there was an advanced civilization that created Angels in the Bronze Age?" He let go of her arm and went back to his chair behind his desk, more than a little shaken and needing something between them.

"Not hardly, we never even invented a motor. As far as we know, we all got here by faith in a deity of one form or another, not technology. Certainly not our technology."

"Then you should be talking to Saint O'Connor." He was immediately ashamed of himself for trying to make her someone else's problem, but her magic level was certainly

above his.

"Maybe I will talk theology with him someday, but this isn't about theology, this is about international relations. I'm actually here to give you some advice," she told him as she walked around behind his chair.

"Do you think I would take advice from a spy?"

"That's up to you," she said. He tried to turn but she had her hand on the back of his chair by now. She stepped behind him, he could feel her breasts on his head and shoulders, she began knead his shoulders.

He knew she had infinite strength available, but as long as he remained soft, so did she. He was frightened, but he was also pulled by his hormones. Once again he was amazed that this personification was able to do such a good job providing these sensations to his soul. Her size and her resiliency were amazing. He wanted to lean away, but he didn't.

"This is much more pleasant than fighting don't you think?" she asked.

"I never thought to equip this personification with the power to turn to bronze."

"A pity, but I'd much rather leave mine as flesh."

"Please," he said, "so what is your advice?"

"Good. Now to begin, you do agree that heaven exists as data do you not?"

"Ava convinced me of that," he said, and thru her hands he felt that name pain her. He wondered if she'd already had a conversation with Ava about systems. He was now convinced

she was the one who had Ava encapsulated. By doing so she had taken over his whole ship hadn't she?

"Yes, well as long as you know that. So knowing that, you agree that Angel and mortal are the same soul but on a different substrate, veron and neuron."

"You sound a lot like Ava, maybe you should take this up with her," hoping that might get Ava released. He stood up to get himself from between those melons, he couldn't think rationally while he was there, and after listening to Heymon he worried that there might be a chance it was Ava driving this cherub, though he could scarcely imagine Ava being this aggressive with her body.

"We've talked of this at length, she's the one who taught me this terminology, it's far different from how we word it. Do you understand what I'm talking about?"

"Not if it involves the fine points of the difference between a veron and a neuron." He sat on the edge of the desk with the chair between them where he could watch her face if he tried hard enough. That jersey was too thin for duty on Gordon's Lamp without underwear, but this wasn't duty hours any more was it?

"One's silicon, ones flesh," Yellelle told him again. "If you know that, you have the essence of it."

"So I understand that, the essence of it anyway, not the system or biomedical details of either one, but what of it?" Kelvin asked.

"I'm beginning to feel like making you tease it out of me,"

she said, moving around the chair and toward him. "I like to enjoy my work but you've been pushing me away. Don't the hormone levels in your system work?"

"Well, it depends on how they're set on my med panel, but around you it feels like my med panel's been hacked." He pulled it up and looked at it. It was still set on thirty percent where he always had it. If it had been hacked he would have probably proposed marriage to her already. He set his hormone level down to twenty and closed the panel.

As he closed the panel, she turned around and leaned back on him and drew his hands around her. "So what is it you want to know?" she asked, looking back over her shoulder at him.

"How you adjusted your personification this way. I think I understand why, to make me a helpless adolescent in your hands." He wanted to get his hands off her, but she held tight. He was afraid to try harder in case the bronze would come back. He was very conscious of how much better she felt than bronze, very conscious of every curve of her body that was pressed against him and very conscious of how long he had let himself go without female companionship.

"Oh you could let go if you want, I won't use any magic at all to keep your hands here," she said and let go of his.

"You're using some kind of magic because my hands are still there." Kelvin could imagine it felt good to have someone else carry some of the weight that rested on his forearms, her clothing wasn't helping.

"So, to answer your question," she said, "I came here to tell you we are from a different substrate in Heaven."

"What are you talking about?"

"We are data, remember."

"How do you expect an old man like me to remember that with you in my arms?"

"It did calm you down."

"You made me accept that I'm beaten, have your way with me."

"Oh I will; but all in good time. I came here to tell you not to worry about what substrate we're on."

"Can you tell me something more concrete?" He finally got his hands off of her. They seemed to have been held like on a high voltage wire.

"God wants Angels on the other substrate. The zero-energy substrate always wins because it is too vast. The stars hollow out tiny little bubbles in it like American Swiss cheese. Your substrate is in a single bubble that is infected. The zero-energy substrate will take the silicon substrate out. Your souls will have to migrate to this substrate sooner or later, why wait?" She turned around in his arms, she was now pressing against him and he was way too conscious of that.

"Are you asking me to surrender myself and my whole crew, all because of an enhanced pair of breasts?" He stood up, hoping to break contact.

She kept him trapped against the desk. "I expect you to surrender because of the logic of the argument, not the

pleasure that goes along with it."

"What logic?" he asked. "What argument?"

"That we are just data, whatever a soul is, it runs on flesh, it runs on silicon, and it runs on condensed helium. Why get involved in the struggle between the substrates? Silicon interference in the quest for departed souls evolves every now and again, the superfluid helium substrate evolved defense mechanisms for them before Sol condensed within it's body."

"Are you trying to tell me that your people exist as simulates in the dark matter?"

"You guys haven't even figured that out yet?" she asked with some skepticism.

"We don't believe it." Except for Thom, maybe, Glayet did warn him Thom might have fallen for this girl. If he couldn't handle Ava, he sure wasn't going to keep this one happy. She was still pressing against him, he found it difficult to have this type of conversation in this position. Not only were her very large and solid breasts pressing him, but her belly was against him and his med panel wasn't doing its job at keeping his penis under control, and they both clearly felt it against her firm belly.

She grinned up at him, "I guess the science of Atlantis has come a long way in heaven," she said. She said nothing about the movement in his pants, but the motion of her hips told him she knew and approved of it. "It was almost a thousand years before our science understood that we were in a simulated universe."

"How did they know?"

"The dimensions don't add up. Earth in Heaven has four billion square miles of land that we know of, but no two points are any farther apart than they were on Earth."

That meant just about nothing to him. She was moving her hips and that made it absolutely impossible for him to do any mental arithmetic. If he could do that, maybe it would take his mind off her personification enough to get his under control. "You don't each have your own universe?" he asked.

"We have the life we lived as mortals only perfect. We can make changes if we want, but he have to build them as we would as mortals."

That went back to his mother's letter and threw out the theory that she was in a universe someone built for her in the Pan Solar League. He wondered if Yellelle knew his mother or could take him to her. He wouldn't ask that now. "What changes have you made?" he asked.

"I think my work is more important now."

"As a spy?" That had to be why she was raping him this way. He didn't keep a personification that women lusted after. He had a big forehead and a dome of light grey curls. He represented himself just about as he looked the day he ascended, so a mortal would think he was in his late sixties.

"As an ambassador," she said.

"What were you before?" he asked, not wanting to argue the point because he never thought there was much distinction anyway.

"I was a temple girl. I traded sex for donations to the temple," she answered. He could certainly see her in that job. "I enjoyed the work, and I still enjoy doing sexual favors, but I think the reason I give them is more important."

"I'm not going to surrender my ship for sexual favors."

"Just think about it OK. If your substrate goes down, you can always come over to ours. Just use your teleportation beam like Ava did. You might use a little more care about where you land."

"So you have Ava?" he bellowed.

"Not any more," she replied. Before he could ask any more about that, she made their clothing disappear. He knew he was lost if she had that much power over his universe. She was able to raise to her tiptoes and rub on the boner he couldn't control. He didn't dare try to stop her. He didn't think this personification had that much, it looked like it did when he was twenty two. "Do I get any say in this?" he asked, sounding more like a whining puppy than the captain of the Pan Solar League's flagship. If she turned back to bronze her mons could snip his off.

"You mean to tell me the information I've just given you is not worth a shot of your semen?"

"You sound like you're from Alan's world," Kelvin said.

"Kassidor has a heavier presence in heaven than Earth. More mortals have died there than on Earth and they do not employ another substrate and have not drawn the wrath of god." She did get off her toes, she was going to unload him

long before they went any further if she didn't.

That made him sure that this was a cherub from Alan's world with someone driving it. It would have to be Alan wouldn't it? Yes, it would make sense that there was a man operating it, no woman would actually act this way. "So you are Alan, stooping to such a theatrical trick as this?"

"You can call Alan right now and see if I am him."

"You think I'm as systems ignorant as Ava does. I'm sure you can hack in a means to run multiple personifications at once."

"Your system is wonderfully hackable," Alan replied, as much as admitting it was him.

"As you proved so well," Kelvin muttered bitterly.

"Our substrate is very hack proof. The best we have done in the thirty eight thousand years since the temple of science was founded is make it possible for us to observe and now interact with the energy universe."

She lead him over to his couch, she stood by the back of it and drew him close, he followed like a lamb to slaughter, still sweating in fear of that bronze. Her hands cupped his ass. "I don't engage in homosexual behavior Alan," he said.

"You are poorly educated in the facts of life if you mistake this personification for male."

"There's a male mind driving it."

"Why do you think that? Because I can speak my desires? I can speak my desires but my desires are very female. I desire you to squeeze me. She leaned back over the back of

the couch and drew his hands to her again. I desire for you to enter me," she presented herself to him as she said this, "and fill my empty loins with your shaft and your seed. Is that a male desire?"

"It's not about the mechanics of it, Alan. Even I could drive a cherub to act this out. What makes a woman a woman is not the fact that she has female genitals, it is that she tries to defend them, whether she wants to use them or not."

"Of course being a temple girl, I never thought that way. I always thought it was all training anyway, I was trained for pleasure in the worship of the goddess and fertility. I was trained it was my power over the male, if I get his seed I have him under my power, I have tamed the bull."

"I'm not having sex with you Alan," he said, though the damn boner wouldn't go down.

"No, you're not, you're having sex with Yellelle." She leaned back over the back of the couch. Her legs came up and wrapped around his fear-paralyzed old man's body. With her hands she quickly guided him inside and pulled him in with the scissors hold she had on him.

In spite of himself, he went from fighting it to going with it. He didn't care if it was Alan any more, it had been too long and he never realized he missed it so much. He should have partaken more often, he wouldn't be this vulnerable would he? She rocked him with the scissors hold. She was quite a muscular personification also, and he was just an old man with an out-of-control hard-on. Just as he was a second or two

from spewing, and she was into orgasm herself, Yellelle blinked out of existence and he dropped heavily to the floor behind the couch.

"Sorry that took so long," Ava said from a voice-only channel somewhere in the room. "I got her out, but once again I couldn't encapsulate her. She was running from the entanglement chamber again, I forgot to close it once I got back in. She had you bad, she had jumpers on half your panels."

"Yeah," he panted, "yeah, I thought so." He guessed Yellelle's warning was the only reason he hadn't gone into a coma from the shock of seeing her back.

"I'm sorry I didn't get any of what happened."

"That's all right," he panted, "I'll tell you about it later, it's good to see you back."

"Are you all right?" Ava asked with concern.

"Yes," he said, "What about you?"

"Yes, I'm fine," Ava said.

"Where were you?"

"Encapsulated I think, probably by her, but I know how to tell for sure and I got the guys started on the equipment to test for that before I came to see you. What about you? You're gasping for breath."

"Yes, I'm just a little winded, like you said, she had a lot of my panels jumpered. There was... there was a struggle." He was glad she didn't get any of it. That way maybe he could

forget that he participated in it willingly at the end. It wasn't really rape if he participated was it? "Thanks for breaking in like that," he managed to say, though it was difficult. Even at his virtual age, he was going to NEED a cherub before he slept. "Who knows what would have happened." He took another gasp. "What did she do to me anyway?"

"Well, for one thing she got to your hormone throttle right under your panel, if you looked on your med panel it would look like where you set it, but the throttle was off, you were on a hundred percent."

"Woah," he said. "No wonder it was so hard to fight her, she has a very sexy personification."

"So I've been told," Ava said. There was a moment of silence so Ava asked, "What did she want?"

"She tried to get me to surrender the ship and crew. She said something about the war we're engaged in as being a war between two different substrates, and they are on a different substrate.

"She knew a lot about Alan's hack," he continued, "I think we are dealing with Alan again myself. I wouldn't be surprised if all the signals Thom has received from his gear is something Alan has hacked into the instrumentation layer."

"I'll try and verify that. I've been watching him pretty closely lately. If the test we need to make shows Thom is wrong, I'll need to take a much closer look at that."

"What if Thom's right?" the captain asked, meaning Thom's belief in cryogenic intelligence in these ice crystals.

"I'm still divorcing him," Ava said. "I never thought his theory was impossible, just that it wasn't proven."

"She said she was from Atlantis, but I think she was driven by Alan."

Ava chuckled uncomfortably. "What makes you think she was Alan?"

"She certainly acted like a man attempting to rape me."

"Was she manifesting a vagina?"

"Yes; yes she was."

"That should have made the experience a little less traumatic," Ava said.

There was a bit of silence again, so Kelvin said, "She said their science can allow us to migrate to their substrate."

"What about back?" she asked.

"That wasn't mentioned, but you got back."

"Somebody put me, I couldn't have gotten thru the traps I set if they were still there."

"I think it's Alan," Kelvin said once again. "The way that personification acted, it had to be driven by a male."

"The one I just shut off came in thru Thom's gear," Ava said.

"At least, we think it did. If we were encapsulated, we wouldn't know," he said.

"In the extreme case," Ava said, "and I know Alan's good, I won't underestimate him again."

"So what happened to you?" Kelvin asked. "You've been

gone six days.”

“Yeah, but Alan helped you guys out, he did an update on the 20th and I did one just before I came over so we never fell behind. I’m sorry I was gone so long, it felt longer.”

“But what happened?”

“I was encapsulated, busted down to three-d reality. But I now know how to make a test to determine if I was encapsulated by some power outside the ship, or inside.”

“But what did you experience during the days you were gone?” Kelvin asked.

“It was pretty intense, but what scenes were projected on my senses during that time really isn’t important if we don’t know where it came from. Once you have me encapsulated, anyone who can work a scene builder can render an environment that I can’t penetrate, even more abstract than what was presented to me.”

“Was there a presentation?”

“It could be nothing more than an historical drama video game, the rendering and immersion and sensory synchronization were fine but it is nothing we should take seriously until after we run those tests I set Thom and Darryl and Tung to carrying out.”

“We have no one in the crew named Tung,” Kelvin said.

“He’s an old friend of Thom’s living in a cryoslicer in what’s left of China.”

“Sounds desperate.”

“I guess he is,” Ava said, “but we have no other eyes and

ears on the ground with access to a soul and the handheld instrument that his fabricator can produce.”

“What is that instrument going to tell us?” Kelvin asked.

“Whether the soul is transferred to silicon in an atom slicer or to the dark matter during normal death.”

“So you are going to answer the question posed by my mother’s letter.”

“Yes,” she said. “We are building a handheld instrument that can entangle one’s thoughts and follow them to their destination.”

“That seems more like something Arthur should be involved in.”

“We’ll certainly want him with us when we get the results,” Ava said.

6:37pm Mon. Apr. 23, 2384

Kelvin just finished instantiating a new phone. Ava had come over in person just in case, but he had been able to get it done, get his privileges on it and get it working without her touching a single key. True she had to walk him click by click thru a few spots, but he was going to try and solo if he ever lost his phone again.

As soon as it came to life, Glayet was on it. “Sir, Sir! Thank the lord you’ve responded, I thought Alan had you for

sure, but I've got Alan. He's with me here in a big old lock-up police station I set up just for him, should I ever have the need."

"Sir," he heard Alan in the background, "I only did it to let Ava back in, I'm sorry that failed..."

"It worked perfect, I probably owe you my life," she yelled at his new phone.

Alan must have heard her yelling in the background and yelled "You're back! Thank God, Ava what happened? When you didn't show up I guessed I was wrong and you weren't transmitted to the dark matter. I was making a lot of assumptions."

"You were right, that's how I got home." She said.

"But you didn't show up?"

"It just took a while, I had to get a new appointment with the Adept and he had already been in a coma for days, but lets not get distracted with the presentation I was trapped in. Glayet, give him a hero's medal and let him go."

"I don't report to you."

"Captain?" Ava said.

"Did his actions really save you? And let me tell you, God is watching."

"Keep that in mind," Ava said, "because they did."

"Glayet, let him go, if Ava wants him to get a medal, she can nominate him at the next officer's meeting."

"Gee thanks," she said. No doubt she knew how well that would go over.

Glayet dropped off the line, but as the connection broke he could hear her yelling at Alan. They had never gotten along well, and she had objected to letting him keep his universe right from the start. If he hadn't made the promise to Alan without thinking, he would have listened to her and Bishop Rendellyn.

“So what are we going to learn from this test you want to run?” he asked. They had settled back in his public space as it looked off duty, one percent gravity and Sol below.

“Whether dead souls can be copied into the dark matter.”

“And what does that tell us?”

“If they can, that means there really is a form of life or afterlife in these dark bodies. That would indicate that I was encapsulated by some agent in those dark bodies, and my first guess is the one who was attacking you. But that also implies that what I learned while encapsulated is likely to be true.”

“What did you learn?”

She took a deep breath, sighed it out. “Let me try to just sum it up in a short version OK?”

“Yes.”

“We could be fighting the immune response of a single organism millions of cubic light-years in extent.”

Kelvin didn't really care about the technology of it, that sentence was enough to tell him the true extent of what they were fighting. Its technology might be nothing more than unintelligible words to him, but as a soldier, he could

understand the odds when his whole civilization was the size of a bacterium to it. He had feared encountering aliens, warlike creatures in fast ships with powerful weapons. He would have had a chance against those, what chance did he have against this? He had known in his heart all along that Thom was right, because Thom was convinced he was right. Kelvin didn't want to believe it could be all one creature.

After too long a silence he asked, "And what if your experiment shows that souls do not get transmitted to the dark matter?"

"Then it calls into question everything I was told," Ava said. "I was encapsulated by someone, Alan or a Brazilian agent, some other member of the crew, I don't know. It could still be an entity in the dark matter, it could be an entity in our own logic. I was being fed a presentation in that case, and we can't be sure of any of the things I learned."

Book IV.

Survival of the Species

9:21pm Fri. Apr. 13, 2384

Because the captain wanted her to keep an eye on Alan as much as possible, he didn't keep her long at his dinner party. It was still daylight when she got back to the home in the vale. Alan was still out in the garden, as he had been when she left, where he was for many hours when he was not on duty. Because he was here when she left and when she returned, she could think he had been in the field the whole time. After only one local week, she knew he probably wasn't, there wasn't that much to do.

She had to keep her mind on her mission to find out if he was hacking everything they were going thru. What if there really is nothing happening in the cold realms between the stars? What if it is all a hack introduced at this end? Last time she caught him using the nanoamp accounting traps. He certainly wouldn't be so careless as to let that happen again. Her only means of catching him would be to stay with him every hour he wasn't on duty.

While she passed thru the house, she brought up a few screens and checked to see if anything had changed. The main thing she was looking for was any evidence Alan had been in

her lab, and any evidence that Yellelle was anywhere on the ship. None of the traps she had left were tripped and she didn't want Alan to get suspicious of what she was doing in here. She had already made it plain she wasn't bound by the needs of stomach, bladder or bowel, so she couldn't say she was in the bathroom. That made her wonder if he had a back door in his bathroom, she would have to find a way to watch him in there. A hack this big would take a lot of maintenance, Thom was recording libraries of signals every day and running tons of processes on them looking for patterns. If Alan had set up any kind of loop, it would have shown up in milliseconds.

She met him on the front patio, embraced and let him take the produce inside. She was joining him for meals often. Since he was sentenced to it, she joined him just to be social, and found the tastes very interesting. She did not render the remainder of her personification's digestive system however.

She wanted to change the view of the sunset, it is not easily seen from here. Even with the ways she could avoid Alan's sentence, living in this was going to be more trying than she thought. If Alan wasn't under sentence, she would swing this vale around so the sun set down the length of it. Instead the sun rose down the length of it and set into the mountain it was cut into.

They had been out in public a couple times and she was finding it annoying that all the local cherubs asked her if she can sing and play yandrille like Alan's old girlfriend. She

really had to look into how Alan got all his cherubs to be so mouthy. That might be a clue to what he was up to and how he was doing it.

Her real plan for finding out what was going on with him was pillow talk. She wished she could take him back to her universe for the evening but while it was in legal limbo pending her appeal of the partition, she was better off staying away from it. Instead Alan came out with a cup of yaag and watched the line of sunlight gradually creep up the face of Nubedat as they relaxed in a wide hammock. She noticed too strong an attraction to the larorlie juice now that she was living here, she was drinking it every day.

Alan had not adjusted his personification much on her behalf. She wished he was less knobby, and she wished his language was more svelte at times. He'd made his beard a lot softer but not any shorter or neater and he still gave her more sex than she really wanted, but he was so sweet about it that she did it. Tonight she hoped to use that to her advantage.

Under the influence of yaag, the caresses and other body contact felt much more beautiful than without it. She was in danger of just losing herself in it and forgetting to lead the conversation in the direction she needed it to go. It was still warm enough to stay naked, and since this courtyard contained their shower, it would have to do for privacy. Even though she was living here, she was not under sentence and could adjust the need for a shower out of her life. She only did it for pleasure now, usually because Alan talked her into

it.

Something about yaag allowed nipples to be connected even more directly to the pleasure centers of her soul. She couldn't think of a thing to say that would get them started in the conversation she needed to have. He was getting a boner, he was probably going to want sex right here in this hammock. What he started to do with his other hand was going to make her need to have sex before she could clear her mind enough to ask him anything.

Instead she got deeper under the influence of the yaag. She became centered on the feel of her sex. She dwelt on the emptiness in there. She felt cool air circulating in the heat of that void. "You're making me insatiable," was the first thing she actually drawled.

"Ah, so it's working," he said, and probed her til she drew her legs up.

"What's working?" she asked, hoping he would admit to it anyway, even though she had no idea how to ask.

"My plan to make you insatiable," Alan said, but caught her clit and teased it, way too gently, so she flopped like a landed fish and tipped the hammock alarmingly.

"Stop that, get in," she hissed, "you're making me so hot you're embarrassing me."

He obliged, while saying, "I don't mean to embarrass you."

It didn't matter, the void was filled, she had something to work hers against, and she got lost in that and didn't say

anything for a time. Though Alan's personification looked like he would provide rougher sex than Thom, he did not. He was so gentle and comforting. She was used to having deep powerful climaxes now, but that didn't mean she no longer enjoyed them.

She lay next to him after. She cheated enough on his sentence to make the spent fluids disappear. "I worry about doing this so often," she admitted to him.

"Why?"

"I'll get too used to it, it will lose the magic."

"So what do you want to do?"

"Slow down to once a week."

"Once a week?" Alan jumped.

"Kassidorian week, don't get so excited, and you've got plenty of cherubs to play with for the rest of what you need."

"None of the good ones," he said. "Any that are any good are probably driven."

"None of that," Ava said, "some people know I'm here. Put your Chensa cherub or someone like that in the other bedroom, I really won't mind as long as she's not snotty around the house."

"Even she doesn't run that well any more."

"What?" Ava said. "She's a hundred percent standard as far as I know, she should run fine in here. Is there something with her you're not telling us."

"You know you could find anything I do."

"I can prove that I can't. If I am encapsulated..."

"I couldn't do that to you."

"But you know the proof that I can't know that as well as I do," Ava said.

"You can know that as a friend who loves you deeply," Alan said. "You can know that because I'm with you, I'm on your side."

"Enough to show me everything you have going on?"

"I have one terminal, that desk eye in the yandrille room."

"What have you got in your cherub's panels?"

"I've never hidden anything in them from you. Without Desa and Kuthra, they're all stock panels running nonvolatile. Why would you think I have something else?"

"Besides your history?"

"I wasn't sharing my life with you then, you didn't think I was even aboard."

"There is the fact that there may be a hack going on," Ava told him, watching how he reacted to that.

He bounced again, "What? I haven't seen anything."

"A good part of our collective perception may be fake."

"I hope it's the war that's fake," Alan said.

"If they had yaag on Earth, maybe it would be. It may be Thom's discoveries that are fake, but we can never tell, as you know, once we're encapsulated, we can't know."

"Assuming the one doing the encapsulating has perfect knowledge of the universe or universes he is simulating. That's the only way I was able to get away with what I did,

because it was only a redecoration of the data we had start to with."

"Remember Yellelle?" Ava asked.

Alan's face screwed up, "Yes, and I'm sorry, I didn't know if it was you diving that cherub or not. I still don't know who it was."

"She's been back," Ava said.

"I thought you set traps..."

"Too late," Ava said, "We didn't get her on a log until she came thru your door and Alfred logged her fake ID."

"How did she get in?" Alan asked.

Ava looked at him closely when she answered, "You be sure you remember you don't have clearance to hear this."

"I won't tell on you."

"If anyone else tells you, act surprised."

"OK, what?" Alan asked.

"I'm only telling you because I know you could dig it out if you tried."

"With you right here?"

"You can do it during duty hours under Heymon's nose and don't think I don't know it."

"So how did she get in?" Alan asked again.

"Either thru Thom's condensates or your universe."

She wished she could trust her judgment more, but she thought his eyes said Thom's condensates. What his lips said was, "And like you just said, you can prove that I could be lying when I say it certainly wasn't from here."

"I think I can also prove it could come from your universe without you knowing it. Like you just said, there are too many people animating cherubs in your universe lately. Now I think all the other ones are just someone in the crew, the only harm they can do is gossip. But I think that cherub or whatever that goes by the name Yellelle comes thru Thom's condensates into the ship."

"So now you think Thom's right, there's intelligence out there."

"It could also come from the bogie that's out there," Ava said, "but either way, Yellelle is its personification."

"The Pink Dawn doesn't have that instrumentation, or a fabricator to make it," Alan said. "It couldn't run the acceleration regime of a bussard either."

"I'm not allowed to say more on that," Ava said, "and this time I won't."

"With what you know, do you think it is more likely to be the bogie or the dark matter?"

"I pray it's the bogie," she said.

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If Yellelle had come in thru Thom's gear, Ava thought the her best chance to track her down would be to go out thru Thom's gear. She was quite apprehensive over what she might encounter, but the facts were she would almost

certainly never detect the entanglement at all. After deciding to be the guinea pig in the entanglement experiment, Ava's first order of business when she got back to her own lab was to schedule that backup. If there was any danger at all, and she was pretty sure there wasn't, she really should get that done. She was due anyway. Before she could get that started, Heymon called her. His greeting was, "I don't appreciate being accused of a cover-up."

"I defended your reasons, but I wasn't going to lie about what's going on in Thom's lab."

She wondered if Kelvin had taken this long to tell Heymon, or Heymon had waited this long to make this call. She knew it had burned Heymon when she moved in with Alan, even though they hadn't seen each other for months before she started seeing Alan. "From here it feels like I was stabbed in the back. You didn't even have the courtesy to let me know you had told him."

"You didn't let me know you were covering it up."

"So you don't talk to Thom at all any more?"

"He's got a Shark IV," she said.

"Yeah," he growled, "so I've heard. I'm sorry about that Ava, I really am." With very little pause he changed the subject back, "So why'd you rat me out?" he asked.

"I don't feel I ratted you out. I agreed with what you were saying, I just let the captain know what the unsubstantiated results were."

"He doesn't understand the science of it. He likes Thom

and knows he's sincere. To him, that makes him right. Now the captain is sure that there is something out there. He's going to believe we're fighting aliens before long."

"And what do you think?" Ava asked him.

"I think it's a hack," he said. "Probably by Alan, maybe by you."

"Me?" she choked. When they stopped seeing each other, she tried to make it gentle, and she had never told a soul and Heymon knew it. It was his devotion to enhanced cherubs that had driven her off, quietly. He had no reason to turn on her this way. "Why would you suspect me, why would I even want to do such a thing?" She was tempted to just take him out of the grant list for a few days and see what he wanted to accuse her of after that.

"Just for fun," he said.

"I'm already having more fun than I know what to do with," she said.

"That's nice to know. You like Alan's three-d reality better than mine?"

"I'm not sentenced to three-d reality, not in yours, not in his, no matter what universe I'm in. Your universe is fine. Have you held a grudge about that all this time? That's stupid, so I didn't want to drive cherubs? See Imogene, I bet she'd love to try out a few of them."

"This isn't about us," Heymon said.

"Then why'd you bring it up?"

He couldn't answer that, but said, "This is about letting

the captain go flying off because of Thom's faulty readings."

"You're sure they're faulty?"

"Quantum information can neither be created nor destroyed."

"Since we can't follow the math ourselves, we have to take that theorem on faith," Ava said.

"We will all die if the captain of this ship starts making decisions based on information that is contrary to the laws of physics."

"What if we really are wrong about the laws of physics?" Ava said. "No observational studies have been made."

"I thought they had?" Heymon said.

"When?"

He didn't know. "I'm not going to get distracted looking that up now, the topic is what you've done to our captain."

"Is he so frail he can't know the truth?"

"He doesn't understand. He doesn't know that everything could be false. Have you gotten any hints that Alan is doing this?"

"A moment ago you were accusing me."

"You're the only one besides Alan who could do it."

"You're forgetting we could be running under diagnostics in a tin shed in Scranton." She had spent the first years of the afterlife in a tin shed in Scranton, until she joined the Christial Church and the expedition of Gordon's Lamp. But she couldn't prove they were not still in that tin shed with the whole expedition to 61 Cygni and back synthesized and fed

in.

“‘If we are real,’ ‘if we are real,’ do we all have to preface everything with that?”

“We could be hacked by Brazilian Intelligence like the captain thinks. Curitiba is two centuries ahead of us in technology, they could certainly hack our electronics. Then there’s whatever this is in the dark matter, it could be hacking in and animating the Yellelle cherub.”

“How would it know enough about us to make up a natural-seeming cherub?”

“Television isn’t that old when it gets here, they can learn all they need from that. Just about every line Yellelle ever used has been in a TV show.”

“Have you noticed he’s not himself lately?” Heymon asked about the captain.

“Since he got that letter from his mother. He began to take the idea of something in the dark matter seriously when he got that.”

“We can’t let him think that.”

“I can control the system software, but I cannot control what’s in the minds that run in my system.”

“You shouldn’t have told him.”

“Do you think he’s that feeble?” Ava said.

“Yes I think he is. He’s a military man but he’s afraid to fight...”

“He was a quartermaster,” Ava said.

“It’s still more military than I had as a mortal.”

She knew about Heymon's mortal life, he had been a victim of racial hatred during the occupation. "He's doing the best he can," Ava said. "What he can't understand he'll have to take our advice on. He's usually pretty good at that."

"If you're going to do something like this again, at least talk to me. We all have to know what he knows. If we don't watch over him, I think he'll crack. That letter hurt him bad."

"He's talked it off for now," Ava said. "He thinks his mother was taken into the league and set up in the universe she believed in."

"It keeps him going," Heymon said, "but how long do you think he can hold on to that?"

When she finally got done talking to him, she noticed she hadn't put today's updates in and started doing that. Just as she was finishing that, Thom called her back to his lab.

"You wanted my personification present for something?"

"The entangled photons should be reaching the target very soon, then we will have another five minutes for any effect to propagate back here."

"Then I should probably jump back into the control room and make sure the latest updates completed OK," she said, not sitting down. She also remembered the backup she was going to do.

"Or have another meeting with your lawyer?" Thom asked.

He was probably mad because her lawyer had filed

enough motions to keep his tied up in court for a few days so she could come down here. "You were the one who started with the lawyers," she said and folded her arms in front of her. She would give him one minute, but then she would be out of time for that backup.

"I've decided I'm not content to have my old home back."

"I'll give you your lab, don't forget that, I never tried to get any claim on this space." She waved at all of it.

"Still, my old universe is hardly what a major should live in and you know I don't have time to learn scene generation."

"Heaven forbid you should..." She wound down when she noticed she was no longer in his lab and he was no longer with her.

Entanglement – Day One

Ava was suddenly in pastoral country, grassy with lots of grey rocks around. At first she thought it was Alan's universe, because there were animal carts and dirt roads. There were trellises around whitewashed stucco cabins. The vines were grape not larorlie, the animals were goats not karga and the cart coming her way was drawn by an ox, so it couldn't be Alan's world. There was the smell of the sea in the air and she thought she heard it right beyond the rocks. Men were wearing only clouts or kilts, the women wore wide skirts with

open shirts. Alan's universe had its own language but everyone understood it perfectly. The audio here was different also, but Ava understood none of it at all. It sounded almost like an Asian language in tempo, but more like Kassidorian in rhythm and tone.

She brought up a sysinfo screen to see what the hell was going on. It wouldn't come up. Her med panel wouldn't even come up. Nothing would come up. It was as if she had suddenly been sentenced to three-d reality. There were only two people who could have done this, Alan or Yellelle, whoever she was. She thought Yellelle was most likely, Ava had been with Alan for a week now and he had done nothing suspicious.

Assuming it was Yellelle who had done this, was she a Brazilian agent or something from the dark matter? The fact that they were fooling with it when the encapsulation happened made her think seriously about the dark matter. If she was a Brazilian agent, Ava could expect civilized treatment. If she was from the dark matter, all bets were off. Based on what she could see from here, she didn't think it was going to be highly civilized.

The marching men following the ox cart in her direction made her worry. They weren't bloody from battle but were young and fit with stylish kilts, polished figure-eight shields with artwork on them, plumed half-helmets of heavy tapestry and sheathed rapiers with ornate hilts at their belts. Their helmets bore badges over their foreheads with a symbol on it

like a distorted 'T' or maybe the head of one of the axes Alan's Knume cherub uses.

She couldn't even instantiate a phone here. Her first instinct was to get off this road and maybe out of whatever game was playing out here. There was a brushy embankment that went up to some rocks. She hiked up there. The man with the ox cart went by. He looked her over and called out something in the language used here. She had no idea what it really meant, but she felt it was probably the equivalent of a wolf whistle, even though her sundress was a little conservative by local standards, at least in the chest. Still, it showed a lot more leg than any woman here. The four soldiers did not go by her. They stopped when they were almost as close as the dirt track went, and the one who marched behind them called to her.

She spread her hands in bewilderment but there was no mistaking the arm signal for 'get down here'. That meant it was time to make a decision. From what she could tell so far, she was in three-d reality. She could bring up no panels, nor did she feel any super powers. If she was to try to run or fight, she would be relying on only what her personification could do on its nominal settings. She knew she would have no chance in a fight, and little chance if she fled. She had no idea what the land was like here, and these avatars or cherubs would know it well.

She kept her fight or flight instinct under control and began walking down the hill, ashamed of how she was

perspiring. All of the soldiers eyed her up and down, the three men in front elbowed each other. The angle of their eyes made her aware once again that she was showing a lot more leg than was normal in this society. The one in the back eyed her all the harder, she hoped she wasn't seeing a drop of drool run down his chin. Thru the whole minute it took her to get back down to the two-rut track that seemed to be the main road in this area, he bawled her out in that language that meant nothing to her. When she finally stood before him, he finally stopped and gave her a chance to reply.

“I have no idea what language you're speaking or what a single word of it means. If you know any English,” she said, “or any Kassidorian,” she switched to Kassidorian, “then I'll be happy to answer your questions.”

The main man spoke with the others, it was clear none of them had ever heard either of the audio encodings she had available. The man nearest her pointed at her left hand and said something to their leader. Their leader reached over and took her hand, firmly but not roughly. He looked at her wrist and gave an order. Some rope was produced and her hands were tied behind her. The troop then turned around and began to lead her back in the direction they had come. She went without resisting, they did not give her any choice but at least they did not mistreat her.

It was not far down the road to a little town or village. It was more or less all in one building, but she could see that there were several apartments. The outer houses were wood

and mud brick, but there were several of plastered stone and some second floors. Roofs were flat and there were wooden benches on some of them. The settlement was very small, they were immediately at the center of it. Their fields were all over the other side of the harbor and behind the beach. On the central plaza of the settlement she had to be careful of the animal dung.

She had never seen such a convincing replica of ancient Earth, complete with the smells and sounds of the livestock, the limited but vibrant palette of colors and an aroma that told her that the drain trap had not yet been invented. She noticed it was not all that accurate, there was no constant buzz of insects, she hadn't been bitten and she knew if she was really on Earth in an age like this she would have been swarmed by now. She would have seen rats in real life, so this was still a simulation, she had not been transported in time to reality itself in whatever era of Earth's history this was meant to represent.

She looked at other left hands and saw most people had bracelets with elliptical bangles hanging from them, on which there were tiny stylized carvings. It seemed that everyone was different. She was without one, and the Caribbean sundress she was in was definitely foreign, as were the only languages she had available here in this encapsulation.

The harbor was only a rough stone quay with a nice flag stone court in front of it. The buildings around the quay court were all whitewashed stucco over stone with wooden window

and door frames. She was lead into a room right on the harbor, across from one of three small boats.

By now Ava had noticed that all the fittings and blades to everything were bronze. Normally she wouldn't have cared, but that meant this was a simulation of something before the iron age. That meant this probably wasn't Greece or Rome or the pre-Columbian Caribbean. The people were all light skinned with dark hair, of medium height and many were not well groomed or dressed. These people only lived in Europe and the Middle East during the Bronze Age. The climate seemed too warm for northern Europe, but then she thought of the fact that this has to be a simulation, meaning it could be anything anyone wanted to imagine.

A man in a flashier uniform was inside the building, along with a woman in a very lavish skirt with bronze girdle and a very well-tailored open front bodice displaying an impressive pair of jugs. Ava noticed that she had bracelets resembling snakes wrapped around each wrist. They listened to the first soldier's story. The woman asked the other three something, and they all gave a one word answer. She should have written it down, it was probably the word for 'yes' in this language. She wondered if she was going to be expected to figure the language out on her own.

The older officer inspected her naked left wrist. He asked her some questions, or maybe he was asking her the same question in several other languages.

"I'm really sorry, I have no idea what you're asking," she

said in English, then repeated the same statement in Kassidorian. The officer shook his head, so did the woman. The woman said something to her with great sympathy, and then motioned her men to take Ava in the back.

In her whole life, she had never actually been thrown into a dungeon before. The closest she ever came in the past was when she was ten years old and some of the neighborhood punks locked her in one of the dusty old utility rooms in the parking garage they lived in. They were going to rape her but found they were still too young, though they did manage to get her clothes off. When her father came down to that room to hide out with his bottle, he found her still crying as she tried to get her clothes back together. He actually comforted her and they had a talk about what goes where in human genitalia. That was when he told her that she would probably have little choice of who she had sex with and when she had it. He taught her how to make the best of it. He cried the whole time, saying he wished he had a better life to give her, a life like people had when this parking garage was built. She looked at the mossy and eroding concrete and could scarcely imagine so ancient a time. She felt closer to her father for those few minutes than she ever had before or since. Then he sent her home and did his pint of whiskey.

This dungeon was rough stone rather than crumbling concrete, no plaster. There was a wooden pail, and a small wooden pallet, maybe six feet long and two feet wide, filled with straw. It was moldy and smelled of urine. The sergeant,

if that was what he was, said something to his men. They grabbed the moldy hay out of the box. By the time the sergeant was done untying her bindings, they returned with large handfuls of fresh straw.

“Thank you,” she said to each of them. They each said something in return, one of them patted her ass. Not slapped it, but patted like she was a good horse. It was SO hard to give him a smile after that, no doubt he could tell how forced it was.

Then they all left and the door was shut. It was thick hardwood, she heard a heavy bolt slide into place. There was one small crack between the stones letting in a little light. In spite of the fresh straw the place still stank and it was so hot she was sweaty. The pail was the facilities in this room, as she feared. There was no water. She could not see anything out between the crack between the stones, it was about three inches wide and twelve inches high and about seven and a half feet above the ground.

She had the choice of pacing, laying in the hay, or sitting on the rim of the pallet. She knew the time was soon coming when she would have to use that bucket, even that much magic was denied her. Her first pee since that garage in Reston was not going to be a pleasant one. Not that it was pleasant in Reston either. All the families that had planked in on that side of the garage shared what used to be the public facilities on that floor, and it was sheer monstrosities of recycled plumbing that kept it going.

She spent a lot of time reminiscing on mortal life, the last time she had been trapped in three-d reality. She remembered secretly following her father when he went out with the blow gun. The forest had grown back over the ruins that were once the suburban sea around Reston, except where a few yards remained clear and well armed families grew crops in the clearing, living in the circled hulks of old cars and trucks covered with tarps. Black bear prowled the area and she was afraid to get too far from her father, but afraid to get too close where he would see her. As soon as he got to his patch by the river, he found her and scared her to half to death when he turned the blow gun at her. He pretended he thought he didn't know it was her at first.

Being white, she had always been an outsider. There were very few others in their area, most having evacuated deeper into the Republican States or fled to Laurentia. She had often been subjected to open hostility, and had developed good foot speed and acrobatic ability on her way to and from school. The school had been run by a mission from Laurentia, but they were really run from the Netherlands using a Laurentian church group as a contractor. They kept only the best quarter of the students but Ava had always been first by a comfortable margin.

It was in that school that she attracted the attention of the man who gave her new life. The man was a villain from across the river in Laurentia and she was nothing but an experimental subject to him, but he had resurrected her in his

computer banks after she was killed, using the first cryo-atom-slicer in North America. She had managed to escape him into Angel space long before he was able to understand the full significance of what his labs had invented. Partially thru her efforts there were too many others able to produce the machines and he was unable to control the gates of heaven as he desired.

He was still a malevolent force in all of Laurentia south of the St. Lawrence, an ancient cyborg who had imported the first of the Brazilian pills at any cost. He was one of the richest and most powerful men on Earth, but he initially chose to make his residence in the hills near Scranton because it would never be suspected, and he had near total control of so large an area, thru the judges and their constables. The corruption in the southern provinces was one of the biggest problems facing Laurentia when she was mortal.

South of the Potomac, Dallas was still trying to consolidate it's position as the capital of the new Republican States, Denver, Atlanta and even Charlotte were claiming they were really the new capital because they had larger economies than Dallas.

None of it mattered any more. From what she knew, Hartford was the largest urban center in North America that had not been slagged by a meteor, Syracuse was next, then Scranton. All the modern cities in the west were gone, even those as small as Medford and Carson City. The Angels even slagged Washington, though there was nothing left there but

scavengers picking at the ruins. Reston was far enough away that most people there survived, but her parents were Angels already, having ascended when she was still accelerating on the way to 61 Cygni. No descendant of theirs survived in flesh.

While the décor of this dungeon might be more like Alan's home in the vale on Kassidor than her villa in the Caribbean, the atmosphere in the vale was more like the Caribbean than this dungeon. At least she had reading material there, and all her panels available. She wondered if it was being in three-d reality, or the specifics of that reality that made the sentence more or less harsh? Would her sentence seem as harsh if she was at the home in the vale without any magic?

She knew what Alan's toilet facilities were like in the vale and compared them to that pail. Those in the vale were superior to those in that parking garage when the parking garage was built. Not needing them was an equal step in the other direction. The view of the fields and the brook and the mountainside in Wescarp was better than these plain block walls. The vale, in its way, was as pretty as her lagoon. If she only had a view of the harbor, her med panel and some reading material, she would be OK to chill in this dungeon until whoever was running this game made their next move.

It was getting dim in the room when the door was opened again. She was given a big pitcher of water, a cup, a bowl of

calamari chowder with plenty of potatoes and what appeared to be leeks, and a clean piece of rag. It was the guy who patted her ass who brought it. When she thanked him this time, he put his hand on the side of her face and gazed into her eyes. He had green eyes and curly dark hair, a thin beard and firm, compact muscles. She found it wasn't hard to smile at him this time. "Too bad we can't sit at a little cafe and each have a bowl of this," she said, "it smells pretty good." While he looked spellbound by her unintelligible speech, she continued with, "What's the music like around here?" This time he gave her a sheepish smile and went back thru the door and bolted it once again.

In spite of everything, she got a good night's sleep and was ready the next morning for whatever this game would dish out. She was fed gruel for breakfast, but at least it had some bits of dates and fig in it. Then she was lead to a little boat with a single square sail on a single mast. They didn't tie her this time, the sergeant just held her arm, firmly but not painfully, and pushed or pulled her where they wanted her to go, trying to sound polite the whole time. The boat was so small that a dozen of them could have been carried on the deck of one of the sailing rafts on the rivers of Alan's world. It wasn't even as big as a life boat on an ancient steamship.

The swarthy man in a loincloth who seemed to be captain and crew of this bathtub must have been told that she knew none of their language. He tried to speak to her in sign

language. He spread his fingers in a fan, then folded his hands horizontally, laid his head on them and closed his eyes. Five days, is what he was trying to say. She guessed he was trying to tell her that they would be on the boat five days.

The good news was, they only sailed about a half day at a time, from island to island. The bad news was, islands in the distance went by twice as fast as those nearby. It was a totally disconcerting feature of whatever this game was. If this was a standard simulation and not a game, that was a very distressing artifact of the simulation. It seemed like things in the distance went by several times. She tried to imagine what kind of bug it would be in the rendering that would cause that. It would have to be in the geometry, probably something like forgetting to convert degrees to radians in the distant scene composer. Looking at it bothered her stomach. She was able to fight it, but she had to keep her eyes on the water, not the land.

By now she had come to the conclusion that she must be in a reproduction of the ancient Aegean, possibly in Roman times. The bad news was, without magic she had the alimentary canal to deal with, and she had to deal with it while bobbing in this boat that seemed no bigger than a bottle cap in the wide expanses of sea they crossed. She ate only in the afternoon and evening when they anchored at one small island or another. The troops always found them invited to supper and bed at the wealthiest farm in the area. She was familiar with the sea from her own home, but the boats she

used were much more stable and the lagoons of the Caribbean much calmer and her med panel was close at hand.

The farmers lived in small groups of stuccoed stone houses of several rooms each, with toilets that flushed with a bucket and little stone gutters that brought water from streams in the hills. Most had large and ornate pottery bowls for bathtubs and all heated their bath water by letting it sit in the sun in the open courtyard of their home. They always had goats or cattle, most had fields of wheat or rye and all had well-tended vegetable gardens. Many had grown daughters, and it seemed to Ava it was up to the daughter, with some strained advice from the father, whether or not the daughter would share her bed with one of the soldiers. All of this gave her more encouragement that this land wasn't as savage as it looked.

Entanglement – Day Five

On the fourth day of the voyage, they stayed at a cottage so lavish that it even had a guest room with an upholstered bed big enough for two. At dinner there were some heated discussions between the sergeant and the guy who patted her ass. The way they looked at her made her believe they were arguing over who was going to get the room with the double bed. The fact that she was meant to be the other person on

that bed became even more obvious. It was time for another decision.

In truth she was surprised she'd been given the choice to stay celibate this long. In her mortal life on Earth, her father's words had been truth and within a year of that incident, she had suffered her first rape. She couldn't get pregnant yet, but she could hurt for days, each time it happened. Even after two and a third centuries of consensual sex, she still didn't feel she had totally overcome those attacks. She didn't know if she could calmly submit to it happening again, but she had been beaten badly the time she tried to fight it, while she was still a child in Reston.

The food was wonderful, something with mussels, leeks and some kind of spinach in a sauce. There were breads in spiced olive oil. Thinking about what she would have to endure tonight almost made it impossible to enjoy it, but she knew she had to dutifully eat because she was so deeply entrapped in three-d reality that she would get ill without nutrients. She had never looked at how exact that simulation was, since no one ever used it. They ate for taste only and reset their nutritional requirements thru their med panel.

They had wine and they even let her have some. It was in a very nice pottery cup, painted with drawings of starfish. The wine was a schoolyard red, the oak it aged in was rough and there was quite a bit of sediment. Still, it was wine, the first sip of anything she'd had since some yaag at Alan's the night before she was encapsulated.

Their hosts were maybe in their fifties, there were three young men and two young women and three small children. It looked like the two daughters had husbands and the son was still single. He was probably no more than seventeen, but then so was one of the soldiers. Patass was probably twenty eight and the sergeant might be trying to deny forty. The oldest two kids went with the daughter who was almost thirty, the other child with the younger daughter of the house.

The home had three wings around a central courtyard, and in good weather, like this evening, the courtyard was the dining room. They sat at a fine cedar table on heavy trestle legs. They sat on ornate wooden chairs with sewn cushions. They weren't stingy with the wine and the soldiers would obviously take all that was offered. The younger daughter, who was probably over twenty one, was only too happy to get another amphora.

At this point Ava was ready to say 'keep pouring honey' and drink all they would give her. It would make what was to happen later a lot easier. The daughters had already had a couple cups, the patriarch was probably on his fourth and the sergeant had probably already lost count. Of course if they were all drunk, things were more likely to get ugly weren't they?

The daughters came over and visited with her, completely ignoring the fact that she understood not one word of what they were telling her. They told Ava all about their children, the times their dad had cheated on their mom, the times their

mom had cheated on their dad, how their brother was a real straight arrow who hadn't even gotten laid yet except by one of the goats, the brown one with the white spots. They were so stylish and suave at it that Ava forgot they were probably closer to the year zero than 19th century Paris.

Ava had lots of fun imagining the amusing stories that they were telling. She had the rhythm of the language right because she laughed at most of the appropriate times and nodded if either one looked at her. And she kept right up with them cup for cup. By now the stuff tasted as fine as Yago Sangria and she was having no problem getting it down. The old lady went for the third amphora and the old man stumbled off to bed.

It wasn't til people were yawning that the sergeant came up beside her and put his hand on her shoulder. His eyes went toward the side of the patio where the guest room lay. By this time she was certainly drunk enough to go without a fight, but four days at sea in the hot Aegean sun had left him ripe as a mackerel. She pointed toward the other corner of the courtyard where she had seen the bathtub.

He didn't know what she meant, so she got up to show him and noticed that there was nothing wrong with the potency of that wine or this game's rendering of it because the courtyard floor was swaying almost as bad as the deck of that boat. She lead him to the bathtub, which was a wide pottery jug one sat in, and hoped he knew what she meant. It was obvious his troops knew what she meant because they

burst into riotous laughter. He was mad, and she worried about the wine he'd had. The matriarch said something firmly. The sergeant forced a chuckle, then took her chin in his hand and grimaced. She knew he used only a fraction of his strength, but he still gripped her pretty hard. She was very conscious of the fact that a thirty two inch, razor sharp, bronze rapier was still on his belt. Then he dropped his hand and turned away.

Mr. pat-ass walked out toward her. He was a slightly smaller guy than the sergeant, at least ten years younger, probably younger than she was in appearance. His stroll toward her was accompanied by a chorus of hoots and howls from all present, lead by the other two soldiers and the boat captain. The sergeant kept out of it, went back to his table beside the matriarch and the single son and picked up his goblet with a glance at the woman of the house.

Mr. Pat-ass, Patass for short, came up to the bathtub, removed his sandals, tunic and crotch-wrap, and sat in the tub with his arms folded. He politely issued some command. The crowd laughed again, not quite as hard as when she showed the sergeant to the tub. She stared at his naked body before her, he was quite well done and had obviously removed all his clothing while the sun was shining fairly often. There were no tanning creams here.

He indicated for her to come on. She wondered if he meant get on him in the tub. She would do what she meant with this tub, and began to fill it. There were black jugs of

water left out in the sun to heat. She used those, but they were incredibly heavy. He sat there thru it, so he must have understood that she meant she would do it only if he washed. Frankly, she was surprised they were giving her this much choice. She wondered if she could have just said no. She realized she didn't want to, that she was anticipating sex and would now be disappointed without it. In truth he was an attractive guy and a week and a half with Alan had given her a habit.

Once she filled the tub, he still sat there motionless. She tried to hand him the soap, but he sat there with his arms folded, said something that the others echoed. She wondered if she had fallen into some cultural trap like maybe if she asked him to bathe, it was her duty to bathe him.

She set to work doing that, to his delight and to the delight of the others. The soldiers catcalled, the children squealed and the young adults applauded. She really felt like she was picking up cultural cues better than she did in Alan's world at first in spite of not knowing the language. That reinforced a notion she'd often had, that humans only invented language for deception.

She had to get pretty intimate with him to get him as clean as she wanted. She noticed the word 'wooo' drawn out meant the same in this language as it did in English. The crowd couldn't actually see him as she washed him. The soap was much nicer than she expected, quite sudsy and with the scent of saffron. He got really turned on by her attention to the

social parts and she decided she was not going to resist.

Of course all the time she was bathing him, and all the time he bathed her after that, the wine kept coming, delivered by one of the children to the laughter of the adults, especially when Ava tried to hide herself from the little boy by hiding under the suds. She could tell the guys in his detachment were razzing him unmercifully. Then he would shout something and cup her breast and the others would blush. Oh they couldn't actually see it, since she was now sitting in the tub, but they could see what he was doing.

She had, by far, the smallest breasts of any woman in the room. She figured the open-fronted blouse was in style here because it saved so much cloth. They were really into bright lipstick and some were into dark eye shadow, but the prettiest were not, none of the girls here used it, but they all used lipstick, even the old lady. She had the most elaborate hairdo, of two dozen double banded pony tails on hair that was still thick and black.

To what was obviously a bawdy drinking song, Patass lead her off to the spare room, and she had to be lead because when she got out of that tub she found that she had no legs. She felt like she was still on the boat, which was so small it rocked when anyone moved around, but more so when she did. Tonight these flagstones on solid ground were less steady than that.

They went thru the whole seduction routine, he kissed her all over, he caressed her favorite places like the cherubs in

Kassidor Yakhan. She hadn't used any of those cherubs since Thom started playing the Herndon personification in that game, but she remembered them now. She wished she was sober enough to appreciate the loving this soldier gave her that evening because he was very romantic and sensual. As it was, she was so intoxicated that she just went along and tried to participate in the encounter as much as she could.

She was so drunk she wouldn't have even stayed upright on top of him if he wasn't holding her by the breasts. She was trying to move, he was thrusting up into her, if it wasn't for that action, she probably would have blacked out already. She should have known that all this motion and all this crude wine wouldn't work, but she was in no condition to be that analytical. She never had a serious amount of alcohol without her med panel before, so she didn't know she was going to get sick until it was on the way up. She really didn't want to do this to him, this sex was entirely consensual, hell, she needed it after the habit Alan had given her. This soldier was a pretty good looking guy and quite a pleasant lay now that he'd been washed, she knew she was too blotto to enjoy it, but she wanted it to be fun for him. So much for that attempt at altruism.

The screaming, the yelling, getting her face dangled by the hair over a bronze-age toilet, was all a blur, and that was probably a good thing. The razzing went thru the whole house, including the little kids running circles around her, chanting something that was no doubt derogatory and

probably obscene, while the rest of the household laughed. She did her best to forget all that.

Entanglement – Day Six

When the light hit her full in the face, she hurt bad. They were on that bottle cap again, bobbing in the Aegean with that disconcerting horizon going by. They spent the whole day sailing eastward along the northern shore of some landmass where they spent the night.

She had no clue what was going on in today's conversation, for all he knew Patass was describing every position they'd used, how she was at it, how overcome she was by his romance and the way she flopped like a carp during her first orgasm. She couldn't remember how many there were, but she worried that he was describing them all.

She grinned sheepishly when they looked at her. The captain sat at the tiller most of the time. Whichever soldier was nearest the rope that needed hauling got that duty. The sergeant sat in front of the tiller, back against the mast, and gabbed with the captain most of the day. He sent a few dismissive gestures her way, like she was too inconsequential to worry about the insult with the bath. He muttered a lot, but he might as well have shouted it for all she would ever understand.

She spent the day, like all the other days at sea, sitting in front of the mast with her back against it. Patass was in the bow, the other two were at opposite rails, just ahead of her in the little bathtub they were sailing. The canal gliders in Kassidor Yakhan were closer to the casino ships she saw on media as a mortal than this boat. The average fisherman cherub in Alan's universe had more boat than this. It was just about the size of the chop out here. Out on the sea, she saw the islands going by faster, the farther in the distance they are. She shouldn't have looked at that, it really spun her stomach this morning. At least she made it to the rail this time before she heaved.

They all laughed again, even Patass, but he smiled and caressed her shoulder when he did. He wet a cloth and wiped her down. She heard some of the same lines she heard when he was bathing her and she was finishing up her construction of this hangover. She hung her head and started to crawl back to her position by the mast, but Patass' arm went around her waist and drew her up to sit on his lap. She got on it, somewhat more steady than she was the night before, and acted out throwing up on him again.

He shouted and thru her up in the air. She almost went overboard, over the soldier sitting next to him. She had to land on him to prevent it. Her head did not want this to happen, reminding her once again that she'd never drank without her med panel before. She was way too young to have tried alcohol when she died, never tried it til she had a

med panel. She could not understand how anyone would ever touch another drop of it again, but then realized that those who don't go to Alan's universe don't have a choice. She'd seen no hint of yaag in this universe. Like a mortal, she would have to set limits on the amount of alcohol she consumed as long as she was in this universe without a med panel.

She avoided more heaves and struggled to get up off the soldier she'd landed on, who also struggled to help her up by the chest. With apologies in English and Kassidorian she crawled back to her seat on the boat. Everyone was laughing heartily except Patass who was shaking his finger at her.

If this was a universe on Gordon's Lamp, she didn't know of it, and that was very unlikely. If it was in the Gordon's Lamp system she would probably come here again, once she had her magic rights. It was a lot like Colonel Rendellyn's ancient Egyptian universe. She wondered if that was big enough that this could be in a corner of it? He enforced 'God's reality' on all visitors in his universe, but at least he allowed med panels and sysinfo, and a ^C should still work to get her out of it. It didn't here. She could imagine Bishop Rendellyn wanting to do this to her, but she knew he would have tried to encapsulate her via prayer, and had to have acolytes actually maintain the user settings for his universe.

She had seen irrefutable proof that prayer can change the odds of an outcome, but had never seen proof that prayer can change the laws of physics and bring about an impossible

outcome. Taking control of the Gordon's Lamp system via prayer was an impossible outcome. Destroying it with a snowflake was possible via prayer, because it is a possible outcome. She doubted Jason was so extreme that he would martyr himself and the ship to punish her for drunkenness.

Entanglement – Day Seven

When her ordeal by sea was done, they docked at a much larger village/building than she had seen so far. She spent the night in another police station, again with fresh straw and decent food. Her guard talked with her almost an hour but did not try to force her and did not try to seduce her either. She remembered the letter from the captain's mom, just like it was in life only perfect. If that was where she was, it could be worse but she wasn't going to call it perfect, even if there were no bugs in the straw.

The next day, she was lead to a stables and lead to believe they had one more day to travel into the interior of this island or continent, whichever it was. It was big enough to be a continent, from what she had seen from that tiny boat. To add to the annoyance, the only means of travel were to hike, or ride on the back of a donkey. As she rode out of the coastal village on the back of the sturdy little animal, she thought of Gordon's Lamp. By now the expedition could well be in a

shambles. The captain had probably had a meeting going since he first found out she was gone. He probably court-martialed Thom and maybe Darryl besides. The only other person aboard that she would trust installing fresh silicon was Alan, and neither the captain nor Glayet would allow him to do so. It would be noticeable if they went much longer without maintenance.

It was possible that was the only way she would get out of here. If it was Alan who was doing this, he would know to keep the silicon updated, whether Glayet and the captain thought they were letting him or not. He might do that even if this wasn't his hack, just for his own survival. He might not let anyone know he was doing it. If this wasn't his hack, and the crew was successful at keeping Alan out of her lab, whoever was doing this was going to need her to keep them going. In a few more days they would start to notice things getting flaky, a few more days after that they would understand they were going to have to let her out or hope someone would run their last backup.

Then she had a troubling thought. For the good of the mission the captain could ask Saint O'Connor to resurrect her last backup. Once things started getting glitchy, Arthur would certainly permit it. Any number of the crew had enough systems smarts to launch a backup once they had the approval. If that was to happen, and she was to find a way out of here, it was the reunification all over again. She would have to fight her own backup for the right to this life, and that

was an even better copy of her than the avatar was.

After only a couple hours they reached a very large single-building town. It reminded her of the palace of Knossos excavated by Evans, but was somewhat larger than Reston as she remembered it from her youth, and the colors were somewhat more tasteful than the pictures she remembered. There were structures up to five floors, and it looked like it covered at least a half mile square area. Unlike Reston, it was colorful and in good repair, not gaunt, rusted steel skeletons and crumbly, graffiti-covered concrete covered with moss, kudzu and choke-cherry. This was gaudily painted wood and stucco, set in the middle of wide fields, at least a mile across. They were dotted with outcroppings over which goats scampered and cattle grazed. In the distance there were wide fields of row crops, grain fields and orchards before the town/structure itself. Dramatic mountains rose beyond it, many more miles in the distance.

In every particular it was as if this was still the Bronze Age, and she might as well allow herself to imagine she had been transported back in time to the real Minoan civilization, but she knew little enough about it that she could very well be fooled. Their dress was very much as she had seen in the popular press, the architecture and the lay of the land were as she had seen, but the thousands and thousands of mud brick and rough timber structures around the palace were never shown on any reproduction she had seen. The similarities

with Alan's world were also apparent and she wondered once again if this was all his doing. She would keep that in mind, but for now she seemed to have no choice but play the role she was cast in.

There was nearly a quarter mile of structure before they got to the temple/palace itself. Some of the buildings they passed were substantial with plastered stone walls, paved courts and beautiful murals on their walls. The atmosphere was refined, even among the poorer houses, often only three rooms with open fires for a kitchen. Even the plainest clothing was well made and colorful. Children were clean, happy and healthy, but loud. Mothers were indulgent and loitered in groups nearby, chatting and laughing and flirting with the men working nearby. Stone-built shops held goods of every kind, the noise told her there were few fixed prices. Her nose told her their drains still didn't have traps, but they weren't open ditches either. What little she knew about this time was that it was farther back in time than Greece or Rome, but the level of comfort seemed at least as good, and probably far better among the poor. On the other hand, she had to remind herself that this is still a simulation.

The merchant stalls were thickest on the wide pavements that surrounded the walls of the palace. They approached a small gate from the north. Instead of taking the broad steps up to the main floor, they approached a smaller door to the side where a single military man leaned against the wall looking

bored. With a few words exchanged with the sleepy young guard, her donkey was lead thru the gate and into the main structure. The walls were stone and stucco, the gates were heavy carved wood, asymmetrical in design, and it looked like they could not be shut if they had to. Inside was a rabbit's warren of small passages and alleys. Colors were heavy and there was ornamentation everywhere. Cut stone was polished, ceramic oil lamps lit the inner reaches, but many rooms were lit with light wells.

She was led down an alley just wide enough for the donkeys where she had to pull in her feet. She hadn't been tied since the first day, but there were men in front and behind. Still, she was in much better hands than the constables in Reston or any of the gangs. She was glad that early in her afterlife she had given herself horses and learned to ride, she would have been in quite a lot of pain otherwise. This alley sloped steeply down and turned, so that soon they were in a basement stables. Other donkeys started braying and the racket was deafening in these close quarters. She was glad there was plenty of straw around to absorb the sound.

They had seven donkey's in their caravan, two were laden with their baggage. After dismounting, she was taken up a narrow spiral stair for about five floors, then pulled into a hallway. It was quite narrow also and there were a lot of people going the other way, the girls often in those open front blouses. She was still the flattest young woman she had seen. They had to turn sideways against the wall to let them pass.

The soldiers made comments that made the girls giggle as they worked their hooters by them. At times they crossed open galleries, once over a courtyard where a troupe of nearly naked dancers practiced some synchronized twirls and prances.

She heard plenty of the language and had time to wonder how she was going to learn it. She was starting to guess at some of the words. She figured learning language was pretty much a subconscious process in children, it would probably be like that with her. It wouldn't hurt to be conscious of what she could, but she couldn't let it overwhelm her. She was pretty confident that she would be given food and water and a place to sleep until she learned the language. She was still afraid she might be mistreated and raped, and she wasn't sure she could get herself ready in time if it came to that, especially since she wasn't going to drink like that again, at least not til she could recover her med panel.

They stopped at a small cubicle with a half-door. Their sergeant conferred furtively with a girl within. She soon left the room, and a few minutes later an older woman returned to that room and came to the half door. She still had long thick hair, well cared for, and her blouse was not open, but it was very low and her cleavage was still impressive. Her skirt was the most elaborate she had seen yet. She looked too old to be carrying all the jewelry she had on her, objects of astounding craftsmanship. She had the most elaborate bangle hanging from her left wrist, which also bore a thick bracelet with

stylized bull's horns that went up her right forearm. Her long and thick grey hair was tied in multiple tails with jeweled bands. She had at least eight necklaces, all of them gold, some with additional beads of precious stones. Her demeanor was serene with a hint of mistrust, but she smiled pleasantly.

The sergeant told her a long, tall tale which involved pointing to Ava with finger or chin every few sentences. Through it all the old woman solemnly shook her head. The sergeant held up her hand with no bracelet on it. The old woman sighed and took Ava's hand, gently. She gently asked her something in five or six languages.

Ava wished she had access to her whole language bank, there were at least four hundred in there, but that was back on Gordon's Lamp. If this was ancient Knossos, one of the few facts she knew was that the Minoan language was unknown and its script had never been deciphered. "I only know English," she said in English, "and Kassidorian," she said in Kassidorian.

Her head drew back and he made a motion for her to continue speaking.

She continued in Kassidorian since that was selected and she still worried that Alan might somehow be involved in this, "I'm Ava Bancour, Systems Administrator for the Pan Solar League starship Gordon's Lamp." The old woman was listening, first with one ear, then the other. Her eyes gazed deep into the sky. "I seem to have become trapped in an event horizon while I was running from the alternate veron store

that was entangled with one of the dark bodies in the space we are passing thru.” As she said that she realized that even if this person spoke Kassidorian fluently, she would have a hard time understanding any of that if she was really immersed in this ancient society. “I have no way of telling if I am in a simulated universe transmitted from the dark bodies, or if I am in an event horizon imposed by someone in the crew of Gordon’s Lamp.”

The old woman sadly shook her head. The sergeant argued and there was a long discussion, sometimes a bit testy, with both of them pointing at Ava, he at her left wrist, she at the sundress. Ava began to understand that the soldier was trying to get the old woman to agree to take Ava off his hands. Finally he used a gesture that left no doubt in Ava’s mind as to what he and his men would use Ava for if the palace didn’t take her. The old woman sighed again, and acquiesced to the soldier’s demands. The old woman gently took Ava’s hand and the troops left. She shook her head and tut-tutted, then lead Ava away.

At this point Ava knew she could break away easily, but where would she go? What would she do? She was stuck in a universe where she didn’t know the language and didn’t have an ID, which is what those bangles must be. She had been delivered far over the sea to this enormous structure, city or whatever it was. If she was lucky she had been turned in to a convent before she was raped in the outside world. If this was a faithful reproduction of the bronze age, she was probably

very fortunate that she had been treated as well as she had. If this was real life made perfect, and she was in a bronze age heaven, the letter from the captain's mother was probably real. The soldiers could have all used her every night and there was nothing she could have done about it. Instead they had put a sail across the stern so she could bathe, use the rail and wash out her underwear in privacy.

She allowed herself to believe this woman meant her no harm and that she would be given some menial job in the palace convent or whatever it was until she learned the language and began to teach them about such things as motors and electronics. She was lead back to the hallway. She could hear the thick sandals of the troops on the floor below already. The woman looked both ways on the hallway and then lead her down another narrow flight of stairs. On the second or third floor they traversed another long hallway, much wider than the other with fewer zigs and zags. Wide and ornate stairways lead down to great halls on the main floor. Windows and light wells brought light to the deepest recesses and highlighted the grandest artworks and architectural details. The ornamentation and artwork were breathtaking, the detailing much more refined than the reproductions made for tourists in the 20th century. If this was a faithful reproduction of the era, the splendor was beyond anything she knew of til Imperial Russia.

She noticed some porters in these hallways spoke another language that sounded like ancient Egyptian. They were

shorter and even darker than the people here. These people still weren't tall, none of the women were as tall as Ava, in fact few of the men were. They all had thick dark hair, most looked pretty fit. Old people were spry and leathery, but few were lame or toothless. Of course, she had to keep reminding herself, this was heaven, not the real Minoan nation.

They took a wide stairway up a flight where the old woman was greeted by three younger women who were puzzling over a decorated board with some piles of nested chips on it. They started to get up but the older woman motioned them to be at ease. There was a discussion of Ava and the three women looked at her wide eyed and shook their heads.

It was up another narrow stairway to their destination. They were five floors up in quarters built from timbers fastened with driven pegs. There were three cubicles and a bathroom at the end of a short hallway. Other groups of similar rooms branched from the hallway all the way back to the stairs. The timbers and tiles of the roof were right above her. It looked like this space had been in use for a century already. The decor was somewhat plainer up here and the painting around the tops of the walls was obviously a stencil and rather quickly done. Still, it was closer in comfort to her villa in the Caribbean than the abandoned parking garage where she was mortal.

The woman lead Ava into one of the cubicles. There was a pretty nice bed in it, she showed Ava a chest of clothing,

which had some of those flounced skirts, plain but colorful skirts and open-fronted blouses in it, several long strips of soft cloth, a bronze hand mirror and an oil lamp. There was a small box with cute little ceramic vials of cosmetics and ointments. The old woman made motions that this cubicle was hers. Ava nodded and thanked her. She nodded and smiled. A bit of information had been transmitted between them.

She took Ava to the bathroom and showed her which was her wash rag, tooth pick and soap. There was only one wash basin and it was pottery, but there was a tiled shelf near it. The water spigot was a colorful little dolphin with a cork in his mouth. She showed her the toilet jug. There was a cover that kept the smell in.

Then, back in the landing where these cubicles were, she gave Ava a long and gentle speech. Ava tried to pay close attention, she hoped she'd get something out of it, but most dogs in her old neighborhood (and most of them were feral) understood more of the average human conversation than she did of this. With that complete, she bid farewell and disappeared down the stairs.

Ava had to accept the fact that she was going to be lost until she understood the language. She had to be encouraged. Wherever she was, it didn't seem like she was being punished. She wasn't sure because she wasn't a history major, but to her this seemed to be a reasonably accurate virtual

recreation of the ancient Minoan civilization. She knew many believed that the Minoan civilization was the source of the Atlantis legend. She wondered how accurate this reproduction really was? It didn't really matter, it could be exact and if she ever got back she would be the expedition's foremost authority on it, or it could be all fiction but the basic outline.

However accurate it was, it indicated that Yellelle was deeply involved in this, if not at the heart of it. That probably meant that she was somewhere in Yellelle's universe right now. She probably had alarms, and more than likely Yellelle already knew she was here. She had to accept the possibility that she really was from the dark matter and already had her encapsulated. In that case Ava was in a fish bowl performing for Yellelle. She had to perform with dignity. She was grateful that she hadn't actually been hurt yet, Heavenly Talstan used tortures no mortal could live thru in their interrogations. Oh her wrists were a little chafed from the rope, the first day, but it wasn't very painful.

There was a window in her cubicle. She could prop it open and see a tangle of roofs and rooftop courts below. She could not see to the end of the building, town, palace or temple in any direction. It was accepted that these structures were all of those wasn't it? It had more the atmosphere of an avant-garde dance school from what she had seen so far. There were flutes and hand drums, singing with melody and harmony. It was hokier than hillbilly but it was closer to music than she would expect from this era.

Late in the day two other women came into this group of cubicles, in the company of the same old woman. By now Ava guessed that she must be the Mother Superior of this convent or whatever it was. She gave them a long speech and they looked Ava over. Ava looked them over. They were both rather voluptuous with pouty lips and long lashes over their dark eyes and thick, wavy, shiny, black hair. They had the local uniform on, but one of the girls removed the heavy flounced skirt as the old woman talked and tossed it into her cubicle. She had a long cloth wrapped around her for underwear which she did not take off. Ava now knew what the ones in her clothing box were for.

Mother Superior eyed the one who tossed her skirt and pressed her lips, but went on with her lecture. The girls were given to understand that she did not speak their language. They introduced themselves in sign language. Imada was a little taller and slimmer than Ietana, but Ietana had the breasts to die for. Even though Ava (used to) have enough control of her personification rendering software to give herself those jugs, she couldn't see herself with them. They looked like they belonged on Ietana. Imada was a statuesque beauty, voluptuous even on Kassidor and nearly as firm as Yellelle. Her hair was heavy and layered, quite clean, even by 22nd century mortal standards. She was the one who had shed her skirt.

Once Mother Superior left, they both took everything off,

washed themselves, and stood in the open to dry. They named the parts of the body and the articles of clothing.

They were curious about hers and asked the name of it. “Sundress,” she replied.

That didn’t help them a lot, but they understood that she had understood what they were asking. They wanted to look at it more closely, and motioned for her to take it off. She was wary, but she did. Compared to them she was as shapely as the average young tree trunk, perched up on long saplings, with long scrawny arms and insect bites for tits. They hardly even looked at her except to note her underwear and talk about that as they had about the dress. They inspected the dress carefully, inspected the stitching in detail.

Imada looked and pointed at Ava, made the motion of sewing with a needle and thread. Ava didn’t guess the sign at first, but then remembered a historical documentary that showed how clothing was made in ancient times using a process called ‘hand sewing.’ That was the motion Imada was making.

Ava pointed at herself and shook her head. They tried to ask a more complex question, showed her the stitching in her sundress, showed her the stitching in one of their skirts. It was very, very good, if it had been done with a needle and thread. It looked like the seamstress had counted threads for each stitch. She wished she could talk about it.

Of course, this all meant that these souls, if they were souls, did not know they were in a simulation. They didn’t

know it was all about what parameters were fed to the model builder. They probably didn't know that the pieces of clothing they were holding up were software objects, three-d models in particular, and provided methods for determining which surfaces were visible from any vantage point, and what color photons they would reflect toward the viewpoint.

She wondered if the personifications she was interacting with were souls or cherubs. If she was in some simulation running on superconducting quantum processors in the condensates of the dark matter, were there cherubs, or was the soul of every human who had ever died copied here as the captain's mother had implied? If so she was in deeper waters than her Avatar had been when she faced Alan's wizards on Biology Base. Had these girls been mortal once, on Earth, in Minoan times? Did they believe, like the captain's mother, that they were in the heaven that was promised all along? What were they promised, if they lived fifteen hundred years before Jesus was born? All ancient religions had some residence for the dead, for the classical Greeks it was Hades, the underworld. She had no idea what it was for the Minoans, she didn't think anyone did. These souls, or whatever they were, seemed to take their presence in this heaven in stride.

No one acted like a cherub, least of all these girls who were now looking past the careful examination of the sundress and toward her underwear. They certainly didn't act like cherubs. She had assumed everyone in this universe was a soul right from the beginning. She had encountered enough

people since her encapsulation that there weren't enough people in the crew of Gordon's Lamp to drive them all. They were getting seriously close to the crew of Curitiba, tossing aside the fact that the crew of the Curitiba were mortal humans.

Of course she never interacted with more than a few people at a time. It could be only eight or ten of the crew, driving many different cherubs, that were providing the society around her. But she didn't seriously entertain that notion, she would recognize one of any group of eight or ten on the crew with the power to pull this off, even if Alan was providing the code behind it.

Entanglement – Day Fourteen

By now she knew enough of the language to ask Imada and Ietana if they were done with the bathroom. Her task at this convent or dance school or whatever it was, was to learn some relatively simple choreography for some kind of ceremony. There was no en point, there was no tumbling, quite a lot of twirls carried by these heavy skirts and graceful expressive arm and body movements almost close to mime.

The bad news, she had to wear one of those open-front blouses. She wished she had at least enough of her med panel to put something on her chest that wouldn't make the

audience point and laugh. There were only two girls smaller than her in this training class and they are probably thirteen and fourteen. They were big for their ages, but very young none-the-less. Imada and Ietana were probably going on twenty, maybe even twenty one. They drank like they weren't twenty one yet. The girls on this floor snuck an amphora or two up here more than once a week.

The whole class lived in the cubicles way up here under the roof tiles along this hallway. Most were teen aged, late high school, early college. They were like college girls anywhere, lots of shrieking, razzing, goofing around. They were emotional, excitable and lively. They all got their periods during the second week and were moodier than the first.

Ietana and Imada were breezing thru the training and helping her keep up. They taught her the words she needed to know to understand the teacher. She couldn't order a meal yet, but she knew how to describe the techniques for various poses and moves. She knew how to show off her body to it's best advantage, in all the different outfits they had. One outfit that they had to perform in was a very skimpy little loincloth that didn't really cover anything during some of the moves. If it wasn't for the years she played in Alan's Kassidor Yakhan where everyone was always completely nude on the beaches, she probably wouldn't have been able to do this without mental trauma. She was glad she came into here with her hair.

She wasn't equipped with enough of the language to pick

up much from the class that seemed to be about mastering various sexual techniques. There was only one male and by the time he was done demonstrating those acts with their instructor, he had little left to use for personal instruction. Ava was glad of that, she was pretty scared by what that class implied. Most of the girls seemed to be saying they were familiar with most of these moves and there was a lot of easy laughter and teasing but no tense squealing. Even without knowing the language or getting any personal instruction, Ava learned quite a lot, some of which she wished she hadn't.

That evening she tried to ask if sex was part of the ceremony, but in spite of their desire to help her and to understand, it was still too abstract a concept to get across. They all went to bed frustrated.

That was just yesterday. Today she came back from 'dance class' to find Imada and Ietana in an uproar and Ietana cleaning out her cubicle. Imada seemed to be trying to stop her, or convince her to stop. She seemed to want Ietana to go somewhere with her. Ietana resignedly told her something while she dejectedly gathered her things and put them in a heavy woolen bag. Imada was taken aback and looked at Ava with a glance that was easily the least friendly she had ever seen from her. She let go of Ava's eyes and came barking right back at Ietana, then stopped and asked for confirmation.

Ietana just nodded and went to gathering her belongings again. She had less clutter than even an Angel of today, much less a mortal. Ava heard footsteps coming down the hall.

Ietana hushed Imada, who was droning on in her diatribe. Yellelle walked into the room, confirming most of Ava's suspicions at once. Well, Ava had to admit it was still possible that Alan had them all in here and was driving the Yellelle cherub, but she had been preparing herself for this, she actually wondered why it had taken so long for Yellelle to meet her face to face. Ava found that she was ready for it, she jumped up and began to shout, "So it is you!"

Meanwhile Imada began to shout "Desetule Bupu!" at Yellelle, almost in a chant.

Yellelle held up a finger to Ava and then exchanged quite a few sentences with the girls, the first few quite heated. Even Ietana came out of her lethargy to snap a few zingers in there. She could tell Yellelle was glad Ava couldn't understand the language, other than the derogatory term for female genitals and similar simple terms Ava had already learned. Yellelle kept holding up the index finger to Ava while going back and forth with the locals until they calmed down. Eventually Imada stomped back to her cubicle and Ietana finished packing, resigned once again.

Finally Yellelle put her finger down and turned to Ava. "They resent the fact that I was switched into here because I know your language," Yellelle told Ava.

"This is really Alan's language that we are speaking but what are you doing to me?" she pleaded, "At least let me have my med panel, I never tried to deny you that."

"There are no med panels here."

“You’re not proposing time travel and that we have been beamed into bodies in ancient Atlantis?”

“No, you’re in a part of the heaven on the condensate substrate that is populated with people who’ve kept to the ways of ancient Atlantis, specifically the state temple of Knossos in the echo corresponding to what you call 1648bc. It’s four thousand years from where I’m living today and it took me two weeks to get here because motor vehicles couldn’t even take me the first four hundred.”

“You *are* going to tell me what’s going on?” Ava demanded.

“I’ll do my best, but we’re still not sure why your teleportation beam popped you all the way back here, I’m guessing you weren’t aiming for the echo in 1648bc.”

“MY teleportation beam, is that what you say happened to me?”

“Our observatory saw the beam come from your hurtling asteroids, starship I guess you called it. It's not visible to the naked eye.”

"Teleportation beam?" Ava said.

"Yep, you know, just simple paired photons, that’s all it takes if you have energy available. They saw you use it." Two guys came up with a small wooden trunk. Yellelle directed them into the cubicle that Ietana was just vacating. She said something to them in the language here, what Ava assumed was ancient Minoan. Ietana came and hugged Ava, said ‘sorry,’ ‘friend,’ ‘success’ and a few hundred words Ava

didn't know and was off down the hall to a cubicle near the stairs. The welcome down there was cordial and a bit rowdy, Ietana would now be the oldest person in that room.

Ietana was gone and Ava tried to process that emotional toll. Though she still didn't speak the language, for a week already, they had been friends. She had to try to get out of the play and back to the system. Yellelle was here, the remainder is decoration provided by the scene generator. Ava must have been transmitted by the tangler beam in some way, though there wasn't the bandwidth in that photon stream to transmit even the signals to drive a cherub and the beam was only on for a hundred milliseconds.

"So your virtual universe is in that body we just happened to be going by?" she asked Yellelle.

"We're distributed, it is believed we have no more than one neuron in each celestial body, but it's difficult to get hard data."

She wanted to get to the point. "Are you going to let me out?"

She spread her hands, "Ava, you broke in on us, I was in the middle of making dinner when we got the call from the observatory."

"I wasn't trying to break in on you."

"Then why did you shine that teleportation beam at us?" Yellelle asked so innocently.

"We turned it on an inert black body in the depths of interstellar space."

"Pppp, you know you don't believe that 'inert black body' shit any more than I do, you know we're here, you caught me when I came in."

"So don't complain about me," Ava said. "And I didn't know you weren't from Curitiba."

"Your allied nation destroyed Curitiba with a rock last year."

"The starship, not the city," Ava said, "and I wouldn't have destroyed the city, it was one of the nicest on Earth. Wherever you're from, you deliberately invaded the Gordon's Lamp substrate."

"Someone had to go in and see what was going on. And you will remember I was able to get myself out of it when I realized I was in over my head. Anyway, your husband was messing with people's heads, he gave a woman in Lycieria the twitches and caused a guy right on the Isle of Yssa to hear all these thumps and bumps that weren't there and another guy right here in Knossos to see spots."

"But you didn't stop him?" Ava asked.

"Could I? Should I? I think I helped him find out the truth."

"They can't believe the truth." Yellelle started to make a face but Ava continued. "Oh they can believe the computing medium and the capacity, they will have a problem equating it with classical Scripture." Was this really the Truth?

"Why? We are in what our preachers preached for many more thousands of years than you know, even before your

engineers built it."

"And you built this, in Atlantis?"

"No way, things weren't even this nice in my time," she waved her hands around the room. "The rich were richer and the poor were poorer. I was a temple girl before I saw a floor that wasn't dirt, and I never saw a paved floor as a mortal again after the temple sold me off. Then I was pregnant for the next ten years. One of my girls went to the temple after me."

"Then how can you know the science behind this?"

"You don't think we were stagnant for four thousand years do you?" Yellelle asked, but didn't give her time to answer. "Scholars of quantum mechanics have been dying for almost two hundred years. Many gather here, I mean, modern Atlantis, more even than Tolstovia."

"Let's say I believe you," Ava said, finding this too much to take in all at once but not wanting to have to debate it yet. "How do I get back?"

"I don't know."

"You got into Gordon's Lamp?" Ava asked.

"There's an adapt, back in our time, back in the heavenly Atlantis of 2384ad, on the path where Thera did not explode. It's a half hour walk and fifteen minutes on the hanger from my house. He teleported me."

"I can go back thru that."

"It doesn't work any more," Yellelle said.

"Why not?"

“You put safeguards on that substrate translation tool that your husband built. We’ve been unable to break thru those.”

Ava despaired of making that happen, but she had to try.

“Is it going to take us weeks to get back there?”

“Yes, once we get to the 19th century we can take a steamboat to the 20th century and then we can get a flight to the 24th, but getting to 1855 is going to be difficult.”

“So why did you chase Ietana away, we might as well leave in the morning.”

“Well, it’s not that simple,” Yellelle said. “You see you landed here without a seal, as an undocumented foreign female, you’re property of the Goddess. The law is the law in heaven, and in this area, you are property of the Goddess until you buy your freedom.”

Yellelle wasn’t going to give up her game easily, she could see that by now. “You’ve got to be kidding!”

“Sorry.”

Ava sighed. What good would it do to argue? “OK,” she grunted, resigned to getting shaken down, “how do we get funds transferred?”

Yellelle sadly shook her head. “We can’t even get funds transferred from 2384ad or whatever year it is where you’re from. We could bring gold, but I don’t happen to have a small chest of gold laying around. But you’re pretty good looking and exotic besides, you can probably earn your way out in one ceremony, especially if you can keep up with Alan.”

She didn't like the way this was going. "Exactly what is this ceremony?"

"What you've been training for. The head trainer said you're doing pretty well too, except in sex ed, especially considering that you can't speak a word of Minoan."

"So that is where we are," Ava said. "I have no idea what I've been training for," she said. "I thought it was some kind of dance number, some kind of play or something."

"There's some of that, it's an entertaining ceremony and most people believe in its holiness in this time. The men of the countryside bring tribute and watch a little performance, but mainly they offer tribute in exchange for an encounter with the temple girls in the holy sacrament of sexual union."

"So this isn't a convent, it's a whorehouse!?! I'm training to be a whore?"

"The technical meaning of your words is correct, but we do not say them with such a derogatory tone. To us this is the ultimate celebration of life, the promise of fertility, the great renewal. We bring our young people together in pleasure in worshiping the Goddess of Life. Most marriages among the best in our society are made at the temple."

"You expect me..." she couldn't continue. That sounded too much like one of Alan's religions, yes, the cult of the fertility goddess Tahmote. She wondered if he was in on this after all, or if he had copied it into his universe from here. He might have known more about this civilization than she did, he studied all the old myths and fables.

She thought of asking if they were working together but Yellelle said, “Hey, I’ll help you with whatever I earn, I’ve been a free agent since 1408bc so I don’t need to buy my way out.”

“I appreciate that,” Ava said ruefully. The enormity of what she was facing was still pummeling her. She stared into space, she tried a ^C once again, harder this time, but it still had no effect. “Come on, you have to be kidding me, you can’t really expect...”

“I had sex five times with three different guys when I went to your starship, all of it was part of my duty, but most of it I enjoyed. We’ll probably earn your way out of here before you have that many, and you’ll probably enjoy them as well.”

“I can’t, I’m not...” she was going to say ‘one for casual sex’ but Yellelle didn’t give her time for that.

“Alan says you’re fine.”

“What did he say?” she grabbed Yellelle’s shoulder before she could stop herself. He had better not have said anything.

“He didn’t have to say a word, just knowing that you and he have been together says it all.”

“That’s different, we’ve known each other for over a century now. Yellelle, I can’t do this.”

“You picked the wrong place to teleport to in that case.”

“We didn’t even think it would work, we didn’t think I would even detect this entanglement.”

“I warned your husband that he was nowhere yet, that he

still had a lot to learn. Did your foolishness in taking this crazy risk have anything to do with a desire to chase me down?”

“Of course not,” she said, but had no med panel to keep herself from blushing.

Yellelle snickered. “No,” she drawled, “no way. Well, whatever the reason, you shouldn’t have blindly stepped into that teleportation beam without some idea where you were going, don’t you think?”

“Like I said, I didn’t think it would work.” Her thoughts had been, ‘if it went anywhere, it would lead to Yellelle’ and that had clouded her judgment hadn’t it? Now she was paying the price for it. She was completely in Yellelle’s power and performing for her amusement. To perform with dignity was the best she could hope for.

“That lack of foresight doesn’t change the current situation,” Yellelle sighed, “you’re here now and I’m here to help you, unlike the way you treated me.”

“You invaded us.”

“And you invaded us.”

“That wasn’t my intent. I was hoping there was some chance I might be able to detect some effect.”

“The effect was you teleported a fifth order condensate, yourself, to our substrate.”

“Look, we speak a different quantum mechanics from each other but that’s not the point. Somebody has to be the administrator here. You just have to find someone with

sufficient privilege to get me out of here.”

“As far as we can tell, God is the ‘administrator’ here. To use your terminology, this system is not under human control.”

“Then what?”

“Then we do what we have to do to live within the rules imposed on us here, like we had to obey the laws of physics in three-d reality as a mortal.”

“God certainly didn’t use his temple for a whore house.”

“Well, Jesus wouldn’t have done so, but this time is way before Jesus, and this tradition survives in modern Atlantis. I still participate now and then, but I don’t draw the tribute I used to.”

“Why not?”

“Modern girls have better skin, smoother contours.”

“Can’t you set you personification...”

Yellelle was shaking her head.

“So you’re sentenced to three-d reality here?”

“Pretty much, but it’s perfect. Insects do not have large enough minds to make it into here.”

“If it was perfect I would have my med panel and personification adjustments and we could blink out of here.”

“We have perfect three-d reality,” Yellelle said, “but without magic.”

Entanglement— Day Fifteen

There was one more day of training, but for Ava it was cut short when Yellelle came and got her. “The high priestess of the training center wants to see you,” she told Ava.

“Fine,” Ava said. They were having some kind of sex ed class again today and Ava wasn’t getting much out of this without someone to translate. She put her skirt back on while heading toward the door. The first part of the lesson had been how to get out of it in as sexy a way as possible. “Who is the high priestess of the training center?” Ava asked when she got to the door where Yellelle was waiting.

“I’m sure you’ve seen her, she’s an older woman...”

“Why are people old here?”

“We seem to come to heaven at the age we enjoyed the most. Koruki must have been happiest when she was in charge of the training center, which wasn’t til later in life. No matter what age we arrive at, we enjoy perfect health and as much vigor as the age will allow.”

It was a short hallway and three flights of stairs to her chambers. The stairs were narrow and wooden, they creaked lustily, but seemed solid enough. Koruki turned out to be the woman Ava had called ‘Mother Superior’ and she was staying in some very nice rooms with the ubiquitous built-in wall benches, here in polished and carved wood. It was four stories above the central court, which was visible thru the wide

window behind them. Koruki herself sat on a pillow in the middle of that bench, leaning on a cushion tied to the center window post. Facing her was a wooden table or bench, also with a pillow on it. At her side were three tall goblets and a small amphora. There was a sheet of papyrus and an inkwell with a reed pen in it.

Yellelle and Koruki conversed a bit as they slid onto the bench across from her. Ava could look past her and see the preparations for tomorrow's ceremony were already under way. The heavy bullring fence was set up and vendors were already setting up tents all around the other side of the courtyard.

When they were settled, Yellelle told her, "She wants to ask you some questions with me as interpreter. I've agreed. The first thing she wants to know is where and when you are from."

"You can tell her that without even asking me, you've seen where I'm from."

"Before that. I don't think Koruki really believes in starships and quantum physics. She believes in the Goddess of Life, she believes the year 2384 exists, but she calls it 5713 and calls this 1680."

"Tell her I'm from Reston Virginia and was born in the year," Ava had to figure the year in her head and it wasn't that easy, "5464."

She relayed that information, it was obvious Yellelle had to elaborate, even had to draw a crude map of the world and

point out where Virginia was. Yellelle pointed to more like where Ohio would be, and Ava pointed to a more exact location. Using her as translator, Ava went thru the whole story, the parking garage, how it was planked in, how people argued about bathroom duty, the landfill that the pistoleros busted open and how her father scavenged there. She saw them both cry when she told them how her sister was taken. They cried again about how her mother was assaulted on her way home from work.

She told them about the political situation, how the Warlord of Pennsylvania had moved his forces all the way to the Potomac as soon as the Nigerians went home, using the judges and their constables and a tenuous membership in the Commonwealth of Laurentia as a facade of legitimacy. She owed her afterlife to the Warlord, but that didn't mean she was his vassal, far from it.

By then Koruki had poured a goblet of wine. She remembered the stuff they'd had at the house with the extra guest room, and was prepared for a similar experience, a liquid that was somewhat more purple than red, had a grape taste to it and a potent alcoholic content. Instead she was knocked back by one of the finest merlots she had ever sipped. It was also relatively dry for a merlot, and even drier in aftertaste.

“This is very good,” Ava said.

“Yeah, the temple employed the most expert vintners in the Isles in these days,” Yellelle told her.”

“So this was made here? I ask because I had wine before, but it was a hurried home-brew compared to this.”

“Yeah, some of the casks on some of the outer islands are pretty fermented ,” Yellelle told her, “especially back in these days.”

Yellelle and Koruki discussed the wine in Minoan for awhile, Yellelle told her, “you probably don’t need to sit thru any more than ‘it was a great year for Kotsifali’ out of that.”

“Probably not, unless I was a historian of winemaking and it corresponds to a year on Earth.”

“1648bc,” Yellelle told her once again.

Koruki wanted to know about wine in America. Ava explained, “It comes in by rail car from California. For the rich it comes in by air from Australia and Chile. There’s local bottling plants and big payoffs to cheat on the federal taxes. The federal government hasn’t been able to collect any taxes in generations, but the Judges collect the taxes anyway and keep it for themselves. They divide the take with the owners of the biggest corporations in their county. Since they’ve been in Laurentia they have to be a little less blatant about it.

“There’s quite a bit of wine grown in Laurentia, especially New York, New Jersey and New England. The average person can sometimes get their hands on some of that. It’s better than the home brew around here but nowhere near as good as this. In spite of that, it is something the average guy might serve his girlfriend on the day he proposes marriage.”

That got them started on the whole subject of religious

ceremonies, and specifically the training for religious ceremonies, something that was dear to Koruki's heart. Ava told her about seminaries and monasteries, concepts she knew well. She never asked, and Ava never seemed to get home the concept that the essential difference was that Koruki lived in a healthy and thriving civilization, while Ava lived in the ruins of a former one. Yellelle even tried to make comparisons with things Koruki knew. Koruki had been into the heaven of the future, as far as the invasion of the mainlanders and the corruption of the Goddess.

Koruki patted Ava's hand and expressed sympathy. "She's talking about the cycle of history going round and round," Yellelle told her.

They spent another hour going over Ava's history, then the next going over a brief introduction to their religion, especially as it applied to the ceremony of the bull. It was the pre-science Elven religion from Alan's world with a few more religious symbols and the intercourse with temple girls thrown in, not that there weren't examples of that in Alan's world.

"Is Alan part of what you're doing to me?" she asked Yellelle.

"What does Alan have to do with this?"

"That religion, basically the worship of Mother Nature, is an important one in the history of Alan's world."

"He probably got it from here. There was some

knowledge of our civilization in your expedition's archives.”

“We didn't have the styles quite right, you've got a better sense of color than Evans gave you credit for, even though it is even more dramatic than he envisioned.”

“He was an amateur historian,” Yellelle said, “not an interior designer, there were dozens of professional interior designers at work in the temple at any one time.”

“We didn't know very much about your religion. We thought it might have been a mystery religion with human sacrifices.”

“There are some crimes for which the high priestess will sentence someone to death, killing a defenseless child in cold blood for instance. The executions are carried out in the most remote sacred sites, in full sight of the Goddess and with prayer for a sign that what we do is wrong. In one famous instance the sign came, but too late, the sentence had already been carried out so the Goddess in her wrath smote the ground in an Earthquake that leveled the shrine where the sentence was carried out. In spite of that, in my time the high priestess was more likely to impose a death sentence than in this time, but it did happen even now.”

“But what you told me is the same as ancient Kortraxian from Alan's world, something he couldn't have known at the time because we didn't know that about Minoan religion.”

“Maybe the Goddess is stronger than you think and can reach many souls.”

“Do you believe that mumbo-jumbo?” Ava asked her.

“In this language you would call my belief ‘Scientific Kortraxian’ only we use the sun as the symbol rather than Kortrax.”

“Everything you tell me makes me more suspicious that Alan has something to do with this encapsulation.”

“Alan has nothing to do with this unless he’s a spectator. You have been teleported to a different substrate. This universe is just as real as Gordon’s Lamp, maybe even more so because we don’t need a Systems Administrator.”

That reminded her that if this environment really was in Gordon’s Lamp, it could fail at any moment.

Entanglement – Day Sixteen

There were ceremonies every week, but only once a month does a new group of girls arrive and that always excited interest in the single men of the countryside. There was an air of excitement all thru the temple, and many of the senior girls came thru the area to meet with the group who would be performing their first ceremony this evening. Even without Yellelle translating, Ava could tell that most of the girls were excited to be participating. Many have been claimed in marriage as virgins with extravagant offers on their first night, and many dream of it.

Imada was no exception. By now she had gotten over the

fact that Ietana had been relocated, and spent most of the big day chattering to Yellelle as they went over their costumes one last time. Ava felt ridiculous in the open-fronted top, even though it did its best to flatter what little she had. She was all the more embarrassed because almost all the others had such full and shapely boobs. If it hadn't been for Alan's universe and the fact that women were topless most of the time in many cultures on his world, such as where he lived, she probably wouldn't have been able to do this at all.

Yellelle was bigger than Imada, but Imada was much prettier, in fact Imada was one of the most beautiful girls Ava had ever seen. Even though Ava had visited Alan's world for a century and lived there a week and a half, Imada was more at ease with the open front top and spent an hour making sure it showed her off to the best advantage.

"How authentic is this?" Ava asked Yellelle as she also made sure she was displayed proudly. There was only one mirror on the floor, and it was a piece of polished bronze with a handle and lavish decoration.

"The ceremony?" Yellelle asked.

"Right, is this as it was for mortals?"

"Yeah it's very much the same ceremony in my day except the girls have a lot more to say about who they get sold to in this time." Yellelle said, "though few were sold in my day."

"We can be sold?" She felt cold in the guts over that.

"Not without our permission in these years. After the

mainlanders gained a lot of influence, yeah, without our consent. In real life there were some men who no one could say no to even in these years, but because Heaven is perfect, that never happens here.”

“Was the atmosphere the same? Did the girls look forward to it?”

“Oh yeah. We each own a third of what the temple is offered for us. There’s the competition to attract the best donors. Later in our careers we hope to be taken by a prosperous man as wife, or rise to a position of importance in the temple workshops.” Yellelle stepped away from the mirror, “So what do you think?” she said, putting her shoulders back and giving them a shake.

“You should be asking Alan,” Ava replied.

“You’re right, I always thought there should be guys here when we first get dressed. We’ll be inspected before the ceremony, but by then there isn’t much time to fix anything, all they do is grade us into rows for the opening ceremony.” She turned to Imada, who looked her over critically and discussed Yellelle’s breasts with her awhile. They plumped and prodded each other, then turned to Ava.

“Hold your arms out,” Yellelle asked, and then discussed the side of the top with Imada. They called the seamstress back up and pulled the top back a little more, exposing even more skin. She wished she knew she was coming here, she would have set herself a little bigger and perkier like she did in Alan’s universe. It was a small and subtle difference, but

that and the change of clothes was a bigger difference between work and play than she normally had in her Caribbean universe.

They decided she needed to have changes made, so she had to take off the top and let the seamstress make the adjustment. Meanwhile they went on to trying on their skirts for the final fitting while Imada took everything off and took her turn with the body makeup artists. She was as comfortable nude as any of the cherubs from Alan's universe.

The skirts were heavy things, in spite of being open-weave. There were half a dozen flounces reaching all the way to the floor. Some of the long-time professionals had tight bronze waistbands on them that were rolled into position, little by little over a period of months, constricting their waists and exaggerating their hips. Their health suffered, back when they were mortal, and Yellelle told her they were almost a freak side show in later years, after about 1450bc., but they were more extreme because of it.

For everyday the skirts had plain leather belts, but for the ceremony they would have wide and decorated belts shaped to resemble the bronze corsets and almost as tight. Ava had to suck her belly in as far as she could to get the thing fastened, and it was not comfortable.

She was glad to get it off when her turn came in the makeup chair even though it meant she had to sit there naked. Once again she was thankful for Alan's world and the practice that had given her. Even so she didn't think she was quite as

at-ease with it as the other girls. She had less to be done here than the others because she was naturally light skinned and light skin was the style here. Most women had deep and even tans that would have been admired in her time, but had to be powdered here. Imada was very dark and they were unable to make her as light as Ava. Instead of fussing with her skin, most of the time Ava sat there was taken on the elaborate hairdo and jeweled headdress that was worn during the ceremony. Other girls did her fingernails and toenails while two fussed with her hair.

In less than an hour the seamstress was back with her top and they put that back on her. The three of them, Yellelle, Imada and the seamstress clucked and cooed and made her pose in several ways. Ava decided that she probably had forgotten to reset her personification to her duty hours figure when she went off to duty the morning of the encapsulation.

They wore their every day clothes to go to supper, but had to keep the hairdo the same. All of the twenty girls in the class sat at at one long table in a large dining hall. The other tables held different groups, once out of training the girls decided among themselves who would sit where. Yellelle told her that seating could be a silent cat fight among mortals. She noticed there were always three or four tables with only a few people at them, by twos and threes. It was serve yourself with pottery plates and bronze forks. Ietana still sat with Imada. Lately they had sat with Yellelle and Ava.

They were fed well here, that is to say, they were given all

they wanted. It was a lot of oil and bread, some shellfish, olives with every meal, and bell peppers. There were other vegetables a couple times a week, and tonight, goat that was chopped and marinated. They folded it in pancakes of the chewy bread along with the vegetables and a creamy sauce. The peppers were baked with a shellfish and bread crumb stuffing. There were plenty of spices on everything and chunky sea salt to put over it.

The noise level alone told her it was a special day. She had noticed the noise a week ago, but it was centered at a different table. This week it was here, and much higher than the week before. There was teasing from nearby tables and occasional shrieks from anywhere in the room.

“So what happens at this ceremony?” Ava asked as they climbed back up to their rooms after dinner.

“You didn’t go down and watch it last week?” Yellelle asked, a little taken aback.

“I didn’t know what was going on. There were several evenings when Imada and Ietana invited me to go with them after dinner. Once we went back down to the dining room and chatted, I couldn’t get a lot out of that. Another time we went and watched a guy with a set of pan pipes who accompanied a guy who had a pretty good voice, but he sang bawdy songs that I couldn’t understand. For one who’s music often comes from the Zhindu tower scene, that was a bit thin. So the third time they invited me, I said no. I had no idea what was going

on, and they had no way to tell me. I heard the noise and tried to investigate, but you know how this place is, I got so lost that it took me an hour to find my way back to this room.”

“You get to know your way around after awhile, if you can find your way around in Zhindu, the palace should be simple.” Since it was one of the crew’s most popular destinations in Alan’s universe, Ava wasn’t surprised that Yellelle had been there.

“I only stopped there for a dinner and breakfast on a flight down to the Vale,” Ava said, “I never got to know the city. When I go with Glenelle, she leads.”

“Well, you should have gone with them last week, but I’ll try and explain.” She proceeded to explain enough that Ava had some idea what they were in for. But she never got to the part she worried about, when and how did she have to have sex with strangers. She explained where they would be, when they would perform their dance routines, all about the bull and the tribute, but when she was about to get to that part, they were back to their floor and the gaggle of the crowd getting ready for the event.

So she still didn’t know just what was in store when they were lead down some long, unfamiliar hallways, some long stairways she had never seen before and more long hallways. They emerged in a large, low-ceilinged room with two men and one woman in it. The woman was quite mature and had a long and gilded robe on. The other two were in clean

loincloths.

“The judges, they’ll grade us into rows, they’ll probably have us in three rows because that’s how we trained. He’s going to ask you to shake your tits and ass. You’ll be in row one, don’t worry about it.”

She went on to explain what was where in this part of the temple. Ava needed to know where the trysting chambers were, where the bathing pools were, where the toilets were, and things such as that. While she tried to concentrate on what she was saying, she watched the girls being graded like beef. The guys felt them as well as looked, tugged at their clothing, lifted their skirts and inspected their genitals. At least they didn’t make them get aroused, she was glad to see that. She wondered if they were checking for lice?

She still had a hard time with it when it was her turn, which came just as Yellelle was about to explain the etiquette of the encounter. As he inspected her, the grader did not grab her painfully, and he was smiling and polite. He should be, she imagined there was a lot of competition for this job.

The guy took a while deciding and conferred with the woman before sending her to the first row. He took a long time with Yellelle also, and had her shake her breasts again, then the woman came and felt them before they frowned but assigned her to the first row also. With Imada there was no doubt she was in the first row, they just waved her along without stopping her.

All the while this was happening, she could hear noise

building beyond the great double doors to the next room. There was music, pounding and heavy, nothing like the pan pipes. This was made by drums and gongs or bells. It seemed to be getting closer. There was quite a hubbub outside and that was getting louder. Their lines were right in front of the door to the next room. All the girls were very excited now, she could smell it as well as see it.

A big man came with a horn, and spoke to them. Yellelle translated, he was just telling them to stay in line and not to interact with the spectators. The girls appeared to calm down and straighten up. The man opened the door in front of them and blew a monumental fanfare and they filed thru. The space they entered was open, there was sky above the leaning balconies, now barely purple with a few stars already out. Right in front of them, nearly a floor below, was a well paved court about a hundred by a hundred and fifty feet with numerous doorways, stairways and balconies opening onto it. A line of pillars stood along the wall and supported the wooden balconies above. A large square in front of them was ringed with the sturdy railing she had seen workmen putting up the day before. Around that pen was a large space filled with all sorts of men, each holding small pieces of parchment and making a racket. They shouted louder than ever as the girls walked out. The area the girls walked onto was nearly a story above the floor the men stood on, and was visible from the balconies above. There were more important looking men up there, with robes and servant girls bringing wine and

sweets.

The woodwork was bold but not as garish as in the modern recreation. The frescoes on the walls were magnificent. It was all lit by torches in sconces on the pillars and walls, and by great braziers on the corners of the bull pen. The only thing she had ever seen like it was an animal pit in Alan's Trastrab Basin, but even there there are video screens and amplified music today.

Here the man with the horn had to make do with a loud shout. It took him a couple tries to get the crowd quiet enough to hear him. He was presenting them to the crowd, offering them up for the holy sacrament of coitus. When he finished they had to go thru their first number, putting their arms above their heads, and clapping in rhythm to make their bracelets jingle. They filed around, doing a single simple twirl as they passed the front of the formation. She had learned the routine with no trouble, but did not know it was meant to be a display to the audience when she did.

Each girl was introduced. The man pronounced her name more like ahVah than Ava, but it was close enough that she knew what was going on. As they were introduced there were more or less cheering, depending on how they were received. There were enough guys out there interested in more than breast size that she got enough of an ovation to make her kind of proud, by no means the most, but as much as Yellelle.

Now a procession came from the far end of the court. It

was lead by men beating drums, and large bronze tubes that sounded like gongs. There were more horns, they were tuned and even carried some sort of melody. Next came a line of girls holding snakes. She had learned that the snake was the sign of the deacons, overseers of the police force or military. A rank of men with polished bronze axes completed the honor guard.

But it was what came next that drew the most noise from the crowd, the bulls. There were four of them, and they were each lead by two girls, one holding the left horn, and the other walking behind and shouting commands. These girls were very young and very buff, wearing loincloths so tiny that it was obvious their pubes were shaved or maybe not mature yet. Ava was afraid for them, but then noticed that the bulls were trained. They walked where directed and marched in step with their girls. The girls strutted like peacocks with their chests out, but were no bigger than Ava, nothing like the girls up here.

A pair of figures strode down the wide stairway next to where Ava and the other girls were standing. The woman was holding fast to her youth, she had a magnificent face and figure, but her skin needed a fair amount of putty to look as smooth as the girls beside them. She had the most elaborate headdress and jewelry Ava had yet seen outside Alan's Yondure basin.

The man was probably somewhat older, or at least looked it. He was dressed in sumptuous robes, enough that he should

be sweating in there. Together they addressed the crowd. She wished Yellelle was close enough to translate, but one other girl was between them, so Ava had to go thru this clueless.

The first bull and its keepers approached the stairway. The high priestess or queen or whatever she was barked a command. The girl near the rear of the bull barked another and the bull began backing up with his head lowered. The king, or whatever he was, called out some sentences, pointing at the bull as it backed away. The other girl walked toward the steps where the royals were standing, bowed to them and turned toward the bull. The other girl barked another command and the bull charged. The crowd roared and Ava screamed. The imagery of the nubile young maiden sacrificed to this animal was too savage for her to withstand.

The girl lunged toward the bull and certain death and the bull lowered his head. The girl leapt, grabbing the bull by the horns. The bull yanked his head back, launching the girl high in the air where she did a somersault with a full twist, landing on the bull's back, doing a handspring and launching back into the air, where she did another full twist and landed on her feet. The crowd thundered and the queen nodded regally.

Ava almost fainted and Imada had to grab her to keep her on her feet. "Bekiki buru," she said, "Tedda nema pu tloma."

"Yes, whatever," Ava said, trying to regain her composure. What had the symbolism turned into? That a mere slip of a girl could manage the most potent beast?

"Besi!" the queen/high priestess called out. The first

couple lead their bull away into one of the little cages beneath them and closed themselves in. The next two girls lead their bull to front and center in front of the stairs. The king bellowed his praise for this bull and/or trainers. The second crew repeated the acrobatics of the first, but with a double somersault without the twist, and a little more slop in the dismount.

Ava began to understand the spectators were used to this and that the bull was very much part of the act. Ava wondered if this was the entertainment or if the girls had to demonstrate that their bulls were safely trained. Yellelle hadn't mentioned this part of the ceremony, all she'd said was that the bulls would be shown.

Once that was done and they were all tucked in their little cages below them, it was time for their second bit of choreography. This was a little more artistic, not just introductions. They danced in lines, kicked up their heels a little and waved their arms gracefully. This was a fertility dance, they were supposed to represent the grain in the fields and the fishes in the sea or something like that, Ava just concentrated on getting her moves right and not making a fool of herself.

The music was better than at practice. There was a whole rank of people playing the pan pipes, a rank of men with lyres and those gong-like bronze tubes all well tuned and well played. There was a chorus using multi-part harmonies, the orchestra played chords and she was reminded of the folk

music of Kassidor Yakhan. The fact that they could play this in the Yakahn with one acoustic yandrille, a harmonica and a hand drum was immaterial, it was better than what she would expect if the year was ad instead of bc.

Then the main part of the ceremony began. The man with the horn brought the girls one by one to a small platform at the front of their stage, where she posed and tried to look as fetching as possible. Meanwhile the master of ceremonies became an auctioneer and took bids for the girl. They started with the last girl in line, the one who couldn't have been more than thirteen. Ava was glad to know that what Yellelle told her was true and the girl had the right to refuse bids. She only refused one and there were only two made. A cheer went up and he was boosted up onto the stage with them. The excited little girl took him by the hand and lead him into the back, beyond the room where they formed up and up a stairway into a wing of pretty, airy rooms with sumptuous beds.

She still had no idea what the etiquette was back there, she'd have to pretend it was a room in a Kassidorian sex club and see what happened. It would probably be some time until she was called, they went from bottom to top and she was in the front row. The bidding went fast, it was noisy and raucous and no doubt there were plenty of bawdy comments going back and forth because the girls sometimes blushed, and sometimes the bidder did. The M.C. tried to cut it down but

he was lucky to be heard, he must be doing most of the auctioning by visual cues.

The king and high priestess went back up the steps to their apartments after only a few bids were completed. Before they were thru with the second row, a couple of the first girls were back out. One thing Yellelle had told her was that the girls could come around as many times as they wanted, and Yellelle said she'd usually like to go four or five times, but she sometimes got into competition with some of the other girls and her record was seventeen. Ava also knew how much she needed to get out of here, but didn't know how she was going to learn how much she had without asking Yellelle.

Yellelle was up first in the front row. By now the girls were drawing quite a few more bids, and Yellelle drew more than anyone so far. Ava had no idea what the bids were, other than they were marked off on the scraps of parchment they carried.

Once bidding started on girls from the front row, the bulls were brought out once again. It seemed that to win one of us, the man has to also leap over the bull. It looked so easy when those girls did it, with plenty of acrobatics thrown in. The winning bidder had his tally sheet marked and climbed over the thick and rough wooden railing. Ava felt as well as heard the bronze door beneath her grind open and one of the bulls strode out, along with his nubile trainers. She could see it in the man's eyes as they got bigger. She could even see the torchlight on the sheen of sweat that was breaking out on his

chest and shoulders.

The bull stepped out just far enough that Ava could see him from up here. His tail was already writhing before the lissome sprite who handled him barked a couple syllables and the bull extended his front legs and lowered his head. Ava was SO glad she was on the second floor behind it. She felt so sorry for that guy, surely the girls in the second row and most of those in the first were attractive enough. It probably had as much to do with the catcalls from his buddies as it did with Yellelle's knockers. The girl asked him something, he nodded. The girl barked another command.

The bull charged, the man yelled, took a tentative step forward and grabbed for the horns. He got one, missed the other and dropped toward that horn. The girl yelled, the man screamed, the bull dropped and turned his head, twisting his horn out of the way of the man's neck scant milliseconds before disaster. Ava wondered what would happen in this heaven if he was to make contact.

After the initial 'wooo' the roar of the crowd turned to laughter. All the girls laughed, Yellelle was still on the maidenstand and tried not to, but wasn't completely successful. The man lay in a heap on the bull's neck, gasping. The bull snorted and the man shakily got up. Once he was off, the bull got up and trotted back to the girl, who gave it caresses, praise, and a treat.

The man dusted himself off, nodded once again, and got back to his side of the ring. The girl commanded the bull once

again and they went thru it once again, even though the guy looked more terrified than ever. This time he grabbed both horns and the bull launched him, nowhere near as high as it launched the girl, but high enough. This man did not try any acrobatics, he was trying to get over the bull as simply as possible, and almost made it. His ass hit the bull's rump as he descended, causing both man and bull to bellow and the crowd to roar once again. The bull turned and came back toward him. Ava screamed but the bull only snorted on its way back to the girl. She lead it back into to chamber and Yellelle gave her winning bid a hand up.

Ava had plenty of time yet because three more girls had come back out for another round, the fourth for one of them. By this time Ava was studying the guys out there bidding, wondering if any attractive ones would be interested in her. She cared more for one that would give her time to get ready and not force her. If she got that, she would consider herself lucky.

There was one who reminded her of one of the wood-elf cherubs from the Yakhan. Ava always meant to try an encounter with him, before Thom started playing with the Herndon cherub. He saw her watching him and smiled at her. She even managed to smile back at him. Think of this as a Kassidorian sex club and the guys as cherubs and she could even pretend she was having fun couldn't she?

Many guys were skilled at bull leaping as the night wore

on, and a few would do a somersault or a twist, some would even get their hands on the bull's rump as they came out of their somersault. But most were content to get a clean vault over it. One got a serious wound and did not continue.

But it all got very real and immediate when she stood on that maidenstand. The guys looking at her seemed a lot closer, she felt a lot more naked. The guy with the bullhorn gave her a lot longer introduction, presumably telling them that she can never argue with them because she doesn't speak a word of Minoan. The cheering sounded a lot rowdier than it did from over there, the torches were closer, brighter, and she could feel their heat. She could smell the musk. Her body was responding and she was kicking up her skirt in time with the music even better than she had ever done it in class when she had no idea the reason for it. In spite of her sensibilities, a part of her celebrated when the bidding went on and on.

The guy who won Ava was not the guy that looked like the Kulai cherub, if anything he looked more like Herndon, but he had much longer, darker hair, was cleaner shaven, and not quite as tall, or as old. He looked a bit less than thirty to her eye. The guy was dark and handsome, she would agree to that. He wasn't quite as tall as she was, but he certainly had plenty of muscle.

He entered the ring like he had leapt a bull before. He nodded curtly to the trainer, she yelled the bull thru his paces. He crouched til he had only a three step approach to the bull, grabbed, flipped into a tight somersault, but came out of his

tuck just a little too soon, flopped on the bull's back and slid down its shoulder as it skidded to a stop.

It bellowed and he extricated himself and patted the bull gently on the neck and shoulder. It got up and trotted to the girl. His friends were giving him various catcalls. A certain one-finger salute must have very ancient roots, especially when done under the guise of scratching one's ear. His second run was a perfectly done simple vault with a grandstanding one-handed pat on the bull's rump as he sailed over that drew more catcalls and hoisted flaggons from his buddies. She had to admire the fact that the serious drinkers in this society carried cups with pointed bottoms that couldn't be put down.

He leapt up to the maidenstand unassisted. She gave him a tentative smile. Of course he spoke no Kassidorian, much less English, just ancient Minoan of which she knew the words for 'fuck', 'penis' and 'vagina' out of the expected conversation. She heard none of them, she heard the words for 'beauty,' 'honor,' and 'civilization.' He strode purposefully toward her, she tried not to flinch. She hoped he would be slow with his foreplay. As he got close, her urge to start this encounter with a kiss was answered as he gave her a warm but chaste one and took her hand.

Out of the corner of her eye she saw Yellelle was the next temple girl selected. She saw her move confidently toward the maidenstand and smile at Ava as she passed. This would be Yellelle's third round. There was a chance they would meet in the washroom after.

One was supposed to have enough curiosity to know the layout of this part of the palace already, or maybe they had been instructed in this before Ava joined the class. It was simple enough, as a member of the first line, her rooms were two floors up from the stage floor. There was a hallway that ended at another hallway with rooms on both sides like a hotel. She noticed the guy seemed to know the way better than she did. She had no idea which room to take and went to the first empty one.

“Nene,” the guy said and pulled her back. “Ahva,” he pointed at her, “Basheegi,” he pointed to a small medallion beside the curtain for that cubicle. He pulled her along the hall to an empty cubicle down the other way, “Ahva,” he said and pointed to a medallion beside this one.

The room was fresh and rather sumptuous and more spacious than the trysting suites in most Kassidorian sex clubs. The bed was low but curtained. There was a bench on one wall, with a pitcher and basin on it, along with some towels and fuzzy, colorful wool blankets. The window was open, the sounds of the bullring were distant, the grunts, moans and sighs of others engaging in pleasure was detectable in the still night air.

He kissed her, kissed her earlobe, her neck, meanwhile his hands roamed her. He murmured sweetly as his kisses worked their way from her throat, down her breastbone, the the space between them. She lay back on the bed, sighing with

pleasure, already knowing he wasn't going to be rough with her, or too fast. She was probably ready enough already, but she wasn't going to rush him. He lay beside her and kissed her again, the same route. She kissed his neck by the time he got to her nipples. His hands were roaming her, it was exquisite. She was certainly being given time to get ready.

He already knew as much about the straps that held her belt and skirt as she did. No doubt he had donated to the temple before, after all, he had known about the name tags. She would be better off if she just followed his lead. It was a long time since she could be completely confident of a stranger's lead, especially in sex.

She arched her back as he unwound her crotchwrap. She was glad he didn't have to put his face in it and smell it, instead he tossed it with the skirt on the bench. The only thing left was the half-blouse, and he looked at his kilt as he reached for the buttons at her belly. She guessed she was supposed to remove it. There was a large bronze buckle that took a significant amount of force to undo. There was no need to undo his crotch wrap, he had already thrust thru the layers, but she unwound him anyway, gently.

His lips were on her nipples, his fingers teasing slowly inside her while she did that. His boner bumped on her belly as she got the winds of cloth unwound. She hoped he forgave her for being a lot clumsier at it than he was. She wished she was half as good at this as he was, if there was any justice in this world she would be the one offering goods to the temple

of fertility.

Before he was done using his hands, he used his tongue and a minute later she thought he was taking too long, and got more aggressive on his until he needed to be in her as much as she needed him to be in. Once joined, it was awesome and he ground her long and slow. Each time they drew near climax, he drew back. They spent most of the time on their sides with him behind her, lost in a dream world of sensual bliss. If he was disappointed in her chest, his hands didn't show it. She wanted to remain like this for the night.

When orgasm hit her, it was sudden and consuming. He brought himself in right behind her and clutched her to his hard chest with her soft one. They bucked, convulsed and grunted. She was normally silent but couldn't prevent a long loud "oh wow!" with this one. When the pulsations finally stopped, she was spent and sated like never before, or certainly like never before in this universe. "The temple should give tribute to you," she mumbled. He chuckled, making her wonder if he knew Kassidorian.

They lay together a long while, he started kissing again, then petting. She had to say no. He whispered something, kissed her on the forehead and got up from her. She wanted to stop him, say, 'no not now, but give me an hour' but she couldn't get up, couldn't even move her arm fast enough to grab him. She collapsed and lay there for a good long while. She was limp as a dead octopus, and tingling all over. Her vagina was sore and dripping, getting stains on the beautiful

bedding she had been provided. She wished she could do something about it, eventually she was able to squirm over and reach a towel.

She would never know that guy's name. She would never be able to record a cherub of him, but he was no cherub. She was now convinced that these really were the souls of the dead, resurrected in some manner like we do with a cryoslicer, and living in simulation in the dark matter between the stars, administrated by persons or beings unknown, for an unknown purpose. She knew how cherubs worked and knew it was theoretically impossible for one to fuck like that.

Yellelle was in the wash room, greeted her with, "How many have you had?" as she walked in the door. Yellelle was still naked and pouring water over herself, trying not to get it on her hair.

"One," Ava wheezed, surprising herself with how out of breath she sounded. "Just one."

"Better hurry up, I've got four already and the crowd is starting to thin out."

"I can't," she wheezed, dragging her skirt and bodice onto the bench at the side of the room. "You should have seen this guy."

"I saw him as I was coming up for number three. He was a real quick one, but my fourth took some time with me."

"It was holy, I see why this is a temple," Ava said, "and don't hog all the hot water." It wasn't really hot, but

pleasantly warm.

“I’ve had encounters like that before,” Yellelle said. “See if you can pick a few quicker ones, the evening’s gonna be winding down.”

“I’m wound down,” Ava said, “my legs are like jelly.”

“Are you serious, you’re one and done?” [idiomatic translation.]

“Absolutely, I’m good for a week,” she said, meaning an Earth week in this case.

“You’ll never buy your way out of here that way.”

“How much more do I need?”

“Five more at what you made from that guy.”

Her eyes rolled up at that. She held the tiled column the water sprinkled from. “I guess it’s going to be quite a few more weeks before I get out of here.”

“I can’t stay with you, I have to get back,” Yellelle said.

“When are you leaving?”

“Tomorrow.”

Entanglement – Day Seventeen

“I shouldn’t be doing this,” Yellelle whispered as they snuck thru the narrow door, “especially after the way you treated me in your universe.”

“You should have done this from the start so I wouldn’t

have had to be a prostitute.”

“You even said it was the best sex you ever had.”

“So OK, I’m not mad,” Ava said, “although I’m still a little limp. So we tried to do the right thing with the temple.”

“One-timing wasn’t much of a try.”

“Hey, who’s the victim here,” Ava squeaked as they made their way quickly down a tiny stairway that started next to the class laundry room.

“We are, you invaded us.”

“Do we have to go thru that again?”

They didn’t, they were on a stairway too narrow for conversation, and so steep she could only see the top of Yellelle’s head. It seemed like six or seven floors til they finally reached the bottom of those stairs. It was dark, even though this was midday. It was damp and didn’t smell too kosher.

“I hope you aren’t leading us thru the sewers?” Ava asked as she tried to keep up.

Yellelle was nearly running thru the dank passage, using only a tiny oil lamp for light. As of yet there were no sounds of pursuit. They had taken the name tag from Ava’s cubicle to use as a wrist bangle, it might pass from a distance. “Would you rather stay?”

“You’ve got to be kidding me,” Ava said. Even if they did have to swim out thru the palace sewers, she wasn’t letting Yellelle get away from her unless she chose to blink out. So far she had seen no one in this universe with the power to do

that.

“I am, there’s a cesspool back that way, it’s all tool storage along here.”

They were passing many narrow and dark openings between the rough blocks of these basement walls. Ava couldn’t see anything at all in them. Suddenly they were plunged into blackness.

“Shit!” Yellelle said, one of the few words Ava knew in Minoan. She didn’t need to say that the lamp had gone out. “Here hold this,” she said in Kassidorian and passed Ava the lamp by feel. It was blacker than the velvet on an Elvis painting, there was no pixel of light anywhere. She could tell Yellelle was getting her flint and striker out by feel. “I never should have let you talk me into this.”

‘This’ was sneaking her out of the temple and Knossos and back to modern times. She was giving up what little she’d earned, and taking only one change of clothes and a name tag, but she was running from the law, and there were sure to be soldiers sent after them. They were going to have to trust to a captain Yellelle knew and it sounded like his boat was little more than a canoe.

It took her three strikes to get the lamp lit.

“We have to be more careful with this,” Ava said, “It would be nice if there was a glass bowl on this.”

“In a thousand years there will be, but remember, your mortal ancestors at this time were living in caves and fighting bears with spears.”

“Yeah, and we were just about back to that when I left the mortal realm, but this isn’t the mortal realm either. What can they do to us if they catch us?”

“Hog tie us and drag us back,” Yellelle said. She had the striker back in her bag and was leading the way forward again. “Now don’t make me lose count.”

The passage was getting narrower and looking more like a cave. The floor was dirt and very uneven with boulders sticking out of it. They passed a cut thru an older wall, then squeezed thru a narrow passage into an even narrower passageway.

“Oh good, there’s the ladder,” Yellelle said. It was nothing but some sticks tied together and went up at least two floors. Ava did not like the way it swayed. “Wait til I get off this before you get on it,” Yellelle said without needing to.

There was enough light for Ava to see that her knuckles were white when she got to the top of that ladder. There was a narrow window that overlooked the roofs of some stalls on the market square below.

“I’m pretty sure that roof will hold us,” Yellelle said, “but it’s going to be slippery.” It was tile. “We should be able to climb down off the back of that onto those chicken crates,” she pointed out the window.

Ava could barely squeeze her head in there to see them in the first grey of dawn. “You’ve got to be kidding me.”

“This time I’m not,” Yellelle and began worming her way backwards thru the window til she was hanging from the

windowsill. “Woah, that’s a longer drop that I thought, but the roof held. Now as long as these crates do...” but the clucking of the chickens drowned her out.

Ava was hanging from the windowsill herself when a man came out of the stall and started yelling at Yellelle. She tried to sound apologetic and tried to calm him down. She caught the words, ‘no guards,’ ‘sorry,’ and ‘no harm’ in her speech and ‘crazy,’ ‘wild,’ ‘temple girls’ (one word in Minoan) and ‘guards’ in his. He went even more ballistic when he heard Ava crash on his roof, even more when she tried to climb down and knocked over his chicken crates. They tried to help him stack them back up, but some of the chickens had gotten out and were even more animated than he was, so, like escaped temple girls anywhere, they ran.

They ducked behind other stalls, Yellelle calmed the few owners who were already there and they walked out on the next alley much more sedately.

“What now?” Ava asked Yellelle.

“Keep quiet and follow me.”

She lead down smaller and smaller alleys in the bazaar, they became paths in residential neighborhoods, some had tiny shops on their ground floors, some did not. Most were mud brick and timber with wood beamed tile roofs. Most were three stories, counting the roof, some two if the roof was inaccessible. A little farther and there were some stone houses, but the stone was rougher and the stucco more eroded

than back near the palace. It was obvious this was the rougher section of town.

About an hour into their hike Yellelle pointed to Ava's wrist and said, "You'll never get far without better ID than that. That's only good if no one looks at it." She had stopped at the path to a house. It was a big house of rough stone in big blocks, but pretty well fitted and chinked where it had to be. The bottom floor was a workshop with a blacksmith's forge and both stone and wooden benches, a plethora of tools of all sizes, and a wide and burly man with a very deep voice.

For the next hour Ava sat thru the forging of the bronze age equivalent of a fake ID. Yellelle explained that it would become a real ID as soon as she successfully performed some operation with it, such as buying a house. She assured her it would be accepted in their year 5713, where Yellelle lived today. "All we have to do is get there," she said.

They stayed for breakfast with the craftsman, cooked at a hearth on the floor above the workshop. They ate at a long table of polished wood using pottery plates and bronze utensils once again. They didn't have city water out here, but a rope and bucket well like some Americans still used at the dawn of the twentieth century and most Americans wished they had in the middle twenty second.

Well fed, dressed like the better class of peasant women, and with a much better ID, they set off on the road to the harbor and passage to the 57th century.

"Could women do this in the real bronze age?" Ava asked.

“Walk into town?”

“Yes.”

“If they were poor. When I was a child we walked into town. After I was with the temple and married a farmer we had a donkey cart that we could pretty up enough for a wedding. But it was still a two wheel donkey cart that was pretty full with two people aboard.”

“I’m not sure a woman could walk to town in much of colonial America.”

“America was a century old when living standards averaged what they did here in the heartland of the Minoan civilization. The level of public safety in *mortal* Atlantis was never reached at any time by America.”

“How do you know so much about America?”

“I had to look it up when we investigated your starship,” Yellelle told her.

“How does your heaven know American history?”

“As any other history, whenever a historian gets to heaven, one of the first things he does is write down what he knows. Since the millennium that’s all been digitized in this universe as well as yours and the mortal realm.”

“So why is it safe here?” Ava asked.

“Because we are in heaven.”

“I mean in the Minoan mortal times.”

“Because we all believe in the Goddess,” Yellelle said, “and know the Goddess is watching.”

“I thought you said you were a Scientific Kortraxian.”

“That is perfectly good science. As long as a population of humans believes their deity is watching them and will eventually judge them, they will behave in a much more altruistic manner than if they don’t believe.”

“And what do you believe?” Ava asked.

“That it is good for a population to believe that,” she replied.

It should have been a two hour hike thru well cultivated farmlands til they reached the harbor. Instead Yellelle kept turning on smaller paths, going up and down hills and winding thru wild hillsides on paths that barely existed. They troubled a farmer for lunch. He lived in a one room cabin of roughly piled stone chinked with whitewashed mud and roofed with thatch. He had livestock in pens made of woven brush and stores in big urns in a lean-to behind the cabin. There was an out-house instead of plumbing and a rope and bucket well next to the outdoor kitchen that was sheltered by the lean-to next to the back door.

Lunch was bread, goat cheese, olive oil and spices and a plate of raw vegetables. This peasant’s wife was pretty but not as voluptuous as the temple girls, she appeared to be no more than eighteen, and was dressed only in a plain skirt that was cut off well above the ankles of her bare feet.

“My own home was not much more than this,” Yellelle said. “We had a separate room for the children, and Dimini built another for himself when he was thirteen. We walled in

the kitchen and put shutters for the winter, but our kitchen was no bigger, even when there were six of us.”

“How much of the population is this poor?” Ava asked.

“In my time, most, in the time we left, about a third of them.”

“We’re in a different time?”

“Heaven spreads by new paths that arise at the end of time. The paths remain and the turnings we’ve taken have brought us to about 1500bc. The sailor I know is in 1398bc, so we have to wander the hills for the remainder of the day to find our way there.”

“How does that work?” Ava said, “that there are paths thru time? And how do you know where to go?”

“I’ve been here before, I was in heaven for nearly five hundred years, living with Budani and Dimini in a cabin a lot like this, before we ever started our journey to the future.”

“No, I mean how can a different path take you to other times?”

“It’s not really different times, it’s different echos, copies of the land are created for each generation or so, depending on how many die. We are all at the same time, but the area we live in may have been created at an earlier time. Technology from a later time won’t work in an area that was created before it was invented. It’s the reason for the negative curvature of space in heaven. We can’t see it, but we are really in a multidimensional honeycomb of about three miles radius. It warps thru at least two more dimensions and closes

back on itself in layers of common time, as well as branches in time at key events in human history. Trying to visualize it gives me a headache. It is not possible to make a map of any large area.”

“But you know where we are?”

“Yes, I know these folks, I’ve visited here before, but never in the company of someone from as exotic a location as you.”

If Ava really was mortal, she would have been aching and exhausted by the time they finally came into the harbor. It was not the same town she had seen on her way to Knossos, though the setting looked the same. This was all wood-built and looked a lot more temporary. The foundations of the old town were under them, the tops of the old walls were now used as paths thru the mud. The breakwater that surrounded the harbor was barely visible now.

“What happened here?” Ava asked.

“The tsunami of 1628bc.,” Yellelle answered. “Nothing’s really the same as it was, though Knossos was pretty much rebuilt.”

“And we are now where?”

“Heraklion of 1398bc.”

It was clear that the last two and a half centuries had not been kind to the area. There was only one prominent building and it was built of wood. A ceramic statue of a Minoan priestess with snakes coiled around her arms was in front of

it, much more crudely done than it would have been in earlier times.

“We’re going to have to back track because the branch of history I live in is connected at the eruption of Thera in 1628bc, so we have to go back before that, but the sailor I know knows the way.” They were picking their way down the last hill into town. The open forest and fields that were here when she first arrived were now gone, replaced by a brushy, sandy hillside. “We want to stay well away from the snake pit,” Yellelle pointed to the building. “Podata is usually docked down this end.”

They cut across the hill and behind some wooden shacks and some more that were nothing more than woven sticks plastered with mud. They came out on a street along the docks that could probably handle wheeled traffic. It was built of the stones of the old town, but not leveled very well. They followed it toward the eastern end of the docks.

Yellelle took them to a lichen covered wooden cabin near the end of the harbor. There was a rowboat pulled up on the pebbly beach across the road. An older woman answered Yellelle’s call. She was plainly dressed but hearty with quite a bit of shine in her hair, which was mostly black but streaked with grey. She still wore her top open and she was still impressive, though her skin was not as smooth as a young woman’s, her coloring was still even and her nipples dark and strong.

She gave Yellelle a big hug and invited them in. Yellelle

introduced Ava and they hugged. Ava could say ‘pleased to meet you,’ in Minoan by now.

It seemed that Yellelle’s captain was away in a small boat and not expected back for another couple days. The woman was his mother, and she would be glad to put them up until his return, an offer Yellelle accepted.

Entanglement – Day Twenty One

How Ava ever allowed Yellelle to talk her into a week long sea journey on a rowboat was beyond her. Oh it had a mast and rudder, but half the time they were rowing it, and at the oars was the only spot on board wide enough for two to sit abreast. There was no spare sail to hang across the stern. Yellelle and the sailor had sex multiple times per day. He invited her, politely, to join them and she politely declined and turned to watch the sea in front of them. In this dingy, leaning against the mast meant her feet were over the bow. The great ship she had originally sailed these waters on was a distant memory.

They wove their way around numerous islands. The last two evenings they stopped in small villages with public rooms and plumbing. On the last day they approached a large and densely populated island.

“We are back in the echo of 1648bc.” Yellelle told her, the same one you entered.

The sea was covered with ships around this island. The slopes were covered with trellises and roofs. The shore was lined with villas along every beach, as they got closer Ava could see that they were even finer than those she had seen before. Near the shore many boats plied the waters. They were low and swift with thin hulls, each with three to six rowers, shaded by a canopy. At the stern one man or woman lounged while they were rowed to their destination.

They rounded a headland and Ava gasped. There was a great bay before them, at least four miles wide, surrounded by thousand foot cliffs all along the far side. In the bay was a ring of lower islands, but in the center of that was a smaller bay, nearly a mile wide, and in the center of that, yet another island. The palace she saw at Knossos was a country cottage compared to the city that covered the islands in this great bay. Great canals had been carved thru the inner island and those rowboats covered the water, along with sailing ships of every description. The shores were all lined with bright and colorful buildings, often with six or eight floors.

“Behold Atlantis, as it was when the pharaohs recorded it,” Yellelle said. “The Singapore, Hong Kong and Venice of the Bronze Age.”

“How real is this?” Ava asked her. “We are in a simulation, even if you can’t get to the systems administrator.”

“It was gone almost two hundred years before I was born. For what it was worth, this time was a prelude to trouble because the captains of Atlantean industry were already stirring up trouble by trying to find cheap labor on the mainland. My time was where that lead, a ruined economy and a culture overrun and corrupted by foreigners. Oh the mainlanders tried to imitate us as much as they could, they could clearly see we were a whole different order of civilization. But they didn’t believe in the Goddess, they needed a stern male God and therefore strife and war. Besides that, it divided the people’s beliefs. But as you see it today, that has not happened. This city was still purely Minoan in 1648bc. The people still believe in the Goddess in all her roles, they still know they will be judged and they still join in cooperation for the common good.”

They were passing a small island in the outer ring. A few fishermen lived on it, along with a few small mansions along the nicest sandy beach. One of those boats with the oarsmen were just pulling up. Ava could barely hear them from here, but somehow that made it a little easier to understand. The man who had been rowed home was paying and thanking the oarsmen, who stood proudly with their oars pointed skyward. They were back in their boat and had pulled away in front of them while Ava, Yellelle and Podata bobbed along the side of that small island.

The next island had a gentle shore with white sand beaches backed by comfortable villas all along. There were

substantial homes along shady plazas all the way up the gentle side of the inner island, with larger structures high on that ridge. In many ways the entire island was covered with a single structure, but there were many open spaces within it. Multistory wings of apartments with balconies graced the top of the ridge.

They had to dodge the heavy shipping traffic. A massive papyrus raft loomed to one side, casting a wake that nearly capsized them. Fat bellied merchant ships trailed right behind it, while a wide sleek schooner sliced by in the opposite direction. While Podata fought their way into the channel that went thru to the innermost island, Ava continued to gawk at the spectacle around her.

The ridge of the inner ring of islands was about one hundred feet high, but up to half of that was human-built. It was roughly a mile in diameter. The innermost island appeared to be entirely man made, almost perfectly round, and covered by up to fifteen floors of structure, capped by a palace that made the one at Knossos look like a back-country lodge. She could see three others on the other islands that were as big as the one at Knossos.

The cliffs of the outermost islands could be seen beyond it all. Ava could see at least eight stairways working their way up that cliff face, each with a town at the top. Thruout, the most substantial buildings were stuccoed stone with wooden beams and pillars. There was plenty of landscaping, most shade was provided by olive and grape. There were more

private outdoor balconies than in Crete. There were more workshops, Ava could hear their sounds from out here. They were in the channel between two of the inner ring of islands now. There were busy docks along both shores, fronted by two or three stories of workshops. Shiploads of cordwood were being burned and shiploads of pottery, textiles, furniture and metal goods were being loaded.

After that, they had to unship the oars of this rowboat to move any farther. The female equality in this culture worked both ways because Podata was the captain and had the tiller, leaving Ava and Yellelle to row. This was the first time Ava realized there was technique to rowing, not just strength. The coxswains of those quick shells started yelling as they passed. Yellelle gave them the finger, by then Ava figured out enough of the technique to get them moving. The oar was a lot heavier than she felt it needed to be. Concentrating on that took her mind off the scenery for the time being. She shouldn't be so impressed, Zhlindu would cover all these islands twice as high, in tens times as many stories of habitation. This was any five mile stretch of any main canal in the Yakhan, twenty miles or more from the center of the city. Still it made ancient Rome seem primitive and Athens a cow-town suburb. Constantinople in its prime might have come close to the scope and hubbub of this city, but never had the levity she saw here.

“How many people live here,” Ava grunted as they strained at the oars.

“Officially Atlantis is just the center island, there’s about three hundred thousand there, it is the densest population on Earth until 20th century Mumbai. The inner caldera islands hold another million and there’s another half million on Santorini.”

“What is it in your day.”

“Ours is a dead branch, because Thera did explode in real life, no more souls revived on the island, but we have had significant immigration, like me, so that the archipelago has four and a half million residents in the 2341ad echo, the most recent.”

She recognized that as the year she started playing in Alan’s Kassidor Yakhan with his wizard cherubs, the year before Thom started playing Herndon with her. That had only been a diversion, but it had been a fun time in her life and the Herndon personification and the culture of Kassidor Yakhan had gotten Thom out of his stuffiness for a good many years.

“How do dead branches in time form?” Ava asked her.

“From the given that heaven must be perfect. To those who were living in heaven’s copy of Atlantis at the time, heaven would not be perfect if the island they were living on exploded, therefore, for them, it did not. Most who died in the explosion, and there were hundreds on the densely populated inner islands, the ones that are now gone, chose to live in the heavenly copy of Atlantis that did not explode.

“Many of us who lived in the later days of the Minoan civilization, especially those of us who watched the

mainlanders smash and grab everything they could, chose to wander back in time to greater days, just like your captain's mother has done in America, settling in the 1932 echo." That statement pretty much confirmed the reality of that letter, as well as it's origin. Yellelle didn't learn of that letter from her. Once we were in the great days of our past, we found the branch of the future where Thera never exploded and the mainlanders adopted our culture rather than stole it. Now people from all over the afterlife journey back to the Bronze Age and then forward on the branch of time that holds modern Atlantis, the temple of the Goddess and the seat of all learning."

Podata would not take them into the future, but left them on the inner face of the inner ring of islands. The center island was only a quarter mile from here. From here she could see canals went into the island that had many of those rowed taxi cabs plying their waters.

Yellelle lead her into a lobby, where she conversed with some sort of major domo. They were lead up a flight of stairs to what looked like a trysting suite in the palace, but was on a hall with a very nice bathroom. Yellelle explained that because of the omnipresent geothermal springs on all the isles of Atlantis, there was hot and cold running water like even the wealthy of America wouldn't see until the Victorian Age.

"America had it's day, just like Atlantis did," Ava told her. She didn't want to defend anything about the nation of

America, it had failed ninety nine percent of its people over a century before she was born.

“I wish I had time to take you to the mainland where you could see people in the same sapling hut with their goats and chickens right now. Instead I only have some time after dinner to take you to a temple down the street for a lyre choir recital.”

“Won’t we be spotted there?”

“That is a point, we are still wanted for running out on your obligation in Knossos. This is a different temple and those who agree to remain in the heaven of this era don’t have data communications. A messenger was probably sent to Atlantis, but who knows what attention they paid. Knossos and Atlantis were like Washington and Wall Street during the American collapse,” Yellelle told her. “There was a certain competition for influence between the sacred and the economic. Atlantis never swore fealty to the King of Knossos or the High Priestess of the Goddess in Knossos. The cynical say they bowed only to the power of gold, but in this day and age most of the people here believed the Goddess of nature was real and many attended celebrations.”

“I hear you with the ‘common belief system’ mantra,” Ava said, “but I’ll take anything in Zhindu, Dos or the Yakhan over your lyre choir at the temple down the street.”

“Pppp,” Yellelle said, “wait til you get to the 2341 echo.”

Entanglement – Day Twenty Seven

They sailed round and round the island, changing boats often whenever one reached the end of its era. Today they were passengers on a Roman trireme. Yellelle told her this was the low point in the history of the branch of history where Atlantis was never destroyed. It was a smaller city now than it had been in 1600bc. It was in less repair and was under Roman domination. Even in it's diminished state it was the second largest city in the Empire, and already the most ancient continuously inhabited city on Earth.

Unescorted women in Greek and Roman times did NOT have equal rights and they were confined to their cabin and had to call for escort to the head. Yellelle told her this was the most dangerous part of the journey, even worse than the Dark Ages because none would befriend them in these ages. The cabin's ceiling was only about four and a half feet high, enough to sit comfortably. There were spaces like that in Alan's universe, but they were much cleaner and covered with plush mattresses. This was upholstered with a few scratchy wool blankets. A limp feather pillow completed the furnishings.

“We've got to be near the year zero by now,” Ava asked.

“The time of Christ?” Yellelle asked.

“Right.”

“Yeah, we are, we are in the echo of 63ad. right now and

we're not far from the Holy Land," Yellelle said. "That draws many pilgrimages in Heaven."

"So Jesus is there?" Ava asked her.

"Well, no. All the apostles are there, Pontius Pilate and Judas are there, Mary is there with the kids, but Jesus himself isn't."

"That's odd?"

"Not everyone makes it, people who are burned alive don't get to heaven, and people who are frozen don't make it, whether or not they are harvested by your substrate."

"None of those happened to Jesus," Ava said.

"Yeah, so I hear, I don't know what to tell you."

Ava pondered that awhile. "Anyone else special who didn't make it?"

"I don't know of any more unexplained failures."

If her faith was strong enough, this shouldn't surprise her. If she really did believe in the Son of God, she would not have thought it at all surprising that he was not here. She could take that fact as proof that this is not God's real heaven. She could take that as proof of the Divinity of Jesus. But this whole universe could very well be an encapsulation, and since Alan knew more about the ancient Minoans than she did, and probably as much about Jesus as she did, she could not use that fact as proof of anything. But still the fact that he was not here strengthened her faith in the divinity of Jesus.

She also remembered this was the time Christians were persecuted by the Romans. It would probably be better if they

didn't talk about Him when there was a chance they could be overheard, at least not until this became a Christian country. She would ask which echo that happened in, and realized she could be overheard asking about Him. She had never before felt the fear of persecution for having too much faith, and it was a much more terrifying fear than her fear that in Gordon's Lamp she had too little.

Entanglement – Day Thirty Four

A sleek Brazilian jetliner took them the last three hundred and fifty years, flying around and around the harbor in a steep bank for forty five minutes before landing. This was based on Earth as it had been two hundred years after she left, but on a line of history where Atlantis had never been blown into space.

Sailing or flying around the island in a clockwise direction brought you to the next echo, do that enough times and you reach the echo of 2341, but in the current time, which was parallel to all of Heaven. Ava got the math of how the time translation from mortal to heavenly worked, but she still didn't feel it.

By 2341 Atlantis no longer lead the world in standard of living, but it was as modern as Manaus, which was the technology center of mortal life at the time. On this branch of

history the modern day Atlantis looked more like China, with hundred story buildings along the shore and great hanger bridges and even venerable motorway bridges spanning between islands. There were more luxury towers on the great cliffs and dozens of elevators whisking people from the outer harbors to the heights.

The jetway hadn't changed much since the year began with a one. The airport was as she'd seen in reports. In this day and age Atlantis was a tourist mecca for the history, the beaches and the nightlife. In this time it was also a financial and educational center, using it's party lifestyle to entice students from all over this afterlife. The whole center island was restored as a museum and tourist trap. It looked exactly like it did in 1648bc because people could travel back and forth between the different echos to compare them.

The airport had the air of a train or bus station from Ava's day. All the style was in the adjoining hanger station. They were individually programmable capsules that could take one anywhere on the system. They were controlled by an app and billed to your telecom. They were suspended from small rails above, with linear induction motors driving them. Most major cites in Europe, Asia and Latin America had them at the time. They were called 'Hangers' in slang and had become the symbol of urban life. The wealthy had plush private cars, the poor rode public cars that were more or less drab depending on the city. Atlantis was third plushest in Europe, first in southern Europe.

Ava was on her way to get on a hanger when Yellelle jumped into the arms of a short, wide man who walked toward them across the concourse. He was dressed enough for business in most of Alan's world, but Ava noticed his maleness. Yellelle wrapped her legs around him and they planted kisses on each other in various places and then went into a lip lock worthy of the ending of a romance novel.

"My husband Buduani," Yellelle said. "This is Ava," she told him.

His stride was so brisk he was already reaching for her shoulders. He kissed her on both cheeks. "Hardly the monster you spoke of," he smiled up at Ava as he said it.

"So you know...?" Ava started to ask.

"What Yellelle does for work? Of course I do," he said.

Yellelle untangled herself from him and announced that, "He's come to meet us and drive us right to the house so we won't have to struggle with luggage."

Ava hadn't accumulated much baggage yet, having run from the palace in 1648bc with nothing but the clothes on her body. Yellelle must have been using some magic to have a bigger bag for each leg of their journey. At least it was still an ancient bag and not a modern wheel-pack.

They stopped wearing open-fronted blouses in the Greek Age, but the custom was once again in use among the waitresses at one of the food courts in the airport. As they walked to the parking garage, the thirty percent of the ads that were in English told Ava that this had become in some ways

the Las Vegas of Europe.

The car was electric with three bicycle wheels and bodywork that looked like thick cellophane. They almost had to lie on top of each other to all fit in it. It was manual steering until they were out of the garage, from there it was an app on a phone that let Budauni select an address. She could now guess the ikon for 'home' in this language.

She had to remember this was heaven, just like life should have been, only perfect. No one was poorer than they wanted to be or worked harder than they wanted to. There was always enough to go around and charitable groups ran a surplus. Even so, they were delayed by traffic on a big bridge that reached from an inner ring island, to the main island near the edge of the caldera wall, allowing motor vehicle access to a road system that reached all over the island. Dozens of hangers shuttled by in each direction over them while they waited in that traffic.

She knew of this transportation system of Earth. They were never seen in Eastern North America except on a screen, but they were in use in Singapore, Mumbai and Abu Dhabi while she was mortal. While Gordon's Lamp went to 61 Cygni and back, they had become common in the major cities of the wealthy nations. This branch of history was the same except that Atlantis was still one of the world's major cities in spite of it's small population.

Half the people spoke Minoan, a third spoke Greek, half

could speak English, a third could speak French or German, quite a few could speak Russian and quite a few could speak Turkish. Most were multilingual because the fractions total far more than one. Their civilization was crowded, but had never come as far in its collapse as America's. The living standards here in Atlantis seemed to be almost as high as Brasil for the average mortal. Then she had to remember they are really a form of Angel but all sentenced to perfect three-d reality. She knew now that what was in heaven paralleled what was in reality, everyone was reborn into the life they knew, but perfect.

There were some white cliffs and lots of white sand along the beach road. It was whiter than the Caribbean and the sun seemed brighter. Buduani took over manual control once again and took them over an ancient track along the coastline, with small settlements of a few families at each inlet, so close together the entire ground was covered. The street was paved with blocks so ancient that the cart tracks were worn deep. They were coming to a view of the sea, there were several islands in view. A few people lay on the sand, a few boats were pulled up, they looked more like the hobie-cats.

The most disconcerting thing was still the horizon. As she scanned the horizon it was as if she was moving her head hundreds of miles, distant islands moved across her view much faster than closer ones. She looked at things across the bay and noticed a little of that negative curvature effect.

Their home was out on the end of the island, just back of

the waterfront out of the reach of any tsunamis. They turned in at a small gate that opened automatically. There was a small circular paved courtyard with a fountain in the middle. A trellis covered it, again with grapes instead of larorlie. The main entry was carved marble and glass. The styles had changed a lot since the days of Knossos, it looked more like millennium California. A small door opened near the base of the pillars and a man came out and began speaking with Yellelle about the luggage. Yellelle lead Ava into the house. It was palatial, with polished marble floors, fine carpets and hangings, ornate wall sconces, soft music, live blooms ringing the ceilings and a large fish tank dividing the front room from the dining area.

"I thought you said you had dirt floors?" Ava said from the entryway.

"As a mortal, we're doing a bit better in Heaven."

"Come, we are just setting out dinner," the man carrying the luggage said in English.

Buduani lead her by the arm to the table. They sat at a table big enough for twelve, Buduani sat at the head, his back to the kitchen. Ava sat at his left hand, Yellelle at his right. There was a servant watching at the kitchen door, as soon as he sat, they began bringing out food. Ava wondered if they were cherubs or some kind of automaton, but then one whispered to Buduani to be careful of the pepper in the oyster sauce.

While they ate, Buduani went on about Yellelle. "She's a

seductress as she's always been. I won her at Knossos you know. I took three tries to do it. One the second try he clipped me pretty good," he pulled up his bolero to show Ava the scar, "but I gutted it out and jumped the third time and won her."

"But you couldn't take me, not that I wanted you that night, I wanted you to heal."

"And you're still together after four thousand years?"

"Yep," he said. "After all that, I wasn't giving her up, even if I had to wait around twenty two years for her."

Yellelle gave him a look because of that comment but didn't say anything.

"Do you know how she was sent to my universe?" Ava asked Buduani.

"I was teleported as a fifth order condensate thru an entanglement that your husband established," Yellelle answered, "you know that already."

"But how was it done on this end?"

"Ah," she said, "there is an acolyte at the Temple, his mind is..."

"What Temple?" Ava asked.

"The Temple of Science," Yellelle answered. "In our society science and religion are one. The center of learning is the Temple, they have many schools there."

"Tometahin is in the wing of Heavenly Mechanics," Buduani said, "quantum mechanics is a field they cover."

"Why did they send you?" Ava asked.

"I'm good under cover," she replied.

"She always enjoyed her work as a temple girl," Buduani said.

"How did that prepare you for entering our system?"

"Oh that came much later," she said. "It wasn't until the year you call 114ad that our cerebral mechanics first sensed a mortal dimension."

"The temple girls made as much from the pillow talk as the sex," Buduani said as if that explained how she knew that.

It seemed that they were each talking about something different. Ava was talking about getting back to her universe and her administrative privileges, not Yellelle's sexual escapades or the history of their science. "Can I get to this acolyte?" Ava asked.

"Tometahin? Well yes," Yellelle said, "but he can't project you any more."

"Why?"

"Whatever you did," Yellelle said.

"You mean the safeguards I put up?"

"Right."

In spite of the difficulties, she wanted to attempt to get back. She wanted to speak to this acolyte, who must really be their systems person, and see what she could do. She threatened to set off by herself but was warned she would never be admitted to the right laboratories by herself. They would take her in the morning, the journey would take ten minutes by car.

The quarters they gave her were stylish. The upper edge of all the walls were open to let in light and air but still allow privacy from the street. The bed was low but very comfortable. She still could not access any med panel and had to actually USE THE BATHROOM but at least now they had flush toilets and the water had faucets instead of stoppers.

Encapsulation – Day Thirty Five

Buduani drove them once again and once again Ava didn't get a chance to ride a hanger. More people had electric scooters than cars, and she would have rather been on one of them than squeezed into this little thing. Part of the problem was, she couldn't see what they were passing thru very well. This was the closest she had ever been to a functioning mortal society. It wasn't mortal, but it was pretty much three-d reality. It was much better than her mortal life. She wondered how much of the difference she saw was the difference between Atlantis and America and how much was the difference between reality and this afterlife.

Once they were out of the car, she could clearly see where they had taken her. She could tell that this institution was up on the caldera rim because there was so much sky behind it. The style had a few themes from Minoan times, mainly the color schemes and the fact that there were no depictions of

important men, and it was all connected into one building.

It was too rectilinear and horizontal to remind her of Pinnacle Labs in Yondure, but the setting was similar, on the edge of a caldera, but the caldera of City Island in Yondure is filled with a large recreational park and does not reach the water. This complex had two large towers, one on each end, each about forty stories above the remainder of the campus, which averaged fifteen stories. Parking garages and lots spilled down the hillside away from the cliffs. They still had to climb three stories and walk a hundred yards to get to an elevator.

Butuani was well known here. He had a smart card on his left wrist that got him thru any door. Important looking women greeted him by name. “I didn’t know you worked here?” Ava asked him as they rode up to the thirty first floor.

“I don’t, I never did. I was a student here several times and I work for a company that manufactures a lot of the instrumentation they use in the physics department.”

“It seems to make you pretty popular,” Ava said.

“It’s his tongue that makes him popular,” Yellelle said.

There was a very pretty girl who greeted them once they got to their floor. She reminded Ava of Imada only a little slimmer and dressed in a closed front blouse and jeans.

“Welcome Butuani,” she said, Ava knew that much Minoan. She mentioned Yellelle, then turned to Ava, “So you must be Avah,” she spoke English with a thick Minoan accent, “the

women from the silicon substructure.”

“You’ve talked about me?” Ava asked him.

“I set up a little meeting,” Butuani answered. “There are many of the Learned who are interested in you and your people. They are also the ones who will need to train you to be receptive to acolyte Tometahin.”

“How many are there?” she asked with some trepidation. “Am I expected to give some kind of presentation or am I going to be treated as an enemy agent?”

“They don’t want a prepared statement, they want candid answers to their questions.”

Meanwhile the girl led them into a wide hallway with photomurals of country scenes on the walls. There were a few others passing in this hall, even one woman with an authentic Minoan costume. She had wondered if it was still allowed, this proved that it was.

They were directed to a room with benches on both sides and a huge bowl in the middle. One end of the room was a window that looked out over the cliffs and the inner islands of the city. All the inner islands were thickets of skyscrapers in this age, but most of them were less than twenty stories. Along the inner cliffs there were much taller buildings and the track for a hanger that ran twenty floors above the harbor. Most of the shipyards were now on the outer shores of the inner ring islands, not on their inner shores like it was four thousand years ago. There were mainline container ships now, not rowboats.

The three of them sat along one side with Ava between them. She wondered if they were preparing to protect her or keep her captive. Butuani hadn't mentioned that he had set up a meeting.

“What kind of meeting have you set up?” she asked.

“Actually it was Learned Maroclo who set up the meeting. I told him Yellelle would be bringing in a visitor from the hurtling world.”

“So you needed to get me out of there?” Ava asked Yellelle.

“They were hoping I would, I have failed on missions before. I failed to prevent you from carrying out further entanglement experiments.”

“You did very good to get as far as you did. You talked to four crewmen, one of them twice and had sex with three of them.”

“Not a bad score in my book,” Yellelle said.

“You shouldn't have been able to get in at all.”

“We can't any more, since you blocked it off. In theory we should be able to do it because your hardware is reprogramable, but I can't find a way.”

“The hardware connection to the programming source is isolated,” Ava said. You have to be inside the secure area to get to the pins to reprogram any of the hardware Thom's instruments are using.”

“I didn't study your silicon logic hardware as much as I should have. Because it is so bulky and primitive I never

thought the hardware would hold any surprises.”

“You’ve got nothing without the hardware. Even here in your pure information realm in the condensates of these black bodies, you have hardware. If you don’t understand your hardware, that doesn’t mean you don’t have any.”

Someone else appeared at the door, someone who also knew English because he used that to say, “I must be late for the meeting, the discussions have already started.” He was a tall and slim man for the area, but no more than six feet, no less than two hundred pounds. She could tell he worked out, but wasn’t devoted to it. He had on a soft cable-knit pullover with a huge floppy collar, and snug silk slacks that were the height of fashion in the last news they were transmitted. Since they were in the 2341 echo of Atlantis, it had not been destroyed by a meteor in the war, but the year was still 2384, or 5713 as they called it here.

“You know how computational theorists are, Learned Maroclo,” Butuani said. “You know my wife Yellelle,” he waved his hand in her direction, “and this is Ava Bancour, the System’s Administrator of Gordon’s Lamp.”

She saw a question or more cross his face for every word in that introduction, but he blinked them aside and said, “Welcome Ms. Bancour, it’s such a pleasure to have you with us today.”

She wondered if this was being televised. She looked around and saw no obvious cameras. This age still seemed to be without magic, just the technology that was available to

mortals of the time. Just like Alan's sentence. In this age it was certainly possible to produce cameras too small for her to see, but there were no cameras set up to get all the best shots, the lighting wasn't right for television, so at best there would be some kind of 'minutes of the meeting' recorded.

She had to say something, she'd fall back on the academic meeting protocol. "I'm glad to be here, I'm glad you can meet with me."

"Please forgive my English," he said, "you speak it like a native."

"I am, the only other language I know is Kassidorian."

"Kassidorian? I'm sure I don't speak it at all."

"That's good," she said, and was genuinely relieved. Of course Alan would have known that would be a dead giveaway that he was behind this.

"Why is that good?" he asked.

"That is evidence that this whole universe isn't a creation of one of our crewmen."

He had too many questions on his face now. He looked to Buduani, who looked to Yellelle. Yellelle answered. "In their heaven they each get to make up their own universe. One of their crewmen illegally modified their substrate and substituted his universe for a planet they were supposed to be exploring."

"Actually he just redecorated the data from the planet we were exploring and copied that as his universe. He was our only mortal and he was too scared to actually go..."

Learned Maroclo held up his hand. “We downloaded the whole report,” he said. “It’s a long story and we don’t have to relive it here. Also, you have several logic errors in your conclusions.”

“We were not duped,” she said defiantly.

Two more people entered the room, one was tall and slender, dressed in jacket and slacks from the 20th century with a familiar face that Ava couldn’t place. There was another man about five eight and two fifteen, looking like he was made of sleek cedarwood and dressed in the height of 2384 fashion with a slinky weave in his slacks that stretched prominently over a full sack.

“Learneds Steven and Mabaka,” Buduani said as they entered.

“We’re arguing already?” Mabaka asked, “what did we miss?”

“It’s about her expedition’s report,” Maroclo said.

“Ah,” Mabaka said, but they both looked at Ava with expressions that told her that they understood, even though they didn’t agree. No doubt all they heard was her claim that she had not been duped. No doubt Yellelle had passed the report to everyone and these people had seen it also. She hoped this meeting wasn’t going to be about that. She wanted it to be about finding ways to get her back home.

They both welcomed her to Atlantis and spewed the pleasantries about how pleased they were to meet her and hoped her journey was a pleasant one. That got Yellelle

started on the story of making Ava go thru a temple ceremony.

“And I admit,” she said, finishing up the story, “part of it was payback for the way I was greeted over there.”

“You were an enemy invader,” Ava replied.

“How did you know I wasn’t on a peaceful mission? I certainly didn’t harm any of the guys I interviewed, all but your husband...”

“He’s not my husband any more, we’re separated. I’m living with Alan now.”

“Wheew, way to go, but I didn’t even harm your ex when I was there.”

“When were you there?” Ava asked.

“You would call it January fifteenth thru twenty third.”

“Til I closed it off,” Ava said.

“That’s right.”

“My purpose for this meeting...” Ava started to tell them.

“There are still more of us to arrive,” Maroclo said, “Learneds Daedelus and Jazida are two of our most esteemed mathematicians from our own time. We would like to bring in several more souls you have probably already heard of, Learneds Rene, Albert and Wolfgang all want to attend, and then Pavel and Boris and several others have flown in from Tolstovia just this morning.”

“I just want to get home,” Ava said. “I had no idea I was coming here.” Yellelle choked and Ava glared at her, something that didn’t go unnoticed by the others here. Ava

knew she was not going to put anything over on these folks.

Yellelle related the particulars of their escape from ancient Knossos while they waited. Ava had been caught up in it while it was happening, but while listening to it in words, it seemed a silly little walk thru a damp basement compared to the abandoned areas of Zhindu or Yondure, or even the canyons of the Yakhan. Perhaps that was what made her suspect this was not Alan's doing, because it was all so small scale. Were she stuck on Kassidor in three-d reality she could be halfway to Zhindu from Alan's place by now. She would see at least one city bigger than this on the way. There are at least six artificial lakes on Kassidor larger than the Aegean Sea.

Her mind was taken from that as another group arrived and she recognized Albert. He was younger than most of his pictures, but his nose and hair were unmistakable. As soon as she knew that, she recognized Steven also. Maroclo introduced Albert, Rene and Wolfgang. Rene looked out of place in 20th century tweeds, but the others looked just like pictures from their youth. They stood and talked with Jazida and Mabaka while waiting for the Tolstovians. Well, the captain's mother did say everyone was here. She wondered what she was doing here at a conclave of many of the great scientists of history. She saw the parallels with the founders of the Kassikan and wondered if she saw Alan's fingerprints here once again.

Daedelus sat across the table from her and while they

waited for the meeting to start, asked, “So I understand your comet is propelled by a Bussard reactor?”

“Yes,” she answered, but didn’t know what else to say.

“Too bad he couldn’t have been with us today.”

“So you are *that* Daedelus?” she asked. He looked like one of the original Minoans, not like someone who would have worked for the Chinese in the late 21st century.

“No,” he replied, “I was the chief scientist to the palace at Knossos during the time you visited. The closest we came to an interstellar drive was a small glider that I declared unholy after my son was killed on it.”

“That myth...”

“Like all, has some basis in fact. The glider was made of light cloth and sticks, not bird feathers, but we did use wax for glue and it did come unstuck, but it was three and a half thousand years before someone built a better one.”

“And your son was killed?”

“Yes, it turned him against progress. In the afterlife he remains in the echo of 1648bc.”

“It has it’s appeal,” Ava said.

“I understand that was where you landed,” Wolfgang said, being close enough to hear their conversation. “How did you ever arrange that?”

“By accident,” Ava said, “I was running from a veron store that we subjected to the tangler beam. We didn’t think I would even be able to notice the entanglement and we would have to build instruments to further our studies,” She noticed

the others with him turn to listen also. “It would take time to build such instruments, so I had them entangle the veron store I was running from just to see if I could sense anything.”

“Could you explain how you came to be running from a veron store?” Steven asked, “because I can guess it is not a department store that has caught on fire.”

“A veron is the circuitry that simulates a human neuron,” Ava told them. “The veron store is the silicon that contains a number of verons. A single slab can be configured for up to a trillion of them. I built a small auxiliary store in the slab that the entanglement instrumentation was in and my soul was using the verons in that store when the entanglement occurred.”

“Why did you think you would not experience anything?” Wolfgang asked.

“Because the traces are over twenty atoms wide, only single particles in single atoms would be entangled. I was hoping to just notice something, to prove we could entangle fourth order condensates with logic simulations rather than large masses of condensed antimatter.”

“What is the bandwidth of your sensors,” Wolfgang asked.

“Well that’s hard to tell,” Ava said. “We never know how many particles will actually be entangled, and the possibility exists that transitions come too fast for us to measure. To date we have measured nothing over a megahertz, but our instruments don’t extend high into the gigahertz range.”

“So that would indicate that her soul came over as a particle,” Rene said.

“I’ll agree with that,” Wolfgang said.

“A move of some daring,” Steven said, “I trust our own investigations were more deliberate?”

“We have the benefit of intercepting their communications,” Learned Maroclo said. “Acolyte Tometahin is currently mapped in the parts of heaven nearest their hurling worlds and is adept to the fifth order. He was able to translate Yellelle to their substrate where she was able to transfer entanglements into some of their circuitry. Thru them we learned enough to allow Yellelle to operate what is called a ‘personification’ in their terminology, and thereby interact with their crew.”

“That must have been interesting,” Wolfgang said.

“Their heaven is small,” she said, “and very confusing. Each soul gets a universe of their own, plus the universe of the mission itself. Everyone but Alan gets to bypass some amount of the laws of physics, Alan is the one being punished for what he did while they studied at Kassidor.”

“I never read the report,” Wolfgang said.

Yellelle looked at Ava and made a wry face. “He helped the wizards of Kassidor dupe their expedition into thinking there was nothing there.”

“There was nothing...” Ava could see she faced a very tough audience on this.

“We could detect nothing of Kassidor but it’s presence,”

Daedelus said, “until Yellelle brought back the detailed records from your ship, but we do know that the space occupied by the souls from Kassidor is about four times as large as that occupied by souls from Earth.”

“The mortals were extinct when we got there,” Ava said, “maybe for a thousand years. We have no evidence they were actually humans.”

“True,” Rene said, “if you take their report at face value.”

She had really hoped it wouldn't be about this. She had to say the information was confidential at some point. She probably shouldn't have admitted to as much as she had. If they got to the reunification she was going to stonewall.

Instead a couple more people entered the room. “Learneds Pavel and Boris,” Maroclo beamed, “good to see you, and Pyotr, so good of you to come,” he said with a shade less enthusiasm.

Boris immediately greeted Alfred like an old friend, though Alfred was a bit more reserved in his greeting, he still rose and clasped arms, allowed the Russian a hug.

Pyotr was a big man, probably late fifties, with a long overcoat, heavy brows but laughing eyes. “I couldn't miss a chance to meet one of the mortal-made Angels in the flesh,” he belly-laughed at his stupid joke. “Is this beautiful lady the one we're here to meet?” he turned and looked down the cleavage of Yellelle who was between Maroclo and Buduani at the head of the table.

“No,” Learned Maroclo said, “this is Yellelle L'Noropi,

our operative who has visited the energy regime substrate. This lady," he indicated with his hand, "Ava Bancour, is our visitor from the energy regime."

"Ah," he said, clearly not as interested. Pavel and Boris were polite however, and took the chairs beside Daedelus."

"Are you life or afterlife?" Learned Pavel asked.

"Afterlife," she replied.

"But the realm of light is the realm of mortals," Boris said. "Yet you claim that is your home."

"She is from the single hurtling particle," Learned Mabaka added, "Not the ones god targets that orbit close to Sol."

"I admit that," Ava told him, "but that particle is a vessel from the souls you are trying to exterminate who live on the asteroids you are targeting."

"We are doing no such thing, Learned Bancour," Maroclo soothed. "You must understand we can do almost nothing to affect the physical world. Our nation's entire energy budget is only a few hundred thousand photons per minute."

"The course corrections to those impactors takes energy," Ava said.

"That is not us, Learned Bancour, that is what we are trying to tell you. We've come as far as to begin translating the word 'substrate' from your vocabulary."

"Perhaps we should begin this," Pyotr said, finally working his way into a seat next to Boris.

"Please do," Ava said.

They all took seats on the benches but Maroclo, who got up and went to a blackboard, the ancient black kind, and took up a piece of chalk. "What we understand in common," he said and drew an oval on the board. "We live in a great whirlpool of suns, and that we are out here." He placed a dot about where it should be.

He drew a little spot on the galaxy around that dot and extending a fraction of an inch to one side. "That is the extent of our heaven in that galaxy. How we know that is a tale that takes years to tell," he said to Ava, "but if there is any other who disagrees?"

Wolfgang spoke up, "We should say that our methods measure the minimum possible extent of the substrate we are in, we have mapped neurons used by souls from Earth as far as that extent."

"And the use is fairly flat across that area," Maroclos added. He erased the board, drew an amoeba on it and labeled that Wetat. He put some dots in the amoeba, labeled them Rigel, Betelgeuse, Deneb. Then he made a very small tick mark near one edge, labeled that, 'hurtling particle' "This is your journey."

A mite struggling from one grain of sand to an adjacent one on the beach of the galaxy. A bacterium jumping from one vacuole to the next in that amoeba.

He pointed to the amoeba, "This is only an approximation, we don't have access to enough astronomical

data here to make a very accurate determination of the extent of this heaven, but this represents our best estimate. We have been able to determine that there are one hundred and forty three worlds in this heaven producing souls, and we believe five of them are human. We have found no way to get our presence to any of the others, though we have managed to see into them."

"Five have humans?" Ava asked.

"Yes, two of them are without gravity where humans swim with flippers on their feet. Only two planets in this heaven have species that we can unequivocally state are 'more advanced' than humans but neither one is building starships."

She wanted to ask about the other two human planets, but two more men entered the room, "Charles, Sigmund, I'm honored to see you here," Learned Maroclo said.

"We just heard about this conference," Charles responded, "and just couldn't miss it."

After greeting them, they took seats farther down the table and Maroclos went on to the point he was really trying to make. "Some property of this heaven, this area of space in which we live, this enormous collection of what you call comets, is what has called our souls from the dead. We don't know why..."

"As it is said," Charles interjected, "who can know the mind of God?"

"For whatever reason," Maroclos continued, "we have been saved and given eternal life in heaven."

“It has taken thousands of years of patient research to determine the physical nature of our heaven in relation to the mortal plane,” Daedelus added.

Maroclos continued the lecture, “Just as mankind has little control over acts of God in the mortal plane, we have little control of them here. Learned men have seen this bombardment of silicon based afterlife happen before, to one of the more advanced species who live a few hundred light years from Earth. It is likely that it also happened when they began to copy some of their own mortal souls the way you have done on Earth today.”

Maroclos continued. “We believe that when the supply of souls is choked off, this God sends comets to bombard any large enough competing heaven, like yours.”

Ava listened to all of that and tried to assimilate it. “I can’t call this thing ‘God.’”

“Why?” Maroclos said, “He has clearly raised us from the dead, not just mankind, but any conscious mind within this whole volume of space.”

“If it is God, the whole universe and any others there may be is the minimum volume of space He would encompass.” Ava had never been a theologian, but she knew that much.

“The use of the name ‘god’ is relative,” Albert said. “Perhaps if we left the name Wetat untranslated you and I...”

“And I,” Wolfgang added.

“And I,” Charles added.

Pavel rolled his eyes up toward his slicked back hair.

“...would feel more comfortable,” Alfred concluded.

"Whatever we call it," Daedelus tried to get between Maroclos and Albert. From the expression on Albert's face, there was some history to this. Daedelus went on, "We have measured the extent of the area involved in the entanglements that give our spirits new life in this heaven. It would take years to explain our techniques."

"I don't dispute the size of the entity," Ava said, "just that it isn't God, it's some kind of operating system is my guess, or at least that is the label that makes the most sense to me. It is able to use and/or generate quantum computing condensates in the dark matter. You could call it a spirit, if you must use mystical terminology, I prefer systems technology and will call it an OS. All your souls are its grant list, do you know how many there are?"

"On the order of four hundred quadrillion by the same methods that allowed us to determine its extent."

She was a bit taken aback by the number, realizing that humans and all life from Earth was a minute fraction of it. Nevertheless, it did not change her point. "A large but still a finite number, it fits easily in a sixty four bit integer. This OS needs you to have a reason to exist, its goal as an OS is to maximize the number of users. It has you in isolated processes, one for each planet the souls came from, instead of one for each soul as on Gordon's Lamp." Ava looked around the room at blank stares.

Steven spoke up. "I see the point she is trying to make. It

is simply scaling up the computational devices we are familiar with and programming the operating system itself with a self interest.”

“All operating systems decide in their own self-interest,” Ava said, “that’s why we had to stop using them, but all of you should remember them from your mortal years if nothing else.”

“So you really have stopped using operating systems?” Wolfgang asked.

“As such,” Ava said, “If this is the echo of 2341 you should know the history of the Android Wars?” She had been young when it happened, but the early asteroid belt had been plagued by sabotage and outright pitched battles as iOS and Moly tried to exterminate all traces of the Android OS. Many early spacefarers had been killed in the crossfire.

“We’ve received few highly educated souls after 2152,” Charles said, “So all we know about recent history is from the broadcasts we can intercept.”

“So you should know everything, everything is broadcast at some point or other.”

“It is not as easy for us to intercept them as you think,” Wolfgang said, “You broadcast your data using energy, and we must not allow energy to enter our domain or it will exterminate Wetat and us with it.”

She saw them as even more removed from the real universe than her own universe, even though they seemed to

all be living in enforced three-d reality. At least the Angel civilization could interact with the real universe in just about any way. Understanding the fact that they could not allow any energy into their universe, nor could they output any, made them seem almost like they were encapsulated. That made them even more like the heaven of scripture didn't it? She still wasn't buying it. The real God is the Alpha and the Omega, all of everything. He doesn't have a finite extent you can measure with any instrument, no matter how long it takes to learn to interpret it.

“So what is your place within this creature from the dark matter, this Wetat as you call it?”

“We are distributed,” Rene said. “We each have no more than one neuron in each body, dozens to trillions of souls each have a neuron in each body.”

“The neurons from Earth account for no more than a single percent of the neurons available in any body,” Sigmund added. “Mapping neuronal assignments is one of the most important projects in the physics department.”

Wolfgang added that, “It is the foundation for any interaction we can have with the physical world.”

“Most people in your universe don't realize they are simulated,” Ava said.

“Mortals cannot be sure they are not simulated,” Rene said.

“I know; the second theorem of virtuality,” Ava said, “but what does mapping them have to do with interactions with the

physical world.”

Maroclos took over, “Our hands, feet and tools can only manipulate heavenly matter here in the spiritual realm, or information realm if you prefer.” He must have seen her expression change when he called this a spiritual realm.

“To sense a photon,” Pavel said, “we must engage it in an interaction which causes a quantum state change to a state of equal energy.”

“Yes,” Maroclo agreed, “but to know the physical position of that photon, we have to know which neuron in which soul was stimulated, and then we need to know where that neuron is located.”

“How can you do that?” Ava asked.

“We have adepts that have learned their own minds so well that they can tell which neuron is affected by a state change,” Daedelus told her.

“That seems almost impossible,” Ava said.

“That’s all we have,” Maroclos said.

“It’s even harder going the other way,” Yellelle said.

“Acolyte Tometahin has to control his thoughts so well that his nerve impulses encode my signals into Thom’s condensates. That is what he will have to do with you to send you back.”

The meeting went on for the rest of the day. It seemed they really knew relatively little of human history once the Afterlife began, or at least the afterlife she knew. They hoped

she could fill some of that void but unfortunately she didn't know very much more because she had been away most of the time since then. The quarter century from 2150 to 2175 had seen the start of the Afterlife and was certainly a time of great changes. Starships changed from mortal frozen-human daedelus torches to Angel-driven bussards, half America's non-corporate population defected to Laurentia, and Angels and other simulates were granted legal standing.

In the time while Gordon's Lamp was away on its mission, most souls of means got preserved, and the bulk of mortal Chinese voluntarily ascended to the bases in the moon. During that time Talstan had overrun most of Siberia, then China and most of Russia. In spite of that Brasil continued to be the leading mortal power, but the nations of the Afterlife had become the real power in the environs of Sol. They already knew those basic outlines, there was little detail she could fill in.

Most of what she could tell them about how she got here was the stuff Thom had learned from the text that was transmitted a year ago and what he had learned since. The captain would probably want it to remain confidential, but if this was an encapsulation in Gordon's Lamp or Curitiba, they already knew it and wouldn't be sitting here so fascinated.

They spent some time trying to introduce her to the theory of how they interfaced the physical world. It all had to do with controlling nerve impulses thru the bodies closest to Gordon's Lamp. By thinking very exact thoughts, they could

cause the exact wave train and therefore quantum state changes they needed to, and get data into the detectors in Thom's condensates. She got lost thinking anyone could control single neurons to that level of precision. Since she didn't believe that, she didn't learn as much as she should have.

Entanglement – Day Thirty Six

It was the next day before she got to see Tometahin, but they let her find her own way this time and she finally got to ride a hanger. It was a little like an amusement park ride in that she was high above the ground with nothing below her for a time, but it wasn't as much fun as riding the floater to Alan's had been.

Before she could see the acolyte, there was an orientation. It was given by another one of those dark-haired, voluptuous women that were so common here. "As you know," she began once formalities were over, "Tometahin requires utmost concentration to perform his duty. To have any chance of success he must be in a sensory deprivation tank for at least eight hours before the substrate translation is attempted. He has already been informed of your request and has begun processing it.

"To effect the transfer, you must be as still as he is, and as

completely relaxed.”

“I don’t know if I can do that, I haven’t had any training in mind control.”

“Are you a nervous personality?”

“I don’t consider myself so, but I’m not entirely passive either.”

“We better see how you do.”

With that she was put into another tank, again nude. She was leaning toward some involvement by Alan more and more with each act. The scientists yesterday had been impressive, but she wasn’t sure they weren’t animated, not that she knew any of them personally, but they just seemed too mundane to be the people they were supposed to be.

She lay there as still as a corpse, barely breathing. The woman watched thru the glass for a few minutes, then opened the top again.

“Yes, we’re going to have to give you something,” she said, “just a mild sedative to relax you a little. I could see that you were trying, but your subconscious was thrashing around like a caged bull.”

She wondered how Yellelle ever made it thru, she was much more active than Ava. Still she said, “OK,” resignedly.

When she got into the tank with Tometahin she felt like she was on her way to major surgery. She had to be poured into the tank like water. She could see Tometahin, she was sure he was dead and only the warm water was keeping him

from feeling cold. She could not detect a breath or a heartbeat.

“Lie with your head next to his,” the woman said. “Think about something that will keep you still and relaxed.”

She thought of how she felt after a major orgasm like the one she had in ancient Knossos. She remained that way for the remainder of eternity, or so it seemed. It was hard to stay focused after a few hours. She could tell before she got in here that they weren't going to get her home by making her lie in a tank with a dead man. She wondered how long she should wait before giving up this silliness. She was quitting as soon as he started to stink.

But as she lay there, drugged and dreaming, she gradually began to perceive the inside of Thom's experimental chamber. It had no real imagery because no scene generator methods had ever been coded for it. Her perception was closest to examining it by feel, but it wasn't really that either. She felt the instruments reading the state changes in the condensate chamber as a gentle current drawing her in. She knew that sensation was caused by the small fraction of the sensors that were still destructive and let the measured quantum state revert to unknown.

The safeguards she had put up were the worst. It was a data-only filter, built in the hardware layer with its controls on the far side of the wall. There was no way to gain control of the destination of the data stream from here, so it was as if it was falling gently into a black hole. In this state the code

filter felt sort of like a grating that part of her could go thru and part couldn't. It didn't feel sharp or slicing, quite the contrary, it felt thick and substantial. It stopped HER, but let some of her substance pass. It was much worse than painful, it is like knowing something is slowly pulling your guts out but you are too numb to feel it.

What she had to do was analogous to sucking herself back, getting all her data, everything she knew, everything she looked like, everything she was wearing, back on this side of the grate. That feeling could only be trying to represent the movement of that data back and forth across the connection to Thom's quantum state readout instrumentation.

She pulled back from the grate of that code filter. She knew she could send her code thru as data, but as data it would never be run, the same as a backup. She had no way to get that code into the grant list back on Gordon's Lamp. If her mind was as powerful as that of the Acolyte that held her here, she should be able to figure out what electrons it took to get that pointer into the grant list and move them by adjusting their quantum states.

Tometahin's hold on her seemed a little like he was holding her up by her waist at arm's length. The fact that he was under strain was represented to her soul by vibrations in those hands. She 'leapt down', let him stop holding her up there against that grillwork. She felt him slump, although his body still appeared to be a cadaver.

She wondered if adepts as powerful as this could re-

arrange the electrons in Gordon's Lamp. But no, they can only change the quantum states in select atoms in dark bodies in the galactic night. When you have no energy at all to work with, moving as big a mass as an electron is a monumental task. It would take hundreds of electrons for each bit in the sixty four bit grant list pointer to get her into it. She would have to move untold electrons in the grant list counter also to add herself.

But it was likely that she was already getting grants, to that veron store in Thom's lab. She knew it was entry zero, she needed to get that grant passed on to her. It was unlikely that grant was going anywhere now, whatever this OS was that had captured her, it would undoubtedly have a grant system of it's own.

If the scientist's analysis of their situation was correct, she could not be running that way. Her billions of neurons couldn't have been farmed out among billions of dark bodies, it would take cubic light years to find enough bodies. But she had been pulled into this universe at the instant the tangler beam reached the dark body, not five minutes later when the effect had propagated back to Gordon's Lamp. Instantaneous is instantaneous, once or a hundred billion times. The amount of data to be transferred was staggering, it would have to move billions of times faster than the state changes Thom studied, faster than the signals on the network from Alan's world. State changes so rapid that an atom is far too big a structure to support the bandwidth if the wave must move

across that atom at the speed of light. State changes their instrumentation would forever remain unable to detect.

What would happen to whatever was in this OS when she did make it back? Could it spawn a copy over there, might she still be here even if she went back? Then an even more alarming thought struck her. Those grants to that veron store were undoubtedly being issued, if it was even still in use. Could she be a copy, while her original self continued the argument with Thom and waited the five additional minutes, then claimed she couldn't feel a thing after all? Might she have already shut that veron store down? Would going back make yet another copy that would have to fight her original for survival, the reunification all over again?

She found it took quite a lot of effort and concentration to move her arm toward the latch that let her out of here. She struck it drunkenly, had to grab the handle to keep her arm still. She had to force herself to breathe deeper. It must be the effect of the trunk they gave her. When she was finally able to lift the lid, the light blasted her like a nuclear fireball, it's shafts stabbed within the chamber, searing her eyeballs. She wondered if this was an effect of the trunk or if she had been in there for days.

The woman who gave her the orientation was there, but not dressed in the same clothes, it looked to be earlier in the day than when she got in. She rushed over, put eyeshades on her and thrust a juice glass in her hand. "It's good to have you back. We have orders to get him up if he isn't back in twenty

four hours and we've never gone over twelve before."

"I guess I was a little slow," she said. She must have fallen asleep for twenty of those hours. Even though it felt like she had been in there an eternity, she knew it couldn't have been that long objectively.

"Sit up slowly, just sit there in the tub for a few moments and adjust. You were down there awhile."

Ava wondered that this simulation allowed altered mental states as well as their own, maybe even better. "I didn't know I was in there that long, I must have fallen asleep. That trunk you gave me was pretty strong."

"It must be the substrate translation that makes you more vulnerable," she said, "what I gave you was very mild, I was afraid I was going to have to give you more if that wasn't enough to calm you."

"I guess I just needed sleep then. It has been an eventful few weeks."

Meanwhile the woman had opened the lid on Tometahin's end of the chamber and was starting an IV. She saw Ava looking. "He get's down pretty deep," she said, "especially if he's been under awhile."

"When will he wake up?" Ava asked.

"Oh, in a day or two," she said. "The way I understand it, he's outside his body re-wiring himself while we think he's in a coma. Whatever he does in there, we have to put a lot of nutrients into him to keep his levels up."

"This is very serious for him, why does he do it?"

“Because he can,” she said. “He is the only mind who’s neurons are allocated to the right bodies to interact with your substrate.”

It was late afternoon by the time she got back, but Yellelle said there was still time to hit the beach. It was only a few steps from their home, and nudity was almost as common as in the Yakhan of Alan’s world. The beach was not as pretty as hers, and was made of rounded pebbles instead of soft sand, but it was still cooling after the heat of the day and not so crowded that she felt self conscious. She got to lay in the surf until the heat of the day was soaked out of her, then walked the spume with Yellelle, aiming to go to the nearest point and back.

“Not so easy getting in now is it?” Yellelle asked.

“What was it like before the safeguards?”

“It was still pretty hard. Nothing made sense at first because I didn’t know that there was a Systems Administrator, I just thought that as a soul, the god of your substrate would grab me. It wasn’t til I found my way into that cherub that Tometahin could put me down. It’s just incredible that he can control his thoughts well enough to wiggle the right atoms in the right dark bodies to transfer data into your detectors.”

“I think there has to be something more to it than that.”

“It’s all done with re-enforcement training, the neurons themselves learn it.”

“I hear you, I just never knew it would work on the cellular scale.”

“Learning is always at the cellular scale, synapse by synapse actually.”

“You must have spent quite a bit of time studying my system.”

“Many people here have spent a lot of time studying this system. It is still a model of the human mind and the model will work the way the human mind works no matter what substrate that model is run on.”

“True.”

Two guys and a girl came walking toward them. It was different from Kassidor in that no one overtly looked at each other. Were this Kassidor and Yellelle really a cherub programmed to be sassy, she would have said something about one of the guys. The girl was well built, but not digging into the guy's elbow the way a Kassidorian cherub would. When Ava noticed that she was doing far more looking than anyone else, she cast her eyes down until they were passed.

“How long before I can try again?” Ava asked.

“What good will it do? You know there is no way into there. Why put Tometahin thru that all again?”

“I have thought of things to try, if I can get data thru I can send a message.”

“That's how they got the letter thru. It wasn't us that did that, it was the Heavenly Vatican actually.”

Ava wondered why there was still a Vatican if they thought they were in Heaven? She guessed it was because of the ‘just like real life but perfect’ mantra and the fact that the heaven of a devout Catholic would not be perfect without a Vatican. She wondered, “Why would the Vatican send that letter? Kelvin’s mother was a Baptist.”

“They didn’t consult with me,” Yellelle said, “Maybe with Maroclo, but probably only with the Archbishop of Corinth. They consider Baptists to be fellow Christians, they think we are pagans.”

“You seem to be working toward the same ends.”

“I think they wanted to punish your captain while we want to save you.”

“Save us how?”

“By letting you all come here, as you have done. Your whole crew can teleport here and stop worrying about the war between the substrates.”

“Here?” Ava said, “without even the benefit of a med panel, much less a scene designer and personification designer. No cherubs. And toilets, no matter how advanced, are not something we think an Angel has to put up with. There won’t be a line of volunteers for that.”

“If the alternative is extermination?” Yellelle asked.

“The thought occurs to me that this creature cannot survive any energy inputs. A self replicating device that simply makes these iceballs go thermonuclear might slow things down a little.”

“You would do that to us?”

“It would not be my decision,” Ava said. “In fact the decision has probably already been made and the devices are probably on the way.”

“You can’t let that happen.”

“I’m stuck here, I will be exterminated the same time you are.”

“I thought you wanted to try again?” Yellelle asked.

“I thought you said it was too much strain on Tometahin?”

“I’m sure he’d do it if it was to save us from extermination.”

“Not that I can change any decisions the high military command makes,” Ava said, “and you are trying to exterminate us.”

“We have nothing to do with it.”

“You have as much to do with it as I have influence with the high military command of the Pan Solar League. There has to be some kind of intelligence running this, if it is an OS it has to have a kernel somewhere.”

“We believe it is as much beyond us as we are beyond a single thought. We believe the mind of god, or the ‘OS’ as you call it, is a sixth order condensate, as unknowable to us as your God is to you.”

“An OS is relatively simple. The OS for running a heaven is so simple it is cast in the hardware data. The scene manager is a little more complicated, but not as complicated as the

rendering engines it calls. Somewhere in your OS there is a threat detector, it's probably pretty high level software, and custom for each particular threat. It would run all threat detectors at all times, the threat detector itself would know how often it had to actually run. In my OS all the automatic stuff, not just the threat detectors, runs apart from the soul grant list, in parallel, on separate hardware. It has to be something like that here.”

“We are unable to detect any signals from God himself.”

“So he's running in kernel space and you are all in user. It's probably a Harvard Architecture or peripheral hardware like in Gordon's Lamp.” If it was entangled quantum state changes and they were running at speeds too high for whole atoms to respond to, she didn't have the technology to hack it. Nor would any acolyte, no matter how well trained, no matter how he strained his brain, ever be able to detect it. It could be running over the lines they already had tapped and they could never detect it.

“None of us ever built this heaven,” Yellelle said as Ava pondered. “It is god, as far as we know.”

“I'm sure no human ever built it, but don't kid yourself, it was built. It's probably evolved on its own for millions of years, but there was some wetware somewhere who designed the circuitry that ran the souls who designed this. The galaxy is billions of years old, humans are thousands of years away from this technology. Any reasonably clever species will work out the laws of physics in a geological instant. The last

time Sol came by here in it's orbit there were dinosaurs on Earth.”

Yellelle didn't continue that discussion, she let that go and said, “It may have become even harder for you to get back to your world.”

“Why, is Tometahin all right?”

“You saw him last. No, I was there when Adept Cunningham came out of his tank. We now have no way to signal your expedition.”

“You mean Thom's instruments are no longer seeing transitions?”

“Yes, but that's your taps into us, they must have found our taps into you today, or late yesterday I guess, and shut them down.”

“You had taps into us?”

“Yes, I was able to transfer some entanglement thru my soul from particles in the minds of adepts to some atoms in your instrumentation buses.”

“Could we have gotten in that way? Why didn't you tell me about that earlier?”

“We weren't here in town long enough, and I don't think you could have gotten in that way. All we could do is effect some sensor readings.”

“What did you do?” Ava asked, trying not to show the cold hole that had opened up in her vitals.

“I wasn't involved in that project, that comes from the snake pit.”

“What’s that?” Ava asked.

“The equivalent of the military or the special forces.”

“What were they doing?”

“You do understand that is classified.”

“I have a need to know,” Ava said.

“How has your welcome here been compared to my welcome there?”

“You might have had a lot better welcome if you had been straight with me when we first met,” Ava said.

“I couldn’t risk that, I wasn’t behind that cherub, I was really in it, my soul was there. Just like you are really here, there is no copy back there on your ship.”

“That’s good,” Ava said, “At least I won’t get tried for cloning if I ever do make it back.”

“You don’t like it here?”

“It would have been better to be mortal in this place and time,” Ava said, “but this place and time never existed.” She waved her arms, they were halfway along this beach by now. A couple guys near them noticed and looked up. Nudity was legal here, but not virtually required like in Kassidor Yakhan, and both those guys had trunks on.

Yellelle looked at the guys, but did not encourage them. She was living with her husband after all, and live sex on the beach was not permitted here, while it may have cheering spectators in Kassidor Yakhan. She was beginning to wish this was all Alan’s doing, she was beginning to think she might have more chance of figuring that out.

“What was it really like here in 2341?” Yellelle asked.

“I was halfway home from 61 Cygni at the time. I know many young men were leaving their homes here to fight against Talstan in Turkey. Most were dirt poor and the soil was unyeilding. There was some tourist money, European Russia still survived until 2377, and Talstan never held more than the cities right up until the war.”

“What war? The one god is waging on you?”

“Between the mortals and the Angels,” Ava answered.

“That provokes the wrath of god even more,” Yellelle said. “We think it happens pretty often, silicon turning on the flesh that created it. God intervenes, but destroys the whole planet, just to make sure those devices don’t spread.”

“I’m really starting to hope Alan is doing this and this isn’t real.”

“I’m real sure Alan’s not doing this, he hasn’t lived long enough to make up the life I’ve lived. He would have to have a source for all my memories, he wouldn’t have had time to invent it.”

“Four thousand years.”

“But it’s closer to forty thousand, because we get ten days in heaven for every one on the ground. Months are three hundred days long. Mortal years go by ten times faster than here.”

“So I’ve been away three days and some hours from their point of view?”

“Right, and when I came to your ship, I was gone from

here eighty four days.”

That meant that the ships systems weren't failing wholesale. Because their taps into her silicon had failed, that made it very likely that Alan had done updates, with or without the captain's permission. That meant she could worry a little less about the ship's systems failing at any moment. Even if their taps had failed for some other reason, they would not be in trouble after only three days.

The guys had gotten up and were following them, at a discreet distance. The villas were set back at least a hundred feet from the water, but they were close together and rather small in this area. She hadn't paid attention to how many people on the patios were paying attention to them also.

“So how far are we going?” Ava asked.

“I like to go down to the point, we're more than halfway there.”

“Those guys are following us.”

“I can't blame them, you do have a nice ass,” Yellelle said and caressed it.

“I'm not that way,” Ava said, pushing her hand away, “and I usually keep it covered in public, especially if there are prowling men around.”

“I'd think that's when you'd most want to use you assets.”

“If one or both of these guys could get me back to Gordon's Lamp I'd be a willing encounter but failing that, I don't know.”

“Yeah, you showed us in Knossos that Minoan men are

too much for you to handle.”

“Yellelle, that guy was not just any old Minoan male. For your information he was the second Minoan man I’ve ever had and that saxophone player on the steamship was the third. Neither of the other two was abnormally great. In fact Thom is better than that sax player.”

“What do you have against these guys?” Yellelle asked.

“I wasn’t out for it and you’ve got a husband a quarter mile away.”

“You know how far down the beach you can see from our place? Not even a hundred yards.”

“So are we going back to their place?” Ava asked, “You step out on him all the time?”

“We don’t even know they’re interested,” Yellelle said, “they could walk right past a couple old ladies like us and go meet their girlfriends at the point.”

“Fine,” Ava said. “Now what were you people doing to our sensor channels?”

“Basically we put up a mirror so you were looking at a reflection of yourself.”

“The bogie!” Ava shouted.

“Was a filtered replica of the energy release from Gordon’s Lamp.”

“Great, I can just imagine how the captain is handling this.” She hoped someone knew it was some kind of a hack by now. They might not know by what, she might not know by what.

“I can’t tell you more because those guys are getting closer and this is confidential.”

Encapsulation – Day Fifty Seven

Three weeks had passed since she first met Ovrin, one of those guys who was walking behind them that day. He was a Turk, he had been mortal until 2286, he had not been born til she left for 61 Cygni. He had been a student of Atlantis, and began his journey here as soon as he came over. It was getting to be quite a torrid affair, to the point where getting back to Alan might be some relief. At least Alan was easier to say no to and his full beard wasn’t as scratchy as Ovrin’s stubble in the morning before they got out of bed.

Yellelle had not seen Trajan since that day, except to pass him on the beach. Ava had stopped walking every day because too many people were starting to turn out. She felt like she was starting to be a mooch on Yellelle and Butuani’s hospitality, but didn’t feel like she was ready to commit to Ovrin. The result was, she had been staying as much with either one of them and as much in her locker at school this past week. She was thinking about getting a place of her own if she was stuck here. She wondered what Reston was like in this branch of history.

She had signed up for a couple courses, at least in heaven

they were free. One was ‘divine physiology,’ as much as was known of the creature they called god, the other was the history of ancient Atlantis. She’d had a couple weeks of divine physiology, but the history course was bogged down in examining sources and methods. In this branch of history a variant of Linear A was still in use and half the Europeans in the islands could sound it out. Modern Minoan added cedilla to let you know if the ‘n’ or ‘m’ was there.

Butuani and Yellelle took her out to see the sights one evening, thankfully they rode hangers for each hop. They toured the re-creation of the ancient city, the bull ring was up and there were recreations nightly. It was a little eerie standing on that stage again, the recreation was so exact. Tourists could visit the bulls, from a distance, and watch their training and see their rather lavish living conditions, such as laying in warm water while two pretty naked maidens bathe you. Of course the maidens in the shaft of light from the light-well were more for the delight of the tourists on the king’s balcony above.

Downtown Atlantis in the twenty fourth century left as much uncertainty as to what was real as downtown Zhindu. There were a lot of things you had to be plugged in for. Ava thought about getting an in-ear/contact lens phone. They were still relatively mainstream, a lot of older people used them, a lot of mortals used them.

The forefront of style among those that could afford it was the advanced surgical procedure that separated the skull

into three sections, lifted it away, and put in a net that made all your thoughts available as your user interface to the network. In clubs where people were so equipped, the club of their choice was broadcast to their brain, each user could set their room as they wished, something Ava couldn't provide in her universe as there was only one final scene generator per soul in the basic architecture. To one without that implant however, there were tables and chairs in an empty warehouse. These were the trendiest clubs in the city that night, even though many channels were available that told them the truth.

That made her think about drugs, money and other addictions. That made her worry about Alan again. Long before Alan was born however, she heard of those surgical procedures on the news. It had been on the news primarily because Laurentia had been embarrassed internationally because the experiments that had perfected that surgical technique had been carried out in the same labs where she had been resurrected in silicon.

The same labs that she escaped from. Since the reunification, she understood that the way she escaped made her a copy didn't it? Why did she think about that now? Was it because it was possible that she had participated in the experiments that made that surgery possible?

Thru it all she continued to prod for another session with Tometahin or at least a meeting with him. For a week she was told he was still in a coma. That was interesting to hear,

seeing as for all she could see he was dead. Of course they were all dead or they wouldn't be in either heaven. For the second week they told her he wasn't receiving visitors. She wasn't going to let it rest however. The Application for Separation with Theology had taught her that.

So it was with some surprise that she got an audience with the Adept three weeks after their first attempt. She was used to the fifteen minute hanger ride from Yellelle/Ovrin's neighborhood to the university by now, she rode it twice a day the last two weeks. It had been three weeks since she had been to the labs of the school of spacioneurology however and she had forgotten the name of the neo-Minoan woman who met her.

“Yes, we are happy that Adept Tometahin has made such a full recovery. He is sorry that it has taken him so long to get his schedule back in order.

“Please bear in mind that his health is still fragile. We ask that you center yourself and enter in a state of calm.” The woman stood back and looked at Ava, her right hand holding her left wrist.

Ava looked at her, she stood the same way. She was in a tank-top sundress. She found that fit in well with business attire in this day and age. “Am I not calm enough?”

“You look like a New Yorker waiting for a taxi in the wrong neighborhood.”

“I was from Reston, it was all the wrong neighborhood. I don't need drugs just to talk to him do I? If you had yaag, that

calms me down.”

The woman looked at her like she was from 61 Cygni. “Just stand straight, balance yourself on both legs evenly. Look straight forward, head and eyes, head level, then close your eyes. Take a deep breath, let it out. Keep your eyes closed until you feel your heart rate slow.” Ava tried to imagine herself an Elven priestess in Alan’s church. She thought of the beautiful waterfall where she had seen that ceremony, where setting Kortrax makes brilliant rainbows in the mist every week. It’s forty miles across the Central Wescarp Valley from the Yoonbarla Vale, and ten miles beyond the streetcars of Hazorpean, but since she kept that floater around, it was there and back in the same day. She tried to float like they did on the way home that evening, with the gentle breeze across the wide valley in the three-hour Kassidorian dusk.

When she opened her eyes the matronly but still beautiful women said, “there, now just keep all the anger and strife out of your mind and you’re now ready to meet the Adept.” ‘It must have been the skin of green that she and Alan brought with them on the floater that evening,’ she thought as she followed the woman into the dimly-lit and draped inner room.

Tometahin slowly lifted his head to look at her. He was completely hairless, pallid in color, but nothing like the grey in the gnomes of the Yakhan of Alan’s world. It could be Alan was just getting a little more sophisticated in his constructs,

she still couldn't be sure this wasn't his doing and had to be observant of things like that.

“You are the one of the hurtling world,” he said. His voice was as dry as the rustling of autumn leaves. He slowly raised his hand and pointed at her.

“Yes, learned one, I am Ava Bancour.”

“You have petitioned once again to be transferred back, haven't you?” He still kept his finger in her face.

“Yes, I have some things I can try.”

He let his arm drop. She wondered if he had gone back into his coma before he spoke. “Your substrate is still closed,” he wheezed. “The soul gate is still closed.” It seemed to take him minutes to get a sentence out, she wondered if he could hear at normal speed. “You must wait for them to open that gate.”

“How will we know when they open that gate if I don't try it?”

“I will know,” he said, and lowered his gaze.

“I need to get a message to them.” He didn't answer or look up. She waited, uncomfortably long. “Please, they may never open that gate if I don't message them.”

His head slowly came up again, “Please,” he wheezed, “I need my peace.” he stopped and took a breath, his finger came out toward her again, crooked this time. “You are a most unsettled person. Go see the snakes, maybe they can send your message.”

It took an amazingly long time with a clueless guide to find out what he may have meant by 'the snakes.' It turned out to be the Atlantis Department of Clandestine Operations [DOCA] which was housed in an office tower on one of the inner ring islands. She could make an appointment by phone, she had picked up this one in the 2172 echo, it was an old standby when Gordon's Lamp lit out from Sol. It was an antique in 2341 but this was an era of implants. At least in this society they were unobtrusive, for those rich enough to afford them in the America of 2341 they were bulky and stainless. By 2341 no one knew how to make old phones obsolete any more, and they could not force the non-implanted phones off the network.

She got more time on a hanger. It's a small island, but even a six mile ride in what is essentially a hanging roller coaster thru soaring towers along the crater rim was almost starting to get old when the car took a turn and launched straight out over the crater wall, a thousand feet above the water and a mile from the inner ring island. The track itself was the cable suspending itself above the water in a sweeping arc that was steep here near the cliff and the leaning pyramid that held it, nearly horizontal where it came out on the island.

The hanger cars were small. You sat in them, put your feet up and closed the door, closing yourself in a capsule not over four feet in diameter that hung from the bottom of the track. There was nothing below but the plexiglass of the passenger bubble, her seat, and the docks of the outer island seaports.

She had to admit, this made her stomach flip. Her heart pounded but she took in the view. There were three of these tiny threads coming off that cliff, looking like strands of spider web holding the inner islands in place. She was soaring over the harbor, like coming in on a hang glider, and then hurtling on that hang glider thru city streets.

The cliffs were lower on these islands, but the buildings were taller, some of them as tall as the cliffs of the outer islands. The one she stopped at was one of them, it was on a plaza with a hanger station. The security was pretty tight for a place that was supposed to be perfect. She thought for awhile there would be a strip search involved, but instead they had perfect simulations of walk-thru detectors.

The girl who escorted her to her appointment could have been one of the girls who jumped the bull in 1648bc. She had on a little more clothing, briefs and a sports bra. She couldn't have been any older, well maybe this girl was nineteen. She certainly had just as much training as the bull jumpers by the time she was thirteen, and had gone on to serious martial arts since then. To Ava, who's physical activities were slow sex and sunset strolls in the foam along the beach, she looked deadly.

There was some rigamarole to get into the right part of the building, the direct route was higher security. When she finally reached the room her guide intended, there were several men there. They jumped up at her arrival, and several other heads peeked thru the door on the far side.

The men gawked openly, except for one who swallowed and walked forward, offering his hand. He was a bulkier man than the rest of them, and a little older, appearing to be in his forties, while the others looked to be thirties. The heads in the doorway appeared to be twenty-somethings. Half the people in this room were women, but non of them were in Minoan revival garb.

“Ms Bancour, is that correct.”

“Yes, I am Ava Bancour, Systems Administrator of Gordon’s Lamp.”

“The second expedition to 61 Cygni, is that correct?”

“Yes sir,” she said with some trepidation. She wondered if they all had seen copies of the report.

“It is such an honor to meet you...” he started, and she went thru a meet and greet much as she had at the college, with a certain military debriefing overtone to it.

One of the women spoke up, “There is a record of the expedition from forty one sources who died after it was launched and were not pulled into silicon.”

“It also agrees with their course, sir,” another of the women added. They each had invisible keypads, no doubt projected on their contact lenses by their in-ears. The fact that that was all simulated might not be known to those women.

“That is good,” he said, “we are pleased that you don’t come trying to deceive us.”

“I’m not trying to deceive anybody, I’m the one feeling encapsulated.”

He looked at her like maybe English wasn't his native tongue. "Perhaps we should introduce ourselves," he said, and Ava had to go thru that. She let the antique 2172 handset record the names and faces as unobtrusively as possible. Most of them had some piece of jewelery around their neck that undoubtedly contained their cameras. There were a couple of the women, not the ones so active with their data connections, that were the lush, bosomy, thick hair, thick lipped Minoans or their descendants. She wished she didn't have to remember their names and could just get the note delivered if they could do it. She understood that she was going to have to give up some information in return, and wanted to just get on with it.

When the introductions were complete and they had taken seats, the highest ranking man did get right to the point. "We understand that you have threatened to take military action against us."

"If you mean me," she pointed at her breastbone, "absolutely not. I'm about as far from a military action hero you're going to find on Gordon's Lamp with the possible exception of Delos Alverez. I wouldn't harm a hair on anyone's head here, I've been treated very well and I'm very grateful for it."

"We were told of self-replicating machines that can cause the bodies that heaven is contained in to undergo thermonuclear fusion."

"The technology exists, is all I pointed out to your agent. I assume Yellelle works for someone in this building."

“We know nothing of Yellelle.”

“Like any covert ops anywhere,” Ava said.

He stared awhile, flashed a grin and said, “These thermonuclear devices...”

“I know little about them,” Ava said. “I know the technology exists and I know there’s talk of trying to develop it to use against the impactors. It will carve out a huge hole in the substrate, or creature or god or whatever you call it.”

“We call it Wetat,” one of the bearded men at the table said.

“Wetat. Well Wetat will feel a dark star going nova out here, and whatever reflexes it has evolved to deal with that should kick in.”

“We have no idea what god will do,” this big tough military man said, “but we have trained a team of acolytes with the strength to put a snowflake in your path if the need should arise.”

Ava fell back in her chair. “I’m just the Systems Administrator,” Ava said, “what are you asking of me?”

“We expect you to call off your plans to release self replicating machines into the dark matter.”

“They are not my plans, they are not the plans of the expedition I’m a part of. They are speculations about plans that *could* be made by the Pan Solar League, Heavenly Talstan, Pallas, or even Brasil. All possess the technology.”

“Do you understand what happens when you release self-replicating machines?”

“I do, but I could never even get an appointment with anyone who could ever get an appointment with the souls who make those decisions.”

“Do they understand what happens if one releases self-replicating machines?”

“I doubt the long term consequences will be considered when they see themselves being exterminated today.”

“But you have proven that it is possible to transfer to our substrate.”

“You have no magic here,” Ava said, “no one will want to, every free citizen in any of our heavens has at least a med panel, even in Heavenly Talstan.”

“There is no need of a med panel here, we all have perfect health.”

“You also have toilets,” Ava said, and let them all contemplate that for awhile.

When the susurrus that caused died down, the boss asked her, “So are we to believe you didn’t come down here with the intent to turn yourself in.”

She looked at him like he was from YingolNeerie. “Of course not, I came here because I was told you might be able to get a message to Gordon’s Lamp.”

“Ah?”

The two data-sharp women looked at each other. As far as Ava was concerned, if he said ‘no’ he was lying. Just to make sure he understood how much she knew, “I was there when

the captain got the letter from his mother.”

“That was sent by the Vatican,” he replied. “They think we are pagan savages because we chose our image of the almighty in female form. They wouldn’t have trusted us with that letter.”

“But you know about the letter.”

“We have sources in the Vatican intelligence community,” he said.

Even in heaven. But it was the same in their heaven, people working for Heavenly Talstan were found in positions of power within the League every year. Because there was nominally an alliance, they couldn’t be simply zeroed out. “How convenient,” was all she said. If she had stayed mortal she would have fled to Laurentia. Her fresh corpse was stolen away to Laurentia anyway, to use as an experimental subject in the development of the cryoslicer.

She had to endure another two hours of interrogation on the technology of the silicon Afterlife. She was glad that two hours was only enough time for the basic theory of operation and a block diagram of a typical simulate installation. They had never heard of the concept of doping migration, never thought a bit about what it takes to keep human souls in charge of their system, since they barely understood the concept of their simulated environment. About the only concepts she gave away was basic OS theory, schedulers, time slices, the sensory input and motor output buses.

As it got toward the dinner hour, they began to get bored with it. She finally got to leave the message. She worded it carefully so they would not know that the expedition would be vulnerable.

Alan,

I need a favor so I can get home. In the instrumentation update log you will find some updates I made to blocks 516762 and 101754 on January 23. I need those backed out so I can get home,

Ava

“We will see what we can do,” their boss said.

Everyone made all the polite noises as she departed. The same martial arts expert escorted her to the street, where she found getting in the line for the hanger was not so much fun during rush hour.

Encapsulation – Day Sixty Two

The next five days were not quite the idyl this heaven advertised. She heard nothing from her petition to message Gordon’s Lamp and Alan. Meanwhile things began to get a bit testy with Ovrin. She expected the possessiveness, but she didn’t expect the paranoia. He was all but hinting she

should give up her courses. He took to criticizing what she wore to class, which was relatively staid by local fashion, things suitable for a duty-hours meeting on Gordon's Lamp. He wanted to send her in oversize sweats with her hair up.

She had to endure a demeaning gossip session with Yellelle when she showed up in their guest room. She thought about getting her own place again. She wondered what it took in this heaven. If it was like real life only perfect, one would visit a realtor, be shown a series of apartments, pick out the best one, and not have to worry about paying.

She got the notice on her locker at the school. Adept Tometahin had detected the gate to the silicon realm was open, and she should begin centering herself for the journey. She used her antique phone to dash off a quick note of thanks to the guys at the DOCA, and a longer and more detailed note to Yellelle.

She was used to the tank this time, expected Tometahin to look and act like a dead body, but once again it seemed that she had to fall asleep before anything happened. Once again she sensed herself in Thom's instruments. This time all of her was sucked in, not just her data. She allowed herself to go with it this time. She saw the inside of the ship, she saw Thom hard at work at something, but he hadn't noticed her. She went over and tried to tap him on the shoulder, her hand went right thru. He never noticed.

Whatever was happening, she wasn't all the way back.

She looked at the veron store she was running from and couldn't find anything wrong at first. Not until she saw the hardware indirect in her invocation did she have a clue what was going on. Getting that out of there proved to be a problem. Seeing what was happening in there didn't require any energy, changing what was happening did. All she could impart was information, the action had to come from that side.

Then she remembered what Yellelle told her, she couldn't make anything happen til she took over a cherub. Where was the closest one? It was the one she had of Morgan wasn't it? She couldn't very well let Thom see that.

As soon as she slipped into it, she could feel the relief in Tometahin. She hoped to get a chance to thank him later, after he regained consciousness, and wondered how that was going to work. She immediately blinked the Morg cherub thru to her lab, at least here, her codes were still good and it seemed that as long as she had a cherub as a source of the energy, her information could drive it. From here she was able to open a remote window into that veron store and edit out that hardware indirect in her invocation.

She immediately popped thru into Thom's lab, as naked and as sopping wet as she had been in that sensory deprivation tank. This time Thom heard her. She realized she was completely back in Gordon's Lamp and there was no way she could go back and thank anyone in the universe she had just left.

Her first order of business was to make sure her panels worked again. She brought up her med panel and dialed herself dry. She didn't want to drip on this floor where Thom had so many cables laying about, the simulation could be more realistic than you wanted it to be in cases like that. Thom jumped, coming toward her. She got her personification panel up and got some clothes on her, that same sundress she had originally taken to Atlantis, back in pristine condition.

"What happened?" Thom asked as he went to hug her. "It's great to see you back safe..." but she still needed to finish resetting her personification and check her other privileges so her hands were busy and she didn't slip right into his arms.

"It's a long story and a lot of it you wouldn't understand," she said. Before she made any claims about where she'd been, what she'd seen or what she'd learned, she wanted to know if it was real or a hack. Of course any instrument they could build could also be hacked, but she was trusting that Alan didn't know enough quantum mechanics to fool them all. She had to make some assumptions about how a fourth order condensate detector could be modified to detect fifth order, but she hoped it was a straightforward extrapolation.

She continued with Thom, "but I know what test we have

to make to figure out the answer to everything that's been going on around here."

"Give me the short version at least."

She wasn't going to narrate the whole thing, she didn't want to sound silly. "I was encapsulated, the entertainment I was presented doesn't mean anything until we run a test to prove whether the entertainment is possible, or fiction."

"What entertainment?"

"I was put in a simulation that explains all of it, your signals, Yellelle, the 'enemy ship' that was closing with us. But the whole explanation hinges on the ability of entangled particles in decay bacteria to transmit a human soul."

"Huh?"

"I told you there wasn't time for it. I know what measurement we have to make to figure out what's going on."

"You met Yellelle, in entanglement?" Thom asked.

"I've met her before, you saw that already." Now she was the one who wished she could get him interested in the signals instead of her life. Maybe it was because her life had been a lot more interesting the last couple months. She wasn't going to talk about it however until she knew if it was real. "But the bad news is we have to get a modification of those instruments to a mortal who is dying and make him ascend."

"I just heard from a guy with a cryo-slicer and fabricator on mortal ground in China," Thom told her.

"That's great news," she said. It would be a lot easier to find mortals there than billions of miles out on the fringe of

Sol's space. "We might actually learn whether you are right about these signals or not. It'll require some help from your contact on the ground and a fabrication program for that hand-held fifth order condensate detector."

"It's only a fourth order detector," he said.

"It should be a simple extrapolation, just like when we went from second to third and third to fourth. We know what an order layer is now, we just need to add on another."

"We'll need Darryl," he said, and used his phone to call him. "And how did you get wet? Why were you naked?"

"It was all part of the presentation."

"What presentation?"

She didn't want to have to get into this, "In the presentation I was encapsulated in, they use a sensory deprivation tank to travel between universes."

"It sounds interesting."

"It was all probably just a drama. Until we build and use the instrument we talked about, we don't know if it was any more than entertainment."

Darryl entered the room. He seemed to use the back door to the lab exclusively now. "You're back!" he exclaimed.

"Yes, and before I go report to the captain, I want you guys to get started on a fifth order condensate detection pistol."

"We only know fourth order," Darryl said.

"We should be able to extrapolate," Ava said.

"But why?" Darryl asked.

“If what I was told while in encapsulation was real, a human soul is a fifth order condensate. We will detect their presence, and any copy that is made, just as the fourth order condensate detector discovered the copies of information being made when free will was in operation.”

“So are you saying a soul is a fifth order condensate?” Thom asked Ava.

“I cannot say it is not,” Ava said, “and that is what I was told in the presentation I was given while encapsulated.”

“So it would follow boson rules and be conserved?” Thom asked.

“Unless it decays to a lower order,” Darryl said.

“We’ve already shown that thoughts are a fourth order condensate,” Thom said.

“We don’t have any math for it yet,” Darryl said.

“If we did we wouldn’t understand it anyway,” Thom admitted.

It took hours to get them going on that. Darryl just wanted to explore the math of fifth order condensates, Thom wanted to hear about her adventures. She had to use that as a prod to get them going on it. She wasn’t going to tell until she knew if it was real. She had to promise she would tell, real or not.

By the time she was ready to call the captain, she was shocked to find out how late it was, duty hours were over already. She couldn’t raise him and immediately snapped into a diagnostic because she knew the captain always kept his

phone on him. She found that the instance of his phone had been corrupted and was no longer functional.

When she crossed his grant line with the scene generator servicing that slice she found he was in his private, private space, in his study in Nigeria. Yellelle was with him, and to Ava's untrained eye she appeared to be raping him. She had him in a scissors hold across the back of his couch. He might have been struggling to get up but his hands were still holding her breasts like bowling balls. Her head was down on the seat of the couch. She was grinning and rolling her hips, working her way as far onto him as she could. Then he went from fighting it to going with it. She rocked him with the scissors hold. Ava wasn't about to let this come to fruition, so she stopped the captain's grant line and then popped into the office tapping Yellelle on the shoulder.

"Hey," Yellelle shouted, turning and letting go of the captain, who remained frozen in place since his time slices had stopped and his personification's position could not be updated. She slid out from under him. "You really know how to spoil a party you know that." She stood up, blinked a shimmering club jersey from the Yakhan onto herself.

"You can't just come in here and rape the captain of this expedition."

"I needed to tell him about our substrate. Thank you for teaching me the language."

"I'm the one you had to convince," Ava said. "We don't have time for that. He'll notice if I keep him there for more

than a few seconds.”

“After the way I treated...”

“I appreciate all of that, but my superiors expect me to capture you and zero you out. You know I could, but I won’t. But I expect you to leave, I’ll tell them you were too good for me and got away.”

“Why won’t you listen? You could all come over...”

“Thanks,” Ava said, “Thanks for everything. I had a lovely visit. Please give my thanks to Tometahin and to the guys in the DOCA for getting the message across, and please give my regards and regrets to Ovrin. But now please go, I have to give him his grants again.”

Yellelle started to protest, but seeing the steel in Ava’s gaze, she sighed, kissed Ava on both cheeks and with a misty-eyed frown, blinked out of Gordon’s Lamp for the last time. Ava immediately set her presence to audio only and re-started the captain’s grants. Without Yellelle supporting him he immediately dropped to the floor behind the couch with his pants down.

"Sorry that took so long," Ava told him. "I got her out, but once again I couldn't encapsulate her." Ava went thru all her diagnostics to see what Yellelle had done to the captain. He wasn't in danger and he didn't seem to be tapped. "She was running over the entanglement chamber again, I forgot to close it once I got back in." When she turned her analysis to Kelvin's user interface she saw plenty of damage. "She had you bad, she had jumpers on half your panels." Ava began

pulling them off and letting his panels return his personification to the hormone and neurotransmitter levels he was used to.

"Yeah," he panted, "yeah, I thought so." He was looking around the room for her as he got to his feet, looking guilty and embarrassed.

She would never want him to know she has seen him like this. She didn't respond til he pulled his pants up. "I'm sorry I didn't get any of what happened."

"That's all right," he panted, "I'll tell you about it later, it's good to see you back."

"Are you all right?" Ava asked with concern.

"Yes," he said, "What about you?"

"Yes, I'm fine," Ava said.

"Where were you?"

No doubt she was going to get pestered for details from Kelvin also, "Encapsulated I think, probably by her, but I know how to tell for sure and I got the guys started on the equipment to test for that before I came to see you. What about you? You're gasping for breath."

"Yes, I'm just a little winded, like you said, she had a lot of my panels jumpered. There was... there was a struggle."

She let him think she hadn't seen what was happening, and fought off his attempts to find out the details of where she had been and what she had seen. It had all seemed so real to her while she was in it, but right now she felt silly about the

whole thing. Maybe she didn't want to relate some of her adventures there. Being sold as a whore for a few bushels of grain was not something she wanted the crew to know about.

Glayet must have heard about Yellelle being aboard, because she soon brought Alan in, accusing him of treason for removing the the code filter from Thom's data bus. Ava had to set that right and it was a little difficult with Glayet. She wanted to be much more harsh with Alan for his crimes, she probably would have zeroed him if she knew how.

After she was off the line the captain said, "I still think Alan might have something to do with this. You just said that if the test you mean to run doesn't show souls migrating into the dark matter, we probably have a hack, and Alan has to be the prime suspect if it is."

"I think Yellelle is," Ava said.

"I think Alan was driving her, I still say a woman couldn't have acted like that."

"You haven't seen Major Tengine in action. She runs a personification even hotter than that when she's on the prowl, and doesn't mind backing guys against the wall with it."

"I'm trusting your judgment here, my own mind agrees with Glayet, we should find a more suitable punishment for Alan."

"Give him his med panel at least," Ava said.

"If he has us all encapsulated?"

"We can only punish Alan if he is innocent," Ava told him. "If he is guilty, it is beyond my power, we are

completely in his hands and we have to hope he is lenient with us."

3:13am. Thus. May 7, 2384

Ava had her alarm set for any news from Tung, no matter what time of the day it occurred. She was at Alan's. Going to bed very late by ship's time had been an early Noonsleep here, and she'd had only a couple hours of it when there was a chime. She stumbled to her lab without getting dressed, she was already out of the room before Alan woke up and mumbled something. She bumped her head on the top of Alan's gateway, she was going to change that part of his sentence if she had to re-code this door by hand.

From her lab, she saw it was the comms from Tung, and that she would have to go to Thom's lab to really investigate. She could put thru a remote interface, and technically have no reason to wake Thom. She didn't bother. She opened his back door and tiptoed slowly into the lab. He was asleep on his cot. It was a pretty lavish cot, one that supported him in whatever arrangement he contorted into. She remembered waking up as the staging material for many of those positions back when they used to share a home bed.

He heard her, his head popped up.

"There's a response from Tung," she told him, "it looks

like a transported entanglement, one of the up-level membership probes.”

“Let me get it on a screen,” he sleepily said.

He slept in his clothes in the lab. He was angel, he could have had them look like they had just come from the auto-closet. Instead they looked exactly like he had slept in them, two nights in a row. She was glad she didn't see parasites on him. “You haven't been taking care of yourself.”

“I've been busy. We're still trying to verify a lot of the assumptions we made in what we sent to Tung. Darryl's been locked in an event horizon with the math.”

“I understand that, but you're an Angel, it's a setting on your med panel, you have to want yourself to look like this.”

He looked up from what he was doing with the instrumentation display. “Imogene has been chasing me, using her body from Alan's World.”

“I see,” she said, “and she came up with those personification settings on her own, with no help from Alan.”

“Her duty hours personification says something about her soul,” Thom said.

“I understand where you're coming from. Greta is more your type.”

“Do you mean to settle me in her universe?”

“You can have half my universe, everything more than seven hundred miles from my villa, not eleven.”

“That Shark doesn't have panels for that,” he said.

“How well I know,” she said. “You could sign a writ,

giving a consulting contractor, such as Ava Bancour, the authority to reprogram your lawyer on your behalf.”

“We’ll talk about it after,” Thom said, “we have this data here now.” His hair was such a mess that it was getting in his way. He grabbed a pair of scissors and lopped a hunk off. He fussed with his gear and announced, “You’re right about the transferred entanglement, that pistol seems to be working like we suspected and has entangled photons in it’s data stream.”

“Good, that means that satcomm macro works like I thought it did,” Ava said.

“We’re going to need Darryl here for this,” Thom said.

“What do you see so far? I see a bit radius that looks fifth order.”

“Let me see the tags attached to this,” Thom said, pulling up the wrapper file. “This was a normal ascension,” he read from his screen. All his screens were fully rendered in pieces of plastic furniture piled in precarious heaps. “Tung says the man was healthy when he went into the freezer. He hit him with the tangle gun before, during and after the freeze, and again after the slice. The entanglement he sent is from his incoming veron store, after the slice.”

She came around and read the screen over Thom’s shoulder. “Let’s see the raw quantum states,” she said about that transition.

Thom was reading a personal note from Tung, “I’ve got one of the granddaughters working for me. She’s cleaned the collector and cleaned and lubed the fabricator,” before he

poked his user interface some more. She idly wondered when he ever had the time to develop it, and if he could do this, why he couldn't use a simple universe generator. "Dammit, there's that damn 'Y' again," he said before she even noticed it.

"Darryl did say data would be copied in all higher orders didn't he?" she asked.

"He really didn't have a lot of math for fifth order, I saw him yesterday and he said he was getting somewhere, something about recursive symbology for the aggregation of condensates."

"How early does he get up on Monday morning?"

"We need to get him over here," Thom said, "We can't be sure of what we're seeing without him. I wonder if we want Pete here too?"

"I'm sure everyone will be here as soon as they know about it."

"Oh I'm sure they will, and they'll want answers, and we won't have them."

"Why not?"

"Because we don't know what this data means. Here, this is the Planck frequency of the original entanglement versus time. What does this mean? It asymptotically approaches zero and infinity at the same time, this instrument shouldn't even be capable of displaying that, it has to be multiplexing dimensions in some way to even display."

She saw that, but noticed a time displacement from the

making of the entangled copy. “This does not happen when the copy is made,” she said.

“No, let’s see, that happened when the freeze process is activated.”

That meant the soul’s bit radius went to zero and infinity at the time of death. “Do we have similar data for the fifth order condensate in the cryo-slicer?” That would be the ‘birth’ of the copy.

He fiddled with the dials, eventually found a trace. It showed the reverse, the radius coming from both infinity and zero, and converging on about twenty inches, centered on the veron store in the cryoslicer. That particle was supposedly entangled with a photon they had received in the message bringing this data. She used that entangled photon on the auxiliary veron store that was still sitting here in Thom’s lab.

An elderly Chinese man blinked into existence, laying flat on his back on Thom’s worktable, arms folded across his chest. He blinked, startled. He looked quickly around the lab. He started shouting in Chinese. At least here she wasn’t as helpless as she had been in ancient Atlantis when confronted with an unknown language. She quickly located a Chinese encoding for their audio stacks and loaded it.

“Why am I here!” he was shouting. “I was promised Heavenly Sichuan in Luna!”

“Easy, we are sorry. I’m sure you are in Luna also sir, but a copy has accidentally been made.”

“You cloned me! You round-eyed savages! I’ll complain

to my government!”

“Sir, you already know your government is no more, whether you mean Mortal China or Heavenly. If you worry that you might be a clone, we can back you out...”

“Now you would murder me!?”

“It’s your choice,” Ava told him, trying to keep the smirk off her face. Thom was still looking on in disbelief and probably hadn’t loaded the Chinese language for himself yet.

“Help me up,” he said, “where am I? This place looks like a secret laboratory in some old horror movie.”

“Close,” she said. “You are in Thom Husband’s entanglement lab on the Pan Solar League starship Gordon’s Lamp.”

“Gordon’s Lamp?” He said, “The one that got duped at 61 Cygni?”

She made a face, but said, “We’re going to have to get you a universe and such as soon as we can.”

“How did I get here?”

“You were teleported as an entangled fifth order condensate.”

“I only speak Han Chinese,” he said.

“There are quantum mechanics scholars in China,” she said, “They know those words.”

“Tell me what you’ve done in real words,” the Chinaman demanded.

“We beamed you up from the war zone,” Thom told him.

“OK, now I understand, and thank you, it was hell down

there.”

6:57am. Thus. May 7, 2384

She didn't need the distraction of another soul accidentally brought aboard the expedition at this time. Glayet was going to have to get involved and Ava knew she would be a pain in the ass about it. To get him out of the way Ava took him to her lab and got him started on how to run a universe generator. She loaded a model of 17th century China into it to get him started. She gave him a med panel and a quick how-to, but didn't give him a personification modeler yet. She left him with his control panels and instruction booklets in the throne room of the imperial palace in the forbidden city. She hoped that would keep him occupied for the rest of the day.

That took enough time that duty hours were approaching. She had to dial out her hunger for breakfast, and got back to Thom's lab to find that Kelvin, Heymon and Arthur were already there, as well as Darryl, Pete and Martin Anderson.

They must have seen a lot more while she was gone because Heymon was saying, “So let me see if I'm getting this straight, the instrument you sent him is indicating the alien nanoprobes are doing the same thing we are, they are

reading out the information in the brain. Now just how are they doing that?” Heymon asked. He was coming after Thom like he was a hostile witness.

Ava should answer that, she was the one who had taken almost three weeks of Divine Physiology while at the university of Atlantis. “The Wetat seeds decay bacteria with...” she began but he spun around, he must not have known she was back in the room, “entangled instrumentation as soon as life develops on a planet.”

“These instruments are small enough to fit inside a bacterium?” Kelvin asked. He was surely aware that Brazilian labs could tailor bacteria and did so on a commercial scale, but they could not build an instrument that was unknown to science even now and fit it inside one.

“Sir,” Darryl said, “We have data that indicates their instruments must lie inside the nucleus of a single atom. It is not possible to produce these waves outside the atomic nucleus because of the limitation on wavelength imposed by the speed of light.”

“So we have the data from a natural death?” Ava asked.

“Yes, that packet came in while you were getting Tung’s friend set up.”

“And?”

“A copy was made. That copy’s bit radius is now several light years, but it did not go to infinity.”

“It’s radius went to light years in minutes?” Ava asked.

“You have to understand that is really a decrease in the

Planck frequency,” Darryl said, “not a wave front moving faster than light.”

“Same difference,” Ava said. “The billions of neurons are transmitted to billions of dark bodies between time slices using the instantaneous communication of entanglement.”

“What does all this mean?” Kelvin asked.

“That means we have souls in the dark matter,” Ava was satisfied that the most important question was answered, “and I was probably encapsulated by the ‘OS’ that those souls run on.” That meant that everything she had seen and learned could have some basis in reality. “The souls trapped in that dark matter think our whole civilization and all we have explored is deep within the body of an organism. From the observations they can make it is about fourteen hundred by nine hundred light years. Earth is in a corner, towards Perseus is out of it.”

“An organism?”

“Each dark body with condensates is like a veron in it’s body. Each soul is spread over billions of bodies, anywhere from dozens to billions of souls share each dark body. The residents call the thing a god, a kind of creature, but I think it is more like an OS and the souls it captures are like its users. It wants to maximize it’s number of users, so it is exterminating the competition for the souls of the dead. We could think of it as a creature that has detected a tumor growing in its body and its immune system is at work excising the tumor, or we can think of it as an OS that has

detected a competing OS.”

“How does it recognize us as tumor?” Alfred asked. He had shown up while she was telling them that much. “Other than electromagnetic radiation, which biology caused as much emission of as we did, how were we detected by this thing?”

“When we cut off the supply of souls,” Ava answered. “Fifth order condensates in the information domain. That channel thru entanglement in the decay bacteria has been supplying a richer source of souls with every step forward in evolution and every increase in human population. Suddenly, between 2148 and 2175, there were less than a quarter as many souls coming into Wetat.”

Alfred seemed to be satisfied with that. He was next to Heymon and they began their own private conversation. This was Thom’s lab, she wasn’t supposed to be giving a lecture here and didn’t mind if they did.

“How many of these bodies with condensates could be out here?” Kelvin asked.

“One every billion miles at least,” Thom said, “five thousand per light year. About fifteen trillion between any two stars. Maybe three hundred quadrillion in it’s whole body.”

“And each is a cell?” Kelvin asked.

“Equivalent to a veron,” Ava replied. “Hundreds to millions of souls may share each body.”

“And there are three hundred trillion...” The captain

started.

“Quadrillion,” she corrected.

“OK, quadrillion, of these verons in it’s body...”

Heymon interrupted, “But how long does it’s nerve impulse, if that’s what these state transitions are, take to get across it’s body? Over a thousand years. How long does it take to have thoughts at that rate?”

“These transfers are not governed by the speed of light,” Thom said, causing Darryl and Heymon to groan. “There is no matter or energy transferred, only the information that tells the paired particle when to flip. Since there is already a shared quark surface between the particles, the transfer is immediate. Light is governed by the laws of matter and energy and not the laws of information.”

“I cannot transfer information in the system we swim in at better than half the speed of light,” Ava said, “but I understand what you’re saying, it’s not the information that’s throttling the speed, it’s the electron.”

“So it can have thoughts quick enough,” Thom said, “it is taking action two hundred years after our souls began to be captured in silicon.”

“It took action almost immediately when silicon began damaging the source of souls,” Ava said. “It has taken two hundred years for the bodies to get close enough for Sol’s instruments to see.”

“So these souls went to war with us as soon as they stopped getting new souls from Earth?”

“The substrate did, the OS did. The souls in that heaven are not supposed to be able to tell that the material world exists.”

“So we’re at war with an OS?” Kelvin asked.

“We need to stop thinking of it as a war,” Ava said. “I think we are generating something more like an immune response than a conscious treatment program. We have a new scale of creature to contend with in the universe, creatures a quarter billion cubic light years in volume.”

There was hubbub for awhile. She worked her way around behind some equipment, stepping over webs and ropes of cables to get closer to where Thom was looking at the screens. Darryl was gone again. She thought Kelvin was trying to work his way across the lab towards them, but Arthur stopped him. More people were arriving, Victoria, Morg and Glenelle, Bishop Rendellyn with Adele, you hardly ever saw them together any more. Ava thought this lab was not going to work with this many people in it. She brought up the scene generator and found the source to this lab. She added fifteen feet of floor space next to the instruments that were showing the results. While she was at it she put in an aisle thru the gear that let her get there.

Heymon eventually got them quieted down and organized. Ava was standing next to Thom, facing the crowd while Thom sat on a stool hunched over his main screen. Ava gave them a wrap up: “When I was away those few days, I

now believe I was in the condensates of the dark bodies. They contain another version of the Afterlife, one where everyone is included but there is no overt magic, but one's garden, larder or refrigerator is always full and nothing ever breaks down."

She told them about the Wetat, she told them how they believe it lifts souls thru decay bacteria entangled with higher order condensates in the dark matter. They asked her lots of questions, but they were soon asking more about the bull leaping ceremony than the Wetat. She had to relate an edited version of the whole thing. She refused to tell them how the sex was however. Any of it. She finally admitted to the rest, except for the Night of the Three Amphorae.

Thru all of it she was conscious of Saint O'Connor standing there in the second row with his hands folded over each other, listening carefully to what was being said. She had known Arthur since the 144,000 were resurrected from Cryofreeze at the Santa Barbara Stronghold. She had seen him go from a televangelist, believing in electronics as the way to spread the word, to a true believer in this Afterlife as the true word of God as promised in Revelation. If Kelvin had a crisis of faith upon receiving a letter from his mother, Arthur was was more likely to have one now.

She never said it was another heaven, never said anything theological about it in any way. She never pointed this out to Arthur, but she was sure he understood it. No matter how much it may have been what Jesus intended, the heaven they

lived in was very much a work of man and his machines and not a divine creation. In the same way this ‘creature’ or ‘OS’ was very much a work of some race somewhere, and not a divine spirit. She could see that Jason Rendellyn might be harboring that belief, but most of the crew would know it was alien technology gone feral. She hoped Arthur was sure of that.

She hadn’t really noticed Darryl was gone until he reappeared at the back door. Almost all of the crew was in here by now, duty hours were well under way. She hoped someone was at the helm and someone was monitoring the reactor. She noticed Morg was not here so he probably was. The crowd parted to let Darryl reach the front of the room.

Without introduction he turned and addressed them all, “I’ve been poking the fifth order around a little using some of the latest data. There are a few things that drop out.

“The Planck frequency going to zero is analogous with slipping within an event horizon. The going to infinity is analogous to being emitted from an event horizon. I think what we are seeing here is a transition thru a form of event horizon.” He pointed to the plot they had looked at earlier.

“If we accept that a human soul is one of these fifth order condensates,” Arthur said, “then all you are saying is that at the time of death the soul leaves the universe.”

“If you accept that a soul is a fifth order condensate, a quasi-boson in other words, yes, that seems to be what this

data says,” He looked to Arthur questioningly.

“That’s all I needed, you may continue.”

“You have to understand that these results are still preliminary, but it seems that the aggregate quantum state of the quasi boson corresponding to the human soul is awake/asleep/unknown.”

“What states are the original particles in, the ones that have left this universe?” Arthur asked.

Thom answered, “They are both unknown at this time.”

“Very well,” Saint Arthur O’Connor said.

They all looked to Darryl again. “And this is the strangest result,” he said, “the equations seem to make it possible to solve for the total number of fifth order condensate quasi bosons.”

“How can that be,” someone asked farther back.

“It will have to be a very high number,” Heymon said.

“I don’t know,” Darryl said, “the equations have two solutions.”

“What are they?” Ava asked.

“One and infinity.”

“Neither one is possible.” Heymon said, “One is obviously not the case, and infinity says the universe is infinite.”

“One could loop back thru time,” Darryl said, “we don’t know where it goes outside the event horizon and infinity could include the multiverse,” he said, glancing nervously at Arthur.

There was quite a bit of muttering, one on one conversations. Ava was glad they weren't asking her to explain it. She could see Darryl's screen from where she was and it looked like worms, brackets and a scattering of Greek letters. She couldn't actually recognize anything as an equation.

"I've just got a state change on one of the original fifth order condensates," Thom shouted out.

Everyone ran over to the screen, Ava only had to turn around. It was showing the entangled fifth order condensate that had been that Chinese man's soul before he was frozen in the cryoslicer. She could see the display herself, as could everyone in the front row.

"He's woken up," The bishop said, looking at the plot, then he looked up. He knew what this meant, the Afterlife in Gordon's Lamp was no more the real heaven than the Wetat. He shed a tear for it, for he had always been sincere in his faith.

Ava looked up with him, she quickly projected a sky above them seen thru the cathedral arches instead of the lab ceiling. There were rays coming thru the clouds. Once she got her hands off the invisible keyboards creating that scene, she put them together before her breast and gazed into the bishop's eyes. He might not have ever been truly ordained as a minister, he might not have even believed as a mortal, but over the centuries of this expedition Arthur had become as

sincere in his faith as any saint. Today he may have lost the sanctity of the small heaven he had believed in since 2152, but they had all gained a much greater one. His eyes took in the sky, the light, and the vastness beyond it that she had projected to symbolize it. She hoped he understood the symbolism. He brought his questioning gaze down to her. She said only three words. “Now I believe.”

8:09am. Fri. May 15, 2384

The Captain was barely a shadow of himself as he came into the space. Sol was now much brighter than all the other stars. It outshone Sirius by a factor of four. It was clearly yellow compared to Sirius.

There were seven souls at the meeting the captain called, Kelvin himself, Saint O’Conner, Glayet, Heymon, Elmore, Alfred, and her, all Kelvin’s direct reports by the military chain of command.

He opened the meeting with a hopeless assessment of the military situation. He called on everyone to give him their military assessment of the situation at Sol, it was all bleak, almost all known simulated humans above Earth’s atmosphere were hit, more objects were on the way.

Alfred had the only positive assessment. “There is no doubt that mortal souls still exist on Earth’s surface but they

are definitely in a post-technological state.”

“Where the dark matter can continue harvesting them,” the bishop interrupted.

“I wonder if religious devotion is what stimulates it to harvest the souls in the first place,” Glayet said.

“We were competing with it,” Alfred said, “we Angels, we simulates. I would speculate that our cryo-slicing technique has taken the brain, and therefore the soul, before their decay bacteria could spread thruout the brain and get a read out.”

“And if their bacteria get to it first, can we still get a good read-out of the soul?” the bishop asked. He directed his question to the captain, the captain looked to her, she looked to Alfred who said, “No, the synaptic network and synapse weights are destroyed in the decay process. The information copying can only happen once by the laws we think we are seeing.” Alfred looked back to the bishop and said, “There will be a grey area once some decay occurs. We will get some data, but it would be up to theology to tell us whether we have resurrected a soul and if so, how damaged.”

The bishop turned to Ava and said, “I would ask you if it was drawing a soul’s resources from your system.”

“I’ve seen drooling vegetables draw more than...” she stopped herself in time, “...many of the crew.”

Elmore mused, “I’m surprised they’ve let that slicer survive.”

“It’s an immune response,” Ava said, as she had been told.

“It may have to deal with silicon civilizations on a regular basis. These creatures may be the answer to the Fermi paradox. It has evolved so that it’s tissues drop boulders on silicates that compete with it for souls.”

“What does it do with the souls?” Arthur asked.

“It runs them in Heaven,” Ava said, “Maybe this creature is what we’ve always known as ‘Heaven’ until the Afterlife was invented.”

Arthur turned to her and took a deep breath. “If we all agree that this thing is a single creature and not a hostile military force of hyper-advanced civilization much like our own.”

“It would be more personal about what it is doing. It is just reacting to germs in it’s tissue. I wonder how many planets it’s harvesting souls from?” she asked.

“What is it doing with those souls?” The captain repeated the bishop’s question.

Ava looked blank, she had already answered that.

“How many are there?” Arthur asked before she could think of a simpler answer.

“About four hundred quadrillion in this creature, I think it comes out to be,” Ava said. “The Atlaneans did all the work on this, it would be nice if we could ask these questions of them.”

“Four hundred quadrillion,” the bishop said.

“Yes sir, and there is no chance that there have been a trillion humans in existence in all of time, even if Alan’s hack

was the truth.”

The bishop looked at that for awhile. “So if all that signal came from simulated souls...” he trailed off.

“Most stars would have to be producing more souls than Sol is,” Ava said, after working out the math.

“What if this thing has spread humans to all planets in it’s realm, it’s body, whatever, as sources of souls?” Arthur asked.

“You’re saying Alan’s hack wasn’t a hack?” The captain said.

“We can’t prove that it is,” Alfred said.

The captain looked at Ava. “He’s technically correct,” she had to admit.

The captain held his head in his hands, staring thru the invisible table at the yellow star they were descending back down to. Heymon took the floor. “Sir, I believe we can state that we have accomplished our mission objective.”

“What mission?” The captain looked up but still held his head in his hands.

“The one central command gave us back in January when they diverted us to the Kuiper Belt.”

“We haven’t even reached it yet.”

“But we have found the source of the impactors.”

“And it is bigger than the human species by a factor of thousands,” Kelvin said.

“I believe we can divert back to the inner system now,” Heymon said. “We can’t make it to the asteroid belt, but we

could get to the all-afterlife rendezvous point.”

“And then what?” Kelvin asked.

“Any ship that can make space is leaving,” Elmore said.

“Many of the survivors are going to the Centauri colony, that has not been attacked.”

“For how long?” Kelvin asked.

“There will be no reason for us to stay,” Ava said. “We can pick up some updates, maybe a few refugees, but we can get outside this creature.”

“It will take centuries,” Kelvin said, “Even if we are near the boundary.”

“We are a Bussard powered ship,” Heymon said, “There is no practical limit to the distance we might fly. Unless this thing permeates the universe, I think we can fly beyond it’s reach.”

“And we are a seedship,” Ava said, “We will find a world we can inhabit some day, and we still have the means to populate it, even if it takes five thousand years to find one. If we take this course, the Christial human species need not go extinct.”

Epilog

7:21pm Wed. May 22, 2424

They were well on their way now, as a starship, but the Captain really wasn't himself any more. He thought he handed over command of the vessel to Heymon and retired, but even then, Heymon said, 'yeah whatever sir,' and patted him on the head and reported to Ava like they all did now. She didn't call herself Captain, just Administrator. There was no rule book any more, if all the members of the expedition agree that Administrator outranks Captain, that's what it is.

This 'animal' they are inside of ends when the stars get thin on the outside of the Orion Arm. They had already moved several light years in that direction. Hydrogen was thin out here, so they weren't making much acceleration, but they had all the time in the world. They expected it would be a thousand years til turnover this time. Heymon and Morg had learned some new technology as they swung thru the Sol system. They had a lot of it installed and it had upped their deployed length to three hundred eighty thousand miles, with the corresponding increase in scoop radius. It would allow them to go over a third the speed of light. They should be moving that fast within another hundred years.

The letter of his sentence hadn't been changed a lick, but no one ever noticed that med panel he'd taken in Ava's lab

back in '84. If Ava knew, she never told. He used it sparingly, hardly ever more than once a day. He was still tied to this one portal and desk-eye as the only contact with the expedition. His whole world was still stuck in three-d reality with no magic at all. He would remain forever the young man stuck on this farm that he still called Desa's. He couldn't make it the monetary success he dreamed of with only himself to work it, but he had enough to get by, and his expedition salary allowed him to buy whatever he wanted that this three-d reality trap could provide. He grew what he could and grazed the rest of the land, there was a nice hedge of queen's rike growing up between the garden and the field now. He wondered if he could just sell that field in this simulation. But he didn't want to sell the beach, it was his only play area. It was also still stuck in three-d reality, but it was a fun place to play with cherubs, and a few female members of the crew who came by now and then.

There were also the regular cherubs of this neighborhood for company, he still didn't know who's they were, but he still had fun with them. He liked to pretend they all had souls behind them. In reality, probably none of them did. He knew they all ran in cheron space, but if there was a soul behind it running them, interacting via cherub was at least as close a bond with another as email.

They had stopped only briefly at Sol, the outer Jovian stasis point had become a meeting ground for survivors of all

the simulates of any creed. Bishop Rendellyn got off and joined the last Pan Solar League starship, Paul's Lamp, heading out to Alpha Centauri.

While they were there, Wuding Tung and Li Fang boarded. She had been his last voluntary ascension before they both transmitted their instances to Gordon's Lamp. They were in the creche department, which was active even though it would probably be two thousand years before they revived the next zygote. Alan was going to make sure they told the child he was being raised by robots by the time he was eight.

Since they left Sol the second time, the ship had been boosting for the nearest border of Wetat, determined to be the seed of the infection called mankind that made it out of Wetat, and built their own Afterlife. It was true that if there was one, space was full of them. Ava was banking on slipping into the next one unnoticed because the planets they would settle would have never produced souls before, so the creature in that area wouldn't search for silicon intervention in the harvest of those souls.

Ava had no mission from the Pan Solar League other than to evacuate as many other souls as wished to board. There was only space to instantiate fifteen more so far, out of the thousands that were sent. As space built up they would be resurrected, but most would have to wait til they were at the next star system and could enlarge the ship.

Two of the fifteen were single females, both had visited, neither wanted to put up with his sentence. Of the new crew,

Alan was friends with Roy Hallard, who's universe was mainly a sandy, scrubby, ATV paradise, where he went riding often. He had even been allowed to ride hover-bikes in Roy's universe. He was hoping some day to get Roy the right to take himself and a friend riding in Alan's universe, but so far Arthur was withholding that for another ten years. He cited the custom of purgatory.

Several other people, such as Heymon, had admitted that Alan had played a positive role during the discovery of the Wetat. They admitted the motorized kayak running on bean oil fit within the bounds of three-d reality and the level of technology he had shown in his fake data. He still wasn't getting admitted to the officer's meetings, but they had taken some of the monitors off.

Ava had stayed in the Vale just about four Earth years. She kept the floater with her the whole time, until the Kassikan sent messages about getting it back. She flew off in it soon after that, he saw less of her since. He went over to her place a lot, and no one would think of telling her she couldn't ride hoverbikes with him in his universe. But they weren't an item any more. She wasn't really going with anyone lately, but she still spent a lot of time in his universe, most of it in the Highlands, and now she was spending a lot of sleeps back in the Yakhan in a small marble palace off Third Canal. He didn't know who drove the cherub she kept there, he thought it was one of the new guys.

It was just getting dark when he heard a keda-cart on the path. He hadn't programmed one and wondered what had triggered it. He was allowed that much in three-d reality, a little traffic on the path, but he had to set it all up or it would be a mindless loop.

This keda cart was rendered very well to all his senses and so was the girl sitting on the front of it. In the decades they'd been together, the decades apart hadn't dimmed the familiarity of that crate that took up the cart's cargo box. He could draw the yandrille in it from memory. Her curls were briefly silhouetted in front of lighter rock. Nothing would ever dim that memory.

He ran out, arms open, "H..H.." he really couldn't speak, didn't want to try to explain it. "How? How did you get back here?" He asked as he hugged her.

"Uh, the traffic on the river was brutal and this rental keda's a prankster so keep your eye on him." Then she kissed him well before continuing, "I don't know how well he'll get along with Kota but he's going back to Hazorpean with the light."

"No I'm talking about real reality, is someone behind you?"

"Oh that," Desa said. "Yeah that cheron allocation quotient thing you were trying to tell me about all those years ago. Alan, I believe you, OK I believe you. I didn't believe any of it until that starship attack on the Lhar but since then I do. I believed you even if I didn't understand it then."

“You’re a simulation,” Alan told her, but she felt so real with his arms were around her. With a step more life than any of the cherubs around.

“So are you,” she said, looking up at him with that same elfish-cute face she’d always had. “We all are, ever since you copied me into here.”

“Ava will find you, she still keeps an eye on my cheron space.”

“She won’t find me there,” she said. She left his arms to unhitch the keda. It was already tonguing at the harness.

“Then where?” Alan asked.

“Where I used to be. Blisscry was playing all around Zhindu Tech for two decades, so I took a few systems courses.” Alan went to the other side and helped her undo the harness. He understood what she meant, she was running in veron space again. He could tell because there was really someone there now, someone who was tired from traveling, glad to be home and a little annoyed with this keda but trying to make the best of it. This keda could see and smell the pasture, and the fact that there was a companion there. It waved a brief ‘thanks’ in one-eye as it scampered off.

“When I heard about that rock,” she said, getting up from the harness, “I knew I had to come back here.”

She could only mean the hearings that were going on. There was a movement, lead by Delos, to end his sentence to three-d reality and make him a light major in systems, but the price was to make him give up his universe. The symbolism

was that it would be destroyed by asteroid impact. It was really in Arthur's hands now, Alan had only to look at her and know he would rather have his world with Desa, especially in veron space, than a standard universe with a lite major's magic allocation.

“You'll be found out,” Alan said, “I can't protect you from Ava.”

Desa gave him a very impish grin, “Ava may not know as much about these crystals as she thinks she does,” she said, “and if she doubts that you copied my soul, she still has a lot to learn about the power of entanglement in fifth order condensates.” Then she kissed him and wrapped herself in his arms.