Minding Tomorrow

by Luke Burrage

This novel is dedicated to all the listeners of the Science Fiction Book Review Podcast who volunteered to read and provide invaluable comments on the various edits.

However, I can't edit this novel indefinitely. Leonardo da Vinci said "Art is never finished, only abandoned." In the spirit of that quote I've decided to release it as a downloadable text file in various formats.

This novel was first completed in 2008, and first released in June 2009. This is edit 6.1, from April 2012. If you spot any spelling or grammar mistakes, feel free to point them out so I can fix them for edit 6.2 (I guess this work will continue to be fleetingly un-abandoned).

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electronic text version of the novel. If you would like to do more than read or share the text of the novel electronically (eg. derivative works, print publishing, audio versions, film rights and other commercial interests) please email me: luke@juggler.net

Thanks for reading!

Minding Tomorrow

1

Sid leaves Jade.

Sid turned away from the window and looked at

Jade. She sat upright on the bed, a sheet pulled around her chest. An unbidden thought popped into Sid's mind: *Of all the times I've ever broken up with someone, the person doing the breaking has never been naked.*

She'd said "I love you" just moments before. On paper those words can only be positive, but Sid felt a lump in his stomach at the implied "but" hanging in the air at end of Jade's spoken statement.

He smiled quickly, and said "I love you too," before Jade could continue. He knew it might be the last time he could say that to her face. Or at least say it comfortably, without it coming from the new position of the clinging ex-boyfriend.

The sense of finality in his voice caught Jade by surprise. She cocked her head slightly to the side. Sid felt bad, knowing he'd knocked her off her stride. He blew her a kiss and turned back to her apartment's window. Sid took in the view of London's skyline for another few minutes.

"Sid?"

"Hmmm?" He didn't turn round this time.

"I think we need to talk."

"What's up, babe?" He felt bad again.

"I don't think our relationship is going in the right direction," said Jade, "and I want to talk to you about it."

Sid finally turned to face her again, showing that she now had his undivided attention. "Ok, what do you want to change?"

"I want you to do more."

"I do all kinds of things for you."

"Not do more for me, do more for you!"

"I do everything I want to do." Sid knew he was being honest about that.

"But you spend all day *reading*. You're twenty four years old and you don't have a job, you don't seem to have any goals in life, and you don't have any dreams!"

"Can't I be happy with what I already have?"

"But you have nothing! All you have is money you didn't earn."

Ouch! he thought, *I've not heard it put that bluntly before.*

"I have you," he said. She looked at him with a blank face. "Right?" he added.

"You don't *have* me, you're *with* me." Jade frowned

as she finished the sentence, and at that moment Sid knew he'd be single within the hour.

*

It took less than an hour. Twenty minutes later Sid made his way down the stairwell, his bag slung over his shoulder, the sounds of his sobbing ex-girlfriend fading due to distance and time. He'd tried to make breaking up easy for Jade, but how easily he took the end of relationships always hit his partners hard.

Sid stepped into the street and put on his viewsers. He felt a new freedom, a weight lifting from his shoulders. He had never let Jade see his viewsers as it would have shown, in sharp relief, just how rich he actually was. It wasn't just the price of the glasses, no matter how expensive the transparent screens, the batteries or the miniaturization of the electronics. No, the real cost lay in the data services required to keep the device running. The viewsers had plenty of local storage, but every useful service relied on the latest generation high speed wireless network, and every data service had to be paid for

individually.

He had other, non-financial reasons to keep the viewsers a secret... but Sid didn't have to worry about them any more! Not now that he was single.

He slipped the buds into his ears, and music began playing automatically. The first track was *With You*, Jade's latest favorite love song. Sid had listened to it over and over, but couldn't bring himself to like it at all.

"Stop music," he said, "full immersion, no adverts, favorites. Open tab two three four. Run."

His viewsers sprang to life, overlaying his vision with street names, shop names and other location-based services. Option tags for extra information showed above landmarks in the distance, as well as links to websites and online resources. Not only that, but the viewsers stripped out every poster, billboard and advertisement, and replaced them with semi-random images from a file of art classics.

A panel floated in the air in front of him, containing a list of names and dates. Sid glanced down the list, a small camera in the frame of the viewsers tracking his eye movements.

"Select. More info. Find, clear and read. Walking route. Cut immersion."

He strode purposefully down the London street, following a red dotted line suspended a meter and a half above the ground. The route-finding application hadn't cost so much money initially, but charged micro-payments for each trip. A number counted down the distance to his destination, and within a few seconds a new number joined it, an estimate on how long it would take based on his current speed. A few hours on foot, it said, but Sid needed time to think. The viewsers started reading to him from the file.

"Jennifer Harding. Aged twenty three. Usually interested in intellectuals, with little consideration of style. However, after an experience with an attractive stranger at age seventeen, she has a soft spot for black spiky hair and dark clothes..."

The file continued with details for a minute before ending with "... listed as not in a relationship, and not looking."

"How long since her last breakup?" Sid asked. A passerby gave him a strange look.

"F.B. data lists five months."

"Hmmm. Playlist D."

He walked through the West End towards the South Bank. He stopped along the way for a haircut. With another stop he'd replaced his jacket.

"Nearest Crown Prince Hotel?"

"Within four hundred meters of destination."

"Book me a room tonight on account two. Under the name Simon... er... Dalton."

"Again please?"

"Simon Dalton."

Simon stopped to order coffee from a stand in front of the Tate Modern. He looked up at the huge banner hanging above the north entrance. The viewsers had registered it as an advert and replaced it with a version of The Last Supper. Simon grinned at the irony.

"Well, I guess even the oldest art was modern once," he mumbled to himself.

"What was that?"

"Cancel," Simon said.

"Cancel hotel booking?" asked his viewsers. Only then did he realize the other voice originated

somewhere behind him, not in his earbuds.

"Quit." He took off his glasses even before they'd shut down, and turned to see who had spoken to him. He noticed, out the corner of his eye, that the banner actually proclaimed the arrival of a new Judd exhibition.

The person who had spoken had a classically beautiful face, with high cheeks and full lips. Her blue eyes gleamed and her blonde hair swayed in the light wind. Simon's breath caught in his throat for a moment. Her elbows rested on one of the high tables next to the coffee stand, and she held between her hands a disposable cup full of what smelled like hot chocolate.

"I'm sorry," he said, but thought *Don't say anything stupid!* "I was having a problem with my, um, my idiot goggles." *Something stupid like that.*

She smiled though, and her face transformed into something beyond beautiful. "That quote... have you been to Berlin?"

Simon's mind blanked for a moment, but he quickly recovered. "What makes you ask? I have, by the way."

"The front of the Altes Museum has an installation which states *All Art Has Been Contemporary* in huge neon letters. Do you know it?"

"I don't think so. Maybe. I might have seen it and forgotten, but the idea stayed with me. There was a mismatch between my viewsers adblock and the banner there. The Last Supper covered an advert for Donald Judd."

"You think Da Vinci would have approved of Judd?" asked the woman, her smile still very much in place.

"I have no idea," Simon said, "but I'd put money on him approving of idiot goggles. If he was alive today he'd probably have invented viewsers himself. Do you work at the gallery?"

"No, I'm just meeting a friend here.

Simon looked around. Nobody seemed to be walking their way. "A no-show then?"

"He's almost an hour late. Not answering his phone either."

"He?" Simon said, raising an eyebrow.

"Are you hitting on me?"

He smiled at her question. "I don't know. I'm

Simon." He held out his hand. She looked at it for a second, hesitated, then shook it gently.

"Dana."

"Good to meet you, Dana. Would you have dinner with me tonight?"

Dana laughed. "You *are* hitting on me! Let me think for a moment." He could see various calculations going on in her mind, displayed by small movements of her eyes and mouth. Factors added together and shifted between columns. Yes versus no. Stay here versus have an adventure. Maybe he was over-analyzing, but Simon was amazed by the expressiveness of Dana's face now that he'd put her on the spot. Finally she answered. "Yes. I would like to have dinner with you."

Simon breathed out, not realizing he'd been holding his breath. Dana laughed at that too, and Simon couldn't help but join in.

"Ok, let's say... seven? I'll meet you in the bar of the Crown Prince Hotel."

Dana tapped a message into her phone and, by pressing send, decisively cancelled her failed previous date. She needed to be somewhere, she said vaguely,

and made to leave. As she walked away from the coffee stand, Simon took his first full look at her figure. He slipped on his viewsers and, once they'd restarted, snapped an image. He wondered what she would wear for the date that night. His imagination ran away with itself for a few moments.

"Cancel destination. New route. Direct to hotel. Tab two three four. Add photo to new file *Dana*."

Simon wandered into the gallery. He'd seen every exhibit before, but he'd originally intended to visit for another reason. A reason that he'd just fulfilled, and in a lot less time than he'd expected. He loaded up a novel, made himself comfortable on a chair in the lobby, and spent a few hours reading.

At half past five, Jennifer Harding left her desk in the cloakroom, put on her jacket, and walked towards the main entrance. She passed a mere five meters away from Simon. She glanced at him for a second. In that moment, imagined Simon, many ten year old memories flooded her mind.

Simon made an effort not to make eye contact. Jennifer's stride faltered slightly, but she kept walking across the lobby and out the door.

I'm not that stranger from your past, he thought, *you've never met me before!*

Jennifer would have been predictable. Dana was something else entirely. Something genuine. Something new!

2

London without signs.

As the ship passed about five hundred meters from the marina, he jumped overboard. Hiding out on the ship for the past few months had been interesting in some ways, but excruciatingly boring in most others. A few of the Philippino crew had known he was on board, but as far as he knew, none of the officers noticed their stowaway. Thankfully the

ship, while massive, had a small crew and few security cameras.

He'd stripped himself almost naked and launched himself off the back of the ship, jumping as far as possible to avoid getting caught by the propellors. As he fell towards the water, images and bad memories flashed through his mind, brought on by the turbulent water below.

Hitting the water shocked him more than he imagined, and all his irrational fears fled from his mind. The sea temperature in the Thames estuary was freezing compared to the waters surrounding Indonesia.

He thought, *Bring on Global Warming!* and struck out for the shore, dragging his bag behind him. An exhausting ten minutes later he pulled himself up onto a public jetty, one thankfully empty of people. *I'm not as young as I used to be,* he thought, coughing and wheezing, and then reflected on the absurdity of his thoughts. *Of course not, nobody is younger than they used to be.*

He looked back out to sea. He felt proud that he'd swum across so much open water, but he knew he

hadn't put to rest that certain demon from his past. The ship hadn't slowed down, and was now almost indistinguishable from the other boats in the distance.

He untied the knot in the plastic bag, turned it upside down and shook out the contents. He looked down at everything he owned. A few changes of clothes, dry underwear, a box with some stolen food, a wallet, and a pair of shoes. He didn't even have a towel. He wiped the droplets of water off of his skin with his old grey shirt, and shivered in the cold spring air. He dressed quickly, but knew it would take a while to really get warmed up. He also knew his clothes wouldn't blend in with the local style. It was too early in the year for short sleeves and khakis, and it was likely they were painfully out of date.

He walked along the jetty and into the town center. It was his first time back in England since his university days, but in the two decades that had passed not a lot had changed. He'd never been to this town before, he wasn't even sure of the name, but it looked just like every small British seaside town he remembered. It was quiet, with only a few people

making their way here and there. He guessed it was a weekday thing, with most people busy at work. The weekend would bring tourists to the beach and boat owners to the marina, but for now it was just the locals.

The biggest difference was the design of the cars. All modern, of course, with bulging windows and small wheels. He started looking for some signs to tell him exactly where he was, but found none. There weren't even any street signs saying which road he might be on, and at the first junction there was a distinct lack of signs saying what could be found down either road. There was a shop, he saw, with people going in and out, but no sign to say what it sold inside. It became slightly unnerving. The only writing he could spot anywhere were the car number plates.

He decided to try the shop. It was a supermarket, he found out, but one that sold only unpackaged fresh food. It brought to mind some markets he'd found in Asia; no plastic wrappers, no cardboard boxes, no foil, everything biodegradable.

There were no signs or writing of any kind in the

shop either. No prices, no way to know what kind of apples he was looking at, and no special offers on display. He picked up an apple and walked over to the desk where he presumed he had to pay. A young man, probably still a teenager, looked up at him curiously through thick glasses.

"Welcome to Aldi," the young man said, "my name's Javier. Can I help you?"

"Oh, hi, I'm... er... Gregory. Do you accept American dollars?"

"We process accounts from anywhere."

"I don't have an account. I have cash."

Javier frowned, thought for a second, and took off his glasses. He looked at Gregory curiously, and then put his glasses back on.

"You're not wearing viewsers."

Something clicked in Gregory's memory. Everyone he'd seen so far had been wearing glasses! In twenty years eye care had surely come a long way, and nobody who needed it would go without some kind of corrective surgery. The glasses everyone wore must be viewsers. Gregory had never tried a pair, but even in the Indonesian interior he'd heard

about them, and seen people wearing them. Everyone on the container ship had worn glasses too.

"No, I guess I left them at home."

"And you have no wallet?"

"Sure I do," Gregory said, and took his wallet out of his back pocket.

"No," said Javier, "I mean a real wallet. Like this." Javier held up a small white box, about the size of a pack of cards, with a grey screen and a single red LED. Javier must have read the obvious look of confusion on Gregory's face and frowned again.

"Look, I've been away from England for a while," said Gregory. "I just got back today. I must admit I'm a little behind the times."

"How long is a while?"

"Almost twenty years."

"Wow! You've a lot to catch up on."

"Do I need viewsers?"

"You can't much without them."

"Where can I buy some?"

"Here of course. We're a general store."

"I thought you only sold fresh food."

"No, we sell all kinds of things," Javier laughed.

"You just look at all the other goods with your viewsers. Anything in a packet or a box or a bag is kept on the next level down. Who needs to see the real thing? Fresh food though, you've got to see that for real, to smell it, and touch it as well."

"Right. Of course."

"Shall I get you a pair of viewsers?"

"I'm not sure--"

"It's really not a problem." A small pause. "Here they come now."

A panel on the top of the desk slid open. A platform rose up from below. It carried a small white box. Javier picked it up, and the panel slid closed once more. He opened the box in a fluid motion that was too quick for Gregory to follow.

"Here you go," Javier said, offering the glasses to Gregory. Gregory took them and put them on. Nothing happened. Nothing changed.

"Are they on?"

"Yup. But you've not activated them yet. There'll be no info off the net, only from other devices in line of sight." Javier held up his wallet. A small window hovering in the air next to it, containing a

picture of Javier and his name. Gregory didn't try to work out how to pronounce the surname. He looked back and forth between the photo and the real life Javier. The eyes were subtly different. Gregory lifted his viewsers to see the what was changed.

"Ah!" he said, working it out, "It looked like you'd taken your glasses off."

"Oh course," Javier said. "The most basic viewsers do is remove other viewsers from what you see. That's why I didn't notice you weren't wearing any."

"So I need these to check the prices of what I want to buy?"

"Yes. You'll need to activate them though."

"How much do they cost."

"That model is free."

"Free?"

"Sure. Sony gets a cut of any purchase you make using them. It's a tiny cut, but they make their money back many times over. As for the feeds, you pay for them per access, but there are plenty for free."

Javier spent the next few minutes showing Gregory how to access menus, change settings, how

to enter some passwords and personal details. Gregory didn't mention that he left most of the fields empty.

"Activate." Gregory said. A massive list appeared before him, reaching from just above his head all the way to the floor. "Sort by... proximity?"

Javier nodded approvingly. Gregory felt like a small child learning how to say a new word. "Ask it to only show free feeds."

Gregory did so, and the list cut down to about a third of the length. He selected the feed from the top of the list. The shop burst to life around him. All the prices and signs he would have expected in a shop sprang into place. Other people, even, materialized in a few of the aisles.

"Who are those people?" Gregory asked, gesturing with his hand.

Javier didn't even glance back. "Home shoppers."

Gregory decided not to inquire any further along those lines, but he did have a lot of other questions. In fact, all he had were questions.

"Do you know where can I change my dollars into Euros?"

"No idea. You'll find somewhere in the city for sure."

"The city?"

"London."

"Ok. Shall I put this back?" Gregory asked, holding up the apple.

"Nah, take it. I'll mark it down as damaged."

*

A few minutes later Gregory walked beside a red dotted line which would, the viewsers assured him, lead to the train station. He had to pick a free pathfinding service, so every twenty meters an advert appeared at which he couldn't not look. No matter which way he turned his head, words or images about goods or services he didn't recognise or understand stayed in his line of sight. He turned off the adverts, but the line he followed disappeared as well.

"What's wrong with a map?" he said out loud.

He found a free mapping service. Before it would show him his route he had to watch a minute long video clip advertising some kind of breakfast bar.

Maybe. Gregory wasn't completely sure. When the map finally appeared, it was covered by arrows pointing to places where he could buy the same item he'd just seen advertised. After studying the map itself for a few moments, he started to walk in the right direction. He then cancelled all feeds and services until he reached the station.

He could find nowhere to physically buy a ticket so checked the nearest feed with his viewsers. A man in an old fashioned train conductor's outfit materialized.

"Are you looking for train times?"

"I want to buy a ticket."

"Trains can be ridden for free by non-commuters. Is this a business journey or a social journey?"

"Oh, social. I want to go to London. I've not visited for twenty years."

"Your train will be here in fourteen minutes."

"Thank you."

"Terms and conditions apply," the train conductor said, "by booking a free seat on this service you agree that you will not remove your viewsers, nor restrict our feeds in any way for the duration of your

journey. Doing so will forfeit your access to South East Rail services indefinitely...." The terms continued into areas that Gregory didn't fully understand.

"Book the seat."

Gregory spent the next few minutes exploring the station. He found it quite unremarkable, almost unchanged from stations he remembered from his youth. The differences came down to what was absent. No ticket machine, no employees, no guards, no shop. No passengers either. *Maybe nobody takes the train any more,* he thought.

He couldn't have been more wrong. When the timer in the top right of his field of vision counted down to two minutes, other passengers began arriving on foot and by taxi. None wore viewsers. Or so it seemed, until Gregory lifted his own pair off his nose for a moment, and saw that everyone wore a set.

He followed a dotted line to a spot on the platform, once again inflicted by adverts every few meters. He saw the train approaching in the distance. It was white, sleek, and, to Gregory's eyes, very

modern. It stopped, and a door opened directly in front of Gregory. He stepped in and followed the line dotted to his seat.

As soon as he sat down the adverts *really* began. He hardly even noticed a fellow passenger take the seat beside him or feel the train pull away from the station. Gregory tried to ignore the commercials and watch the the scenery. It was harder than he imagined.

"Volume off."

"Denied."

"Screens off?"

"Denied."

"Fuck!"

The passenger sitting beside him, a young man wearing a pinstripe suit, looked at Gregory.

"Sorry!" Gregory said.

"No need to shout, sir."

"Sorry," Gregory said again, lowering his voice.

"Are you taking the free service?"

"Yes. I just arrived in the country and haven't changed my money yet." For a moment when his vision was unobscured by a flashing banner he saw

the businessman looking confused. "It said I couldn't take the viewsers off. Is that right?"

"Yes. The railway now has your iris and voice scan. If you take them off now you'll never get a seat on a train again, no matter how you try to book it. And they do enforce."

"I don't have any money. What do the advertisers think I'm going buy?"

"Have you actually watched any of the ads?"

For the next few minutes he tried to keep track of what his viewsers forced him to watch. It soon became clear that all of the advertisements had something to do with employment. Namely job seeking services and agencies. A few were for government or charity services targeting the unemployed or otherwise poor people.

It makes sense, Gregory thought, *and I do need some kind of income.*

He tipped his head back and looked out under the lower edges of his viewsers' frames. Fields and hedges flashed by outside, and once a train rushed past in the other direction. His own train stopped at three more small towns like the one he'd just left. He

tried to think of the name of that first town, but couldn't remember ever learning it.

The buildings grew larger as the train approached London. In the distance Gregory spotted a tall blue spire, which confounded his sense of perspective. No matter how long he looked, it never appeared to pass in front of another building, it was always the furthest object in view. Then something clicked in his visual cortex, and he noticed the shapes around its base were office towers; skyscrapers in their own right.

"What's that?" Gregory asked the young man beside him.

"The Great Britain Tower," he said, "they just finished it. A waste of money if you ask me. Just because you can, it doesn't mean you should. They say there aren't even enough elevators, and they've had to offset work shifts at different heights in the building to avoid rush hours."

The view cut off abruptly as the train plunged into a tunnel, cutting out the bright sunlight. Gregory looked around at the other passengers. Everyone's eyes glowed, reflecting the light from their otherwise

invisible viewsers.

The train stopped for the final time at Liverpool Street Station. Gregory left the train and immediately cancelled all the feeds and adverts. He took off the viewsers and rubbed his aching eyes, his ears still ringing from the sensory overload. *Fucking spam!*

Gregory left the station and walked down Old Broad Street and into the City of London. If small town life hadn't changed much in twenty years, big city life was almost unrecognizable. Red busses cruised by silently. Taxis and cars also moved in silence, and many had no driver at all, just passengers. Everyone wore viewsers. The streets were much cleaner than Gregory ever remembered. Looking down street after street the biggest difference of all hit him again. There were simply no adverts or billboards anywhere. The front of every building was untarnished by corporate logos and plastic shop fronts. The street level of the city had returned to a place of architecture, not graphic design.

It brought back memories of photos Gregory had seen in history books. Not photos of London, but of cities in Soviet Russia and other Eastern Block

countries, where consumerism was shunned, along with all business signage. *Of course,* he thought, *the architecture here is far more interesting than East Berlin.*

He put on the glasses, squinting as the feeds assaulted his eyes once more. After a few minutes he managed to find a free information service that could tell him more about viewsers and how to use them. He spotted one piece of information that seemed particularly relevant.

"When people first used viewsers in large cities, one of the main benefits was the adblocking applications that removed all unwanted and unsightly images. At first this was a costly service, but soon a community of volunteers developed to offer it for free. As the uptake of viewsers quickened, the number of people seeing physical adverts reduced until it was no longer worth the expenditure for the advertisers. The London Metropolitan Authority passed a law to remove all billboards, and it was soon a matter of prestige for businesses to have bare buildings devoid of any signs. Ownership of viewsers became practically compulsory, and all advertisers moved into v-space."

Gregory finally found what he really needed; a list of businesses willing to exchange cash dollars into some form of electronic euros. The closest office was on Oxford Street. Gregory remembered from his youth how to walk there from Cheapside. *I just need head west,* he thought, *and don't turn left or right. Unless, that is, the street plan of central London has changed for the first time in centuries...*

He took off the glasses and walked with a clear head, enjoying the fresh air.

3

Winner.

Intelligence report number 746583. Investigation into match fixing.

Item 6: Transcript of telephone conversation between target and Philip Cheshill.

"Hey Phil."

"What's up?"

"Are you watching the game tonight?"

"Nah, I'm not that bothered. It's only a semifinal."

"But if United go through to the final they could do the triple for a third time."

"So I'll watch the final."

"Look, I'm going to make it more interesting and put some money on United."

"Shouldn't you be saving your money for buying stuff like, I don't know, new clothes?"

"What? Oh, you heard about the fire. The university had insurance. They're paying for everything. All I have to do is go shopping and give them the receipts, and I'm in a guesthouse until they fix up a new room. But I do have some money saved."

"You're going to blow it all if you go on like this."

"United are going to win."

"I doubt it. They're two down after the first leg."

"Come on, you've got to have faith."

"I do have faith. I have faith in my bank. I let them look after my money."

"So... the game?"

"Sure, why not. Where are we going to catch it? Murphy's has a big screen."

"We'll meet there, then watch the last few minutes at the betting shop across the street. That way I can get my money immediately."

"Whatever."

"See you then."

*

Item 9: Transcribed statement by Amir Rahn, assistant manager at BetStop.

The two young men first entered the shop at around eight forty. The game was already on. Actually it was well into the second half. I'd not seen them in the shop before, and none of our regulars seemed to know them. One of them, the taller one,

seemed to be quite nervous. The other looked bored, as though he wasn't at all impressed by the idea of putting money on the game.

The tall one came over and asked if he could make a late bet. I think his words were: I read online that you can do that here.

I told him that the odds were updated throughout the game and that he could place a bet at any point, as long as it could be processed in time. The winnings are calculated from the odds on display the moment the cash or card is taken through the draw under the security screen. There's a switch on it linked to the computer, you see. It's a good system to avoid complaints and complications.

The tall young man filled out a betting form. He wrote down that Manchester United would win the game by at least two goals. The odds at that point were hovering around eighty to one, as the team was two goals down with just fifteen minutes to play. Another team would have longer odds, but United made such a comeback in the '99 final. I guess hardcore fans in other shops were betting on a similar result.

He got his cash ready, but held back on the transaction. The other young man saw how much money his friend had, and started trying to talk him out of it. The discussion got quite heated. At one point the shorter one tried to wrestle the cash from the taller one's hand. But the taller young man seemed to be quite sure. I didn't detect he'd been drinking or taking drugs or anything like that. If he had I would have the right to refuse service.

He put the cash into an envelope, and looked up at the screens. A minute later Juventus scored their next goal. This goal put them ahead by three. The young man immediately turned to the counter, and I presumed he would change or cancel his bet. Instead he dropped the envelope and the form into the draw and pushed it my way. By that time the odds had jumped to three thousand to one.

I was processing the bet when the Juventus goalkeeper broke his leg during the long goal celebrations. I didn't see the ill fated somersault attempt, except in the replays. With no substitutions left they had to move a striker into goal and rearrange their formation. The referee added a lot of

injury time. The odds on Manchester making a comeback fell a long way, but I still didn't expect them to make up five, even after Manchester's first goal.

But then the ref sent off a key Juventus defender after two yellow cards. At the second Manchester goal, people in the shop started talking about how there might be a chance. The third goal in less than eight minutes brought them level, and brought the shop to it's feet. Then the winning goal, and people started coming over to cash their bets. I told them I couldn't pay out until the final whistle. Some customers had already thrown away their tickets when Juventus led by three goals, so dug about for them in the bin.

Then there was final goal of the night, which was a penalty. The keeper didn't stand a chance. He wasn't even a real keeper! Manchester didn't need that last goal, but the young man in our shop did. His friend was jumping up and down, calling him crazy and stupid and the luckiest bastard alive.

I immediately called my manager as I had never dealt with such a large win before. An expert

program came up on my screen, and it told me what to do. My manager sent me a message saying he was on his way. He'd been watching the game at a bar not far from the shop.

The young men waited for the queue to go down. My boss turned up. He took them into the office and I stayed up front. They were still there when I closed up and went home.

This morning I chatted with my boss a bit before you got here. He told me the young man didn't want any publicity. We talked about it for about an hour, as it isn't every day we pay out eighteen million pounds. That's a real big hit for our shareholders, I guess.

In my opinion the game clearly wasn't fixed. Who would break their leg to throw a game? That's what it comes down to.

And that's everything I know.

*

Item 41: Conclusion.

After receiving his money, the suspect transferred the balance of his bank account offshore and left the

country four days later, flying first to Charles de Gaul where he then chartered a plane to destination unknown.

As per his latest statement, Philip Cheshill has not heard from the suspect since. This is backed up by monitoring his telephone and email. Cheshill does not yet know that his university fees have been paid in full by an anonymous donation.

No evidence of any corruption. No evidence of any link between suspect and players, suspect and team, suspect and any known criminal organization.

The Juventus goalkeeper has not yet returned to training, and is expected to announce his retirement before he does so.

Case suspended, further monitoring of communications recommended, review in 36 months.

*

Item 42: 36 Month Review.

I'm putting this one down to a queer combination of lucky events.

Case closed.

4

A new friendship.

"Peter?" Jennifer called up the stairs.

"Coming!" he shouted back, pulling on his shoes. He tied the laces, checked himself in the mirror, and headed down to meet her. Jennifer stood by the door, and looked fantastic in her long, black dress. He put his arms around her and kissed her deeply. The kiss lasted longer than either of them expected. Jennifer gasped as they parted.

"Wow..." she breathed.

"Yeah... wow..." They looked at each other for a few seconds, each cocking their heads to the side

slightly, both thinking the same thoughts, both knowing that the other was thinking the same thoughts, both waiting for the other to suggest forgetting their dinner appointment and returning to the bedroom.

But the moment passed, and they both knew it. Peter opened the door for Jennifer, switched off the lights and walked with her to the waiting taxi.

*

"Jennifer has told me lots about you," said Nigella, "except what you do for a job."

So far the dinner had gone smoothly. Jennifer had wanted to introduce Peter to her best friend from university, Nigella. Nigella's husband, Andrew, was a few years older than his wife. Andrew was a city banker, and had booked a table at an expensive restaurant. The food was amazing; the conversation not so great. Not bad. Just shallow.

"To be honest, I don't have a job right now," Peter said. He watched Nigella's eyebrows raise slightly before she could stop herself. *Some people live so close to*

the surface, Peter thought. Andrew controlled himself far better. "I took time off to decide what to do with my life," Peter clarified, "and it turned out I liked not working. That was three years ago."

"And what did you do as a job?" asked Andrew.

"I worked in packaging."

"Is that a lucrative business?"

"At university I majored in business management. One day I found a list of the richest men in the world. You're a banker, you should know this kind of thing, out of the top fifty, how many do you think earned their money from new packaging techniques?"

"Well, the obvious one is the Tetrapak dynasty."

"Exactly. Plus five others. So I asked myself, 'How hard can it be to invent a better way to put something in a box?' I guessed it wasn't that hard."

"And it wasn't?" Nigella asked.

"No, actually it was. But I found something lots of people bought often, and designed a better way of packaging it."

"And that was?"

"Videos."

There was a pause.

"But nobody buys videos any more," said Andrew. "Everyone downloads them."

"Exactly. I invented the dot TYD file format."

"Seriously? My camera uses that format," said Nigella.

"Thank you."

"Why the thanks?"

"Because when you bought your camera a tiny bit of money found its way into my wallet."

Andrew grinned. "So you should be buying us dinner!"

"Not quite. My codec wasn't radically better. I just used new techniques to get the same file size but with a reduction in processing requirements and slightly higher quality images. At the time the industry was considering the HDW file format, which was far better than MOV and MPG and the previous generation extensions. But HDW cost quite a bit. I offered TYD at a low price that would all but guarantee widespread adoption."

"Smart move?" Andrew asked.

"I'm not sure. The maths says the TYD algorithms can't be improved, but other techniques

might make sudden advances. The gamble is that, before then, TYD becomes so ingrained that nobody wants to switch."

"So how much money you make depends on when a better format comes out?" asked Nigella.

"Such is the way with all business," said Andrew, "you just try to keep ahead. What are your plans now?"

Jennifer turned to face Peter, as this was one of her common questions. Andrew smiled at that.

"I'm still not sure. I'm thinking of getting into journalism. Or politics."

"No religion or politics during dinner," Andrew said. "Tell us about becoming a journalist."

"Well, now that everyone uses my format to send videos across the world, I'm inspired to get out there and make videos of my own. I know people in the camera business so I could probably get access to top of the line equipment. All I'd need to do then is head out to the trouble spots and make movies about interesting subjects."

"Isn't that dangerous?" asked Jennifer.

"Maybe. But nobody lives forever."

*

"What are you going to do today?" Jennifer asked Peter over breakfast.

"Today I'm going to invent a new form of mass transit."

"Another one of your wacky plans!"

"Not all my plans are wacky. And who even uses the word wacky any more?"

"But this means you're going to spend all day by yourself again."

"Yes. I work best when I can concentrate."

"You should really get out more. Make some friends."

"I have friends!"

"You do? How come I've never been introduced?"

"None of them live in London, that's all."

"Why not call Andrew?"

"Andrew as in Nigella and Andrew?"

"Yeah, Andrew Gateman. You got on well with him at dinner last week."

"He'd be at work today, surely."

"Peter, it's Saturday today."

"It is? How come you're going to work?"

"I love my job."

"That much?"

"And Sandra's pregnant. We're taking turns covering her old weekend shifts."

"Ok, I'll give Andrew a call, see if he wants to come over and do man stuff."

"Sweetie, don't be like that."

"Don't call me sweetie."

*

Andrew arrived an hour later. Peter let him into the house and showed him around.

"Nice place you've got here. Jennifer really landed on her feet."

"Thanks. I think."

"So, what am I here for?"

"No idea. It was Jennifer's idea."

There was pause that became slightly awkward as the two men stood in silence. Andrew broke it.

"Can I get a drink?"

"Good idea. Sorry, I should have offered."

Peter got some beers. On his way back into the living room he made an effort to start a proper conversation.

"Remember when I said I wanted to get into journalism?"

"Yup."

"I'm having second thoughts. How many millionaire journalists do you know?"

"Personally? None."

"So this morning I joked about designing a new form of public mass transit. While you drove over I did some research."

"You looked up how many of the richest men in the world provide transport solutions?"

"Exactly. Turns out the big money is in shipping. Shipping doesn't really inspire me. But along the way I found an interesting bit of trivia. Do you know which company transports the most people in the whole world, day in day out?"

Andrew thought for a few moments. "Ford? They have a lot of cars on the road. No wait! The company that provides trains for the Indian railways."

"You're way off. It's Otis."

"Otis?"

"Yeah. They make lifts. You know, elevators."

"Of course! I use the elevator six or seven times a day at work. I always stand there looking at the little Otis sign above the door. I've never really thought about it."

"Do you want to help me design a new way to move humans vertically in buildings?"

"Sure!"

Peter and Andrew spent the whole morning sketching out ideas, discarding them, drawing plans, doing calculations, and thinking about safety details. The first few ideas fell flat. For example, various laws of physics got in the way of big fans blowing people up narrow pipes. But neither man cared about their failures. The fact was that they were becoming friends.

They went out for lunch, and on the way home Peter sprang an idea that immediately resonated with Andrew. They spent the afternoon very much like the morning, but now with more purpose. By the early evening they felt a real sense of shared achievement.

Jennifer arrived home just before six. Peter said "hi", gave her a quick kiss and rejoined Andrew at the kitchen table, which was now covered with papers, notepads, pens and three laptop computers. Jennifer seemed annoyed by both the mess and the lack of attention in her direction, but at Peter's quick smile, she obviously remembered that inviting Andrew had been her own idea. She curled up on the sofa with a book and let them get on with it.

"That was a productive day!" said Peter as the two men finally cleared the table.

"We didn't actually produce anything," said Andrew.

"So says the banker!" They both laughed. "But seriously, we should go into business with this idea."

"You just said it. I'm a banker, not an engineer. What do I know about skyscraper construction? I can't justify taking time off work for this. Just sell the idea to Otis."

"No, *you* sell the idea to Otis. Whatever happens, I'm going to put your name on the patent."

"Fine, but I'm not sure how much I want to be involved."

5

Good works.

"Simon?"

"I'm right here."

Dana lay face down on Simon's bed. Simon knelt beside her, massaging her back and shoulders.

"Life is good, right?" she asked.

"Perfect."

"But don't you ever feel you should be doing something more? Making a difference?"

Simon sighed. "Not you as well."

"What do you mean by that?"

"Someone said something very similar last year."

"Who?"

"Just an old friend. They said all I do is read. I always thought its a good thing... that I've found something I enjoy and have time to do it."

"I like that you have plenty of free time."

"My investments take care of themselves."

"But surely there's more to life than reading. Have you no other passion?"

"Of course. Over the years I've had many. These days I like to read. And do things with you."

"I want to do something for charity. And I want to do it with you."

"Of course! What kind of thing do you have in mind?"

"Here's the thing, we're going to be spending your money. So what kind of thing do *you* have in mind?"

"I already give to charity."

"Really?"

"Of course!"

"Stop saying 'of course'. Which charities?"

"Some wildlife funds, a children's charity in Tanzania, a few random ones... when I'm stopped by charity reps on the street I normally sign up a monthly direct transfer to get them off my back. My

biggest contributions are to tsunami relief charities in east Asia."

"Oh," said Dana, "I didn't know that."

"Talking about giving to charity is tacky."

"And you think that's enough? Just giving money?"

"I like to think other people are better at actual charity work than I am. I'll help them by making money and sending spare cash their way."

"But surely you have skills of your own, ideas of your own, that you could use to help others. Whatever it is you want to do, I'll do all I can to help you get there."

"Well, now you mention it, there is this big idea I've been thinking about for a while now..."

*

Simon and Dana stood side by side at the front of the conference room. They had just finished their presentation. The collected experts stared at them, unconvinced.

"Let me get this straight," said Professor Grayson,

"you want to *cause* a tsunami?"

"No," replied Dana, "we want to trigger one in a controlled manner."

"That's absurd!"

"Why's that? When a river is known to flood, what do we do?" Dana left the question hanging for a moment, then continued. "Do we just leave it, and not even check the weather reports? No, we build a dam and let the floodwaters through at a slower rate."

"This isn't a river," Grayson countered, "this is a tectonic plate."

"Correct, but water lubricates the plate movement. Let in more water and there's more lubrication, so all we need to do is bore holes down through the bedrock in the trench. We follow that up with a multi-megaton detonation. The tsunami will still happen, but on our schedule. The Indian ocean coastlines can be cleared of people beforehand."

"You *are* serious."

"Deadly serious."

Grayson stood up. "I'm sorry. This is a waste of my time." He looked around the table at the other

geologists. "Of everybody's time." He strode out the room without a backward glance.

Another academic stood up. Simon's viewsers informed him of the man's name: Dr. Foster.

"Mr Dalton, Miss Hewlitt, I applaud your creative thinking. And I'm very grateful for being invited here today. The food was delightful. However, your idea has many flaws. For one, what makes you think this trench in particular," he gestured at the projector screen, "is the most likely candidate for a tsunami causing quake. Second, do you realize how deep the water is there? It's an ocean trench. Trench. Think about it.

"Third, the water drawn under the crust in a subduction zone is already enormous. Think of all the water that bubbles out of the mid-Atlantic ridge. You've seen the videos. It doesn't look like much, but multiply what you see at one vent by thousands and thousands of kilometers. That's a lot of water. A few holes drilled here and there would be a drop in the ocean. Literally."

"Right," Simon said, "so let's forget about the extra lubrication. But if that *did* happen to be the

epicenter, and if we *could* reach the ocean floor there, and if we *could* drill a kilometer into the crust, and if we *did* detonate a large bomb, what would happen?"

"Well, assuming all that..." Foster pondered the question for a few moments. "I'd need more data to be sure, but it could trigger some kind of quake to release the latent pressure."

Another geologist piped up. "I'm not so sure. How deep are you proposing we dig here?"

"And how large is the detonation?" asked another.

Suddenly everyone was talking at once. Everyone except Simon and Dana. They smiled at each other while the scientists grabbed notepads and pens and started scribbling their own calculations. Soon a three-way battle developed between people who thought the whole idea was impossible, those who thought an explosion would be dangerous and cause later unpredictable disturbances along the subduction zone, and those who thought it stood a chance of working as planned. After almost twenty minutes they reduced the options to just two possibilities; either nothing would happen at all or a quake would be triggered right away.

The seismologists and geologists broke off their discussion. They explained to Simon and Dana, in non-technical jargon, that a firm conclusion couldn't be reached without more data.

"And how would we get this extra data?" asked Dana.

"That would involve a survey of the trench to see the condition of the ocean bed," said Foster. "We can see from certain features how much time has passed since the last disturbance. Next we'd put seismographs on the ocean floor, and set off a test detonation, and record the reflected details of the subduction zone's internal structure."

"We understand the concept," said Dana.

"Only then will we know if the basic idea is even theoretically viable. But we haven't begun looking at the problem of deep ocean drilling, nor the size of the final payload. You have no idea how much money this kind of research takes."

"Dr. Foster," Simon said with a smile, "you have no idea how much money I have at my disposal. By the way, we're looking to hire experienced theorists and field workers." He looked around the table.

"Anyone interested in doing some, literally, groundbreaking research?"

*

An hour later Simon and Dana sat in their hotel room, and ate a light afternoon snack.

"Simon, how much money *do* you have at your disposal?"

"Good question. I'm actually not sure."

"Ballpark figure."

"As long as this project doesn't run to more than a few billion dollars I should be able to cover it."

Dana stopped chewing and turned pale. "A few *billion*?"

"Around about."

Dana swallowed. "And you're only now spending it on something other than books?"

"When you put it that way it sounds cold, but my reasons are complicated. I'm not at liberty to go into all the details now. I'm not even free to do what I want with this money. Some of it isn't even in my name. Look, I'd rather not talk about it."

"Wow. And I thought I knew you well," Dana said. "I didn't put you down for the billionaire type. I thought you were just comfortably well off."

"When you've lived the billionaire playboy lifestyle for as long as I have, you feel a lot more satisfied living among real people."

"You can't have lived that lifestyle long."

"It was long enough."

6

I think, therefore...

"This truly is a breakthrough in the field of brain imagery and scanning," said Doctor Nathaniel Rose. "For the first time we've been able to map, not just the brain cells, but large numbers of individual

synapses. These are the connections between the cells, and this is where the true complexity of the brain resides. We've had the technology to detect them before, but as each cell has thousands of synapses, computers have only now been able to scan, process and model an entire region of the brain."

The presentation looked sleek and professional, with lots of stylized images and animations. David was impressed. The technology looked impressive too. Everyone recognized the genius of the scientists and programmers, but out of everyone who had connected to the demonstration, David alone understood where this new technology might lead.

"I'll now present our demonstration study. Eight weeks ago, we had our subject look at this multipart maths problem."

A series of numbers and symbols appeared on the screen.

"We asked him not to work on the problem, instead just think about it and remember it. As he did so we made a recording of eight different parts of his brain which, we know from our previous studies,

he uses to solve similar problems."

A three-dimensional representation of the brain filled the screen. Certain areas glowed red.

"We disconnected our subject, who was then free to work on the problem. We had the record of the relevant data, and computers powerful enough to create a model based on this data, so we let the program run. On day one we formulated a request, one that the model would understand, sort of like an urge or instinctual need to give us an answer to the problem. As far as we can tell, it had no answer for us at that time. We left the computer running at full speed and, just four days ago, we received an answer. The simulation sent a message to part of the brain that helps us express our thoughts, which you could call our speech center. The answer..." Rose paused for dramatic effect, "... was correct!"

David heard a round of applause. He wondered if it was real or if it was simply a recording to signal the end of the scripted part of the presentation.

"Full technical details will follow. I'm willing to answer questions." Rose paused for a moment and looked over the unseen audience. "Yes?"

"If the human subject could have provided the answer in just a few minutes, why did it take seven weeks for the for the simulation?" The questioner remained out of sight.

"The human brain isn't designed for tasks like this, so it solves them in way that is massively parallel, many parts working in unison. The process is incredibly complex. The computer simulation of the brain just takes a long time to run, even if the same computer could have solved the maths in milliseconds. Nevertheless, due to Moore's Law, we can expect computer speeds to continue advancing, and the time will reduce. Next question."

"Could the computer simulation be said to be conscious?" David could tell from the voice that this was a different questioner.

"At this point the question has no meaning. That's like asking if one part of your brain is conscious. Current models suggest that consciousness is the result of some parts of the brain noticing activity in other parts of the brain, and then those other parts recognizing the activity of the first parts. With so little of the brain modeled, we've concluded that no

such process could happen in our computer simulation. Next question."

"In the future do you plan to map the entire brain?" This was the first questioner again.

"Yes. One day we hope to do a complete simulation of a human brain. To begin with it would run at a greatly reduced rate, experiencing just a few seconds for every day a biological mind would see. To be clear, we predict this will take upwards of forty or fifty years. We're like the Wright Brothers, and a full brain scan would be the Space Shuttle. Next question."

"Is this the ultimate lie detector?" The second questioner again.

"Interesting point. As far as we can tell, memories only exist in the structure the brain, and every brain structure is unique. As we grow up we experience different things that shape our brains in different ways. Much of the overall layout is the same from human to human, but individual memories are stored in different places in each person. It varies from person to person, even in unseparated identical twins with a lifetime of similar experiences. By the end of

puberty the brain is fully developed, and where in the brain certain kinds of memory are stored is fixed. But the same group of cells that my brain uses to remember different brands of cereal could be the same place your brain stores the memory of your first kiss."

"But mind reading would be possible?"

"Memory and personality, the storage and the processing, if you will, can really only exist inside a complete system. One is moved just as much by chemicals created by emotional responses as by conscious thought. To fully understand what someone is thinking you'd first need to map their brain fully, then put that model in a completely controlled environment. In other words, it'll be forty or fifty years before we can do such a thing. Next question."

"Have you thought of the ethical issues this raises, and the reaction of religious organizations?" This was a new voice.

"You mean 'Are you playing God?' Yes, we are playing God. Except we actually exist. My team and I are taking the very first steps along a path that could

lead to a form of immortality for our children or grandchildren. If the religious want to cling to their hope of everlasting life, they can. Meanwhile the rest of us won't have to hope. No, we'll have the means to achieve it ourselves. Next question?"

David disconnected. He'd heard everything he needed to know. Everything was right on track. To make sure the team didn't fall behind schedule he donated, via eight proxies, another twelve million dollars to their foundation.

This time he was taking no chances.

7

Exclusive Interview.

It isn't often that reclusive singer-songwriter

Grant Freeman talks to reporters, but we managed to get our hands on him for an exclusive interview; the first he's given since early last year. Everyone has questions about his new album, but we're the ones lucky enough to ask him directly! We sent our intrepid reporter, Sandy King, to a luxury hotel in Central London, to get inside the mind of Britain's most enigmatic musician. Below is the full transcript of this remarkably candid interview.

Sandy King: Hello Grant Freeman!

Grant Freeman: Hello Sandy.

SK: We've a lot of questions to get through today.

GF: Please, ask as many as you want.

SK: Well, we really want to know about your new album, *To The Edge*, but first I have some questions about your previous work. Your last album, *A Way Of Life,* was one of the biggest selling albums of the year. Tell us how it felt to be credited for the survival of the UK music industry.

GF: How can that not make you feel good? Some people said I sold out, signing on with a big label and all that. For my first two albums I did *all* the work. I

mean, on these latest albums I have final say on everything artistic, I do all the songwriting and some of the producing. But I used to organize everything else too. Everything. Do you know how much work it is to run your own website when you're getting millions of hits a month? Even running a Facebook group is like a full time job. Signing a record deal, though many people see it as a backwards step, was just a way for me to cut down on work and stress. Sorry, what was the question again?

SK: How did you find the critical reaction to *A Way Of Life*?

GF: Great! I try not to read reviews, but I can't kid myself, I love good feedback.

SK: Tell me what you think of a quote like this. "Freeman has done it again. While other artists rely on producers and gimmicks, Freeman stands head and shoulders above the rest by knocking out track after track of lyrical gold."

GF: I've not heard that one, but it cuts to the core of the matter. Everything I do is about the songwriting. Sure, I get in top producers these days, but the words and melody are where I really

concentrate.

SK: And it works.

GF: Thank you.

SK: On *A Way Of Life* you wrote two of the songs written from a female perspective. Some people found this strange, but I think you captured the voice of a woman perfectly.

GF: This was an experiment for me. Not all of my songs are written from real life experience. The song *Still Hurting Me*, I'm glad to say, is not about a real relationship. At least, not about a real relationship that *I've* had.

I could have written the songs from a gender neutral position. You know, *me* and *you*. That limits me to talking about a relationship in the second person. But if I want to sing about a relationship, and my partner is in the third person position, he or she always has to be either a he or a she.

And why should it always be a she, just because I'm a man? Novelists often write the opposite sex in the third person. Why can't I record songs that girls can sing along to, and identify with, without having to change the words as they go along?

SK: This of course lead people to ask questions about your sexuality.

GF: Of course! But I don't mind. People think I might be gay? So what... I might be! I'm not though. Sorry guys! The record company execs were nervous though.

SK: Of course.

GF: Well, it surprised me. They told me I had a "sex object" image to uphold. I'd not really thought of myself like that, or not too much. So I just told them I'd appeal to the gay demographic too. Like I said, I've got final say on what goes on the album.

Here, let me tell you the truth about those songs. The guy in those songs? The one I'm singing about? That's me! I was the guy who was hurt, and the "I" in the song is my ex-girlfriend. I told her, when she was my girlfriend, I'd write a song for her, but I only found inspiration once after we broke up. I wrote what I hoped she was thinking at that point.

SK: That makes a lot of sense.

GF: See? It isn't that controversial. Every thing's hetro. Move along. Nothing to see here.

SK: There has been lots of talk online lately about

your name. Tell us about that.

GF: Everyone has a stage name, a professional name. Is your real name really Sandy King?

SK: It is actually.

GF: Oh, great! You have a nice name, Sandy.

SK: Thank you!

GF: Yeah, so, my real name is Nicolas Hasting. But I never liked it that much. When I started writing songs I decided to put other names on the bottom of the page.

SK: When did you start writing songs?

GF: Pretty much when I dropped out of university. I studied photography and art. I lost everything in a fire. All my photos, all my files except those I had online, most of my old negatives. Everything I'd done creatively... gone.

I was stuck for a while, but at the same time I felt a new sense of freedom. I started writing poetry and then moved quickly to song lyrics. And the names I chose when I wrote would express how I felt about that song. The first few names were stupid, but I kept writing name variations on the same concepts.

Grant Freeman is a slight play on the words *grant*

freedom. Like, you know, when a slave is released he's granted his freedom. I felt like I could write anything.

SK: Tell us about your new album, *To The Edge*.

GF: Of course. The new album is a real departure for me. A lot of the songs I've written in the past have been about relationships. Almost all of them, in fact.

For example, my breakthrough hit, *For You*, was all about desperation, and how hard it is to express your feelings when your relationship is breaking down. What I always find so strange is how couples just listen to the words in the chorus, and take it to be "their song", playing it at their weddings and such. Really weird. The song has a line about the partner going out to pick up other men. Anyway, after three albums I've explored love and loss in so many ways it would almost be self-parody to cover the same ground again.

This time round I wanted to concentrate more on issues. Bigger issues. You know, I see the way the world is going. In some ways it is heading in the right direction. There's less disease, less starvation, less war, far fewer terror attacks than ever. Of course,

nobody thinks that, as the war we are in at the moment is always the most painful. And there'll always be natural disasters we can never control, you know, like the tsunamis and earthquakes.

But there are other issues, and no matter how far we've come as the human race, there's always further to go. Nobody said "Hey look, we've freed the slaves, now everything is perfect! We can stop trying!" The next generation pushed on to improve even further.

SK: So what will you be singing about next?

GF: Overpopulation, space exploration, and extended rights for great apes and dolphins.

SK: Oh wow!

GF: Yup!

SK: Go on, please.

GF: A lot of people will say it's not my place to talk about political issues like this, but if I don't, who will? I mean, who do people listen to these days? Scientists? No. The top science websites get plenty of visitors, but more people listen to my music every day on their iPods or in their cars.

Yeah, I know what people expect from me: love songs, songs about breaking up and feeling hurt,

songs about promising encounters that end in either joy or disappointment. Of course they do! They can relate on an immediate level. There are songs like that on the new album too, but they aren't the main focus.

Overpopulation is still one of those tricky subjects. There are too many people in the world. Every bit of evidence points in that direction. Of course, we can feed everyone, but if everyone had the lifestyle they deserve, that of a western industrial nation, we'd use so much energy we'd run out of coal and gas and everything else within a generation.

I don't have any answers to this question, but I think it needs raising. There are two tracks on this latest album that I sing to my unborn grandchildren, explaining why the earth is empty of beauty, empty of nature, and empty of empty spaces.

SK: And the other two subjects?

GF: Are connected. Every year there are new studies showing how intelligent the great apes are, especially chimpanzees and bonobos. Why should we take up all the room? There's now a commune of apes and humans living and working together in France. You know about this, right? The chimps are

using sign language! In fact, the chimps are making up new words and teaching each other so quickly the humans can't keep up! There's a real culture developing. An ape culture. They tell each other stories and run primitive businesses. And that's just what the apes are showing us, they could be doing more in private.

The only reason Neanderthals are extinct is that we humans found them too intelligent. They were our rivals. We killed them off. And over the past few million years, any time another ape species has evolved more intelligence, we homo sapiens, we *thinking men*, have killed them off too. We've been the limiting factor on the apes' journey to becoming pan sapiens: *thinking chimpanzees*.

So, I wrote a song, a duet, between a man and an ape. The human tells the ape about his species' past actions, and how angry he is at their ignorance. The ape replies, "Don't worry, I forgive you." The song's called *The Better Man*. You know, the ape is the better man; he's learnt to forgive and forget.

SK: Wow. And the last topic?

GF: Yeah, space exploration. Well, to be honest,

more and more people are visiting space these days. Space tourism and all that. I'm booked to go on a flight in two years. Full orbital, not just a little two-hour hop. It's costing me so much! Andrew, my finance guy, says it's costing me *too* much. Buy this album, people!

I'm inspired, you know, by the thought of looking down on the Earth. Putting my hand out and covering the whole of England with the tip of my little finger. But then I think, "Wait! turn around! The Earth is tiny! What else is out there to see?"

So there are two songs about going into space. *Above The Air* is about looking down on Earth, and the other, *Below The Stars*, is about going beyond the Earth. I wanted them to sound anthemic, kind of. Each time someone looks up at the stars, I want them to sing my song to themselves and think, "You know, everything we can see from here? One day we can get there!"

SK: Get to Mars? Get to Jupiter?

GF: Sure, but I mean further than that. Not we humans alive today, but one day, if we don't kill ourselves off first, humans will reach other stars.

SK: And the other tracks on your album?

GF: More standard stuff for me. Songs about love and life. One is called *Out Of My Mind,* about how a close friend can help you through a hard time in your life. *Unseen Love* is about how hard it is to tell someone you love them when they aren't there, and how frustrating that can be. *Paint a Picture* is an upbeat song about how wishing for something doesn't make it true, but how thinking about it can still make you happy.

SK: Any plans for the album after this one? Any new topics in mind?

GF: Well, first we'll see how this one goes. If people like the new lyrical style I'll push further in that direction, go deeper into other issues. Or maybe combine them all! Love stories about two apes set on spaceships blasting away from a overpopulated world. No, make that two male apes! Or if you really want controversial: a song written from the point of view of a male ape falling in love with a male human.

SK: That would certainly get people talking!

GF: Sure would.

SK: Finally, I'd like to talk about some things that

every single girl in the country wants to know, and many non-single girls too...

GF: I'm sorry, I don't mind talking about my music, but I'd rather not go into detail about my personal life.

SK: Not even a hint? Is there a current future Mrs. Freeman?

GF: I talk about my relationships through my songs. I'd like to keep it that way. Except the songs about apes. Don't read anything into those.

SK: Well, Grant, it's been a great conversation. Thanks for answering my questions.

GF: No problem. Thanks for asking.

There it is! Certainly an interesting departure for Freeman. Who knew he's so intellectual? We've heard some tracks from the new album. This one's going to be HUGE!

8

Good works?

Securing the use of the ship and buying equipment took almost a month. From there it took a further six weeks to prepare and place all the seismographs.

The International Oceanography Vessel Gulliver drifted on the perfectly calm mid-ocean water. The crane lifted the Alvin Five from its cradle and swung it out over the rear of the ship. The mini-submarine hung about four meters from the surface of the water, yet four kilometers above the ocean floor.

"Everything ready?" Dana called on the radio link.

"All systems are go!" Simon replied. He looked to Foster and his team. "Right?"

Foster put both thumbs up, then used his thumbs again to once more control the crane, and lowered the Alvin into the water. Beneath the submarine hung a barrel-sized case. It contained the initial charge.

This was the first non-test trip in the Alvin. Simon had wanted to avoid using it completely, but the placing of the charge could be done no other way.

Dana had insisted on taking the trip to the ocean floor herself. The Alvin carried three people, and only two specialists were needed, so the spare seat was open. Foster was unhappy about Dana's idea; it presented an unnecessary risk. But Simon payed the bills, so in the end he overrode Foster's judgement. Simon couldn't remember exactly when Dana had convinced him of the plan.

The Alvin could navigate to the ocean floor without any physical connection to the Gulliver. However, with a large explosive device slung underneath, it was prudent to use some kind of tether. The same tether would be used to send the ignition signal to the charge once the Alvin returned to the ship.

"Going down!" Dana's voice was pitched higher than usual in her excitement.

The Alvin disappeared beneath the waves in a whirlpool of bubbles, and Simon walked to the control room to watch the data feeds. The sub would

take almost forty minutes to reach the ocean floor. Simon didn't mind the wait, as Dana kept up a running commentary the entire time.

"Everything is blue now. I just saw a fish. It was blue too. Must be some kind of camouflage."

Simon knew Dana knew that it was actually due to the scattering of other colours of light. She only said it because she knew that he knew that she knew.

"We're turning the lights on now. Wow! Did you see that? A shark! No wait... a speck of dirt."

Later Dana glimpsed some real exotic life forms.

"Can we turn the lights off for a moment? Those glowing fish were spelling out some words... I want to take a better photo..."

Simon loved how she could stay so interesting and entertaining while talking about nothing more than a black, empty ocean.

As the Alvin neared the ocean floor, the pilot guided it to the correct location. The sonar on board the ship could track the submarine clearly, even at such a distance. The charge descended carefully into place. The Alvin circled it, checking that it rested directly on the bedrock, perfectly upright. The tether

drifted up from the top of the charge and out of the harsh lamp light.

"Everything checks out down here," said Dana. "We're going to head back up now."

"See you when you get here." Simon turned to Foster. "So we do the survey right away?"

"No reason why not," Foster said. "The conditions are perfect."

"And the seismographs?"

"All working perfectly too. In fact, we've been picking up microquakes since we placed them."

"Really? Is that normal?"

"We don't know. This is the first time we've had so many seismographs in an ocean trench. But we're already getting a lot of data. The shock wave from this small charge will show us every detail and every crack and fault line for two hundred kilometers. We've really never had anything like it."

"So you keep telling me."

"On behalf of the whole team, even if today is a washout, I'd like to thank you for giving us this opportunity to conduct pure research."

"Not so pure, to be honest. I'm doing this to save

lives."

"Of course," said Foster, but Simon saw that the humanitarian benefits were completely lost on the scientist.

*

The Alvin surfaced in an explosion of white water. The top hatch opened and Dana's head popped out. She waved over at Simon. "What a ride!"

"Did you see much on the way back up?"

"Yeah. Lots more glowing thingies."

Foster manned the crane and swung the boom out over the stern. It took ten minutes to make sure the Alvin was fully secured to the rig. "Hold on!" Foster shouted. The pilot stayed outside, holding on tight to the side of the craft. Dana decided the safest place was back in the Alvin. The crane lifted it out of the water and gently lowered it into the cradle.

"Now what?" Dana asked Simon after they embraced.

"We've already done the system tests. Foster says we can do the full test as soon as we're ready."

"When will that be?"

It didn't take long. The software routines constantly scrutinized the seismographs. Every second, each one broadcast a signal which included both seismic and system data.

The entire team, or as much of it that could fit, crammed into the control room. They didn't need to be there, as they could access the same data feeds in real time via their own laptops or, for those who could afford them, their own viewsers. But being in the same room as those in control conjured up a sense of immediacy.

Simon let the experts call the shots.

"Ok. All systems still looking good. Want to do a countdown?"

"Do we need one?"

"Not really."

"So hit the button."

"Click the mouse, you mean."

"Just get on with it."

"And... there we go."

A pause.

"Nothing happened," said Dana.

"It'll take a few seconds to process the request and then..."

Everyone went quiet as the first seismograph feeds began showing significant returns. Simon frowned, a little bit disappointed that he hadn't heard or felt the detonation.

Then everyone started shouting at once. Simon looked to Dana and smiled, once again sharing his amusement over the enthusiasm of the scientists. But Dana wasn't smiling. It dawned on Simon that the shouts weren't shouts of joy, but of confusion. Simon scanned the results. The data feeds, shown as classic zigzagging lines across the screen, looked strong enough. What was the problem? And then, in horror, he understood. These returns were *too* strong. By, it seemed, many orders of magnitude. As he watched, a dozen of the feeds dropped offline. The next second another half dozen disappeared. The shouting didn't stop. If anything it got louder.

"Quiet! Everyone!" Simon shouted at the top of his voice.

There was silence, except for a series of bleeps sounding in time with yet more seismographs

dropping out of touch.

"Foster, what's the situation?" asked Dana.

"A quake."

"How big? How far?"

"Moment of magnitude... er ... I'd say about eight. That's off the top of the Richter scale, you know. Likely location... probably where the majority of the failed seismographs used to be."

Simon checked a map. "About thirty kilometers up the trench," he said. "Are we at risk here?"

"There's no way to tell. Even these days it takes hours to model the paths of waves across oceans."

"We've no time to waste," Simon said. "Everyone, secure the ship. Put on your life vests. You know the drill. Foster, backup the new data over the satellite link. I've got the warning covered."

The room cleared almost instantly, everyone running out to do what they considered most important. Only Dana and Foster remained with Simon in the control room. Less than two minutes had passed since the start of quake when the wave reached the ship. If Simon hadn't been standing still at the time he might have missed it. He felt a slight

increase in his weight as the ship surged up maybe a meter.

"Was that it?" Dana asked Foster.

"I hope so." Foster replied. He didn't look up from his computer.

Simon didn't have time to talk. He opened a file on his viewsers that contained everything he needed. "Execute *Early Warning*, use all preset data, except time. Set time in zone one to minus thirty. Calculate other times from that point using model zero point zero two."

"Executing. Return details needed."

"Handle all software responses. Route human enquiries back to myself, Foster and Dana."

After a few seconds the calls started coming in. A window opened in Simon's vision. He began to answer it, but more and more calls connected each second. He momentarily placed all calls on hold. Even as he did so, the bandwidth for the whole ship maxed out.

"Options?" he asked.

After a two second pause his viewsers replied. "No suggestions."

"Fuck!"

Dana piped up. "BBC and CNN and every other network are already connected."

"Perfect!" Simon said. "Bounce all connections to news network servers, except the international news networks themselves. Open those remaining connections, mute all, except, um, CNN. Open camera feed and mic."

"One moment please."

Simon turned to Foster and Dana. "You guys take this, alright?"

"Hello?" A voice spoke out from the speakers set into the main display screen.

"Foster, go!" hissed Simon.

"I... er... " Foster stammered.

"This is Robert Price Davis of the Cable News Network. Who are we talking to?"

Dana glanced at Foster, realized he wasn't up to the task, and took over.

"Greetings from the IOV Gulliver. This is Dr. Foster PhD, and I am Dana Hewlitt. We are two members of a survey team in the South Indian Ocean. We're testing an early warning system for

tsunami trigger events. A few minutes ago, during the calibration of our instruments, we detected a large earthquake below the ocean floor. It was about eight on the Richter scale and, we estimate, has caused a tsunami of the same proportions as the event in 2005."

"Our experts are looking at your data now."

Dana continued. "In 2005 the tsunami struck the coasts with little to no warning. This time even the closest populations will have at least two hours advanced warning, starting from now. To everyone watching this, please do all you can to make possible a calm but brisk evacuation the of coastal areas around the Indian Ocean. We don't yet know which regions will be impacted greatest and which will escape completely. Please assume the worst and don't take any chances."

"Perfect!" whispered Simon.

"A question," said the news anchor, "if this happened only a few minutes ago, how did you have time to prepare the emergency warning broadcast?"

"We've been working on the system for a long time," Dana said. "The release is a modified version

of a mockup emergency cast. We had it ready only for the simulations. This is a *real* emergency."

"On the line we have our own expert from the OEQA, Professor Grayson. Professor, what do you make of this data?"

"Oh shit..." whispered Foster under his breath.

"I agree," began Grayson, "the data I'm seeing here confirms everything Ms. Hewlitt has said so far. But one crucial item of information is being withheld. I've had previous contact with Hewlitt, Foster and their financial backer, one Simon Dalton. In a secret briefing I was made aware of their plans to detonate a large nuclear explosive charge in an ocean trench. The stated purpose was to cause at a tsunami at a pre-planned time, with advanced warnings already prepared to reduce--"

"Let me stop you there for a second, Professor. Are you saying this group has intentionally caused a natural disaster with a nuclear device? A creative weapon of mass destruction?"

"Oh boy..." groaned Simon, his heart sinking. Most scientists had no idea how to talk to the press. How could Grayson have mentioned the word

"nuclear" so clumsily?

"No, no, no, no! The idea was to prepare the Indian Ocean nations in advance. My view, backed up by their data feed, is that they made a mistake and their nuclear device detonated prematurely--"

"Let's go back to the unidentified terrorist group for their response."

"I never said they were terror--" Grayson's audio cut out mid sentence.

"I'll state again," said Dana, "we're a privately funded research mission with one goal, to map the ocean trenches for likely earthquake zones. No nuclear devices were used. Do you think we would detonate such a device directly below our own ship? Take a look at the geo tags. We have no demands as we are not terrorists. We have no political affiliation as we are not terrorists. But to be clear, the tsunami warning is real and the threat of a deadly wave significant..."

Simon sighed.

It was never meant to happen like this!

9

Wave goodbye.

Nick sat on a floating jetty, his feet dangling in the water. He held a paperback in his hands, and pretended to look at the open pages, but he wasn't really reading it. Instead he watched his girlfriend, Katy, as she walked along the seafront.

They were spending the afternoon in a typical trashy seaside town, a town that did all it could to wring every last penny from visiting foreigners. Unfortunately for the locals, neither Nick nor Katy had much money. Nor much else for that matter; just what they could each carry in a backpack. Katy had decided to kill a few hours taking in the local flavor.

Nick checked his watch. Three thirty. Everyone he used to know back in England would be waking up about now and getting ready for work. But Nick's life was different. He'd never had a proper job, for one thing. For another, he'd spent the last four years traveling, drifting from one country to the next. He had no real destination in mind, he just knew he wanted to stay away from the western world and the ubiquitous technology it contained. He paid his way by taking photographs, some of which appeared in the National Geographic magazine, and had met Katy on the way.

Nick read for a few moments and looked up again. Katy was nowhere to be seen. She normally stood out among the local Indonesians, with her blond hair and bare arms. He scanned the shop fronts but still couldn't spot her. Nick felt a pang of fear. He'd often told her she should dress more moderately in this Muslim country, but she'd just laughed at that.

He spotted her again, a few hundred meters away, leaving a shop and putting her sunglasses on. She waved to him. He lifted his book in the air in

acknowledgement.

His toes touched the sea bed, and a moment later the soles of his feet settled flat onto the sand. *Strange,* he thought, *I didn't realize it was time for low tide.*

He then watched in amazement as the water rushed over his feet and the natural harbor was drained. All the boats came to a rest on their keels. The retreating sea left behind puddles, some with fish splashing in the now far too shallow water. Nick watched the water retreat. New islands formed as the sea level dropped even further.

Something nagged at the back of his mind. *I've read about this before,* he thought, *this kind of thing happens when... SHIT!*

He spotted, about halfway to the horizon, a white line of churning water rushing towards the shore. He looked inland. The nearest high ground lay a few kilometers away. Even if he ran immediately he stood little chance of reaching the hill, and he could see no tall buildings or any other place he might escape the coming wave.

A few heartbeats later the locals, en masse, became aware of the wave. Many dropped whatever

they carried and started fighting their way through the crowds to get away from the seafront. Some shop owners, in desperation, began to pack away their goods. The majority started shouting, exactly what, Nick couldn't make out. Again he tried to spot Katy in the crowd. Again she was nowhere to be seen.

Nick heard, over the commotion, a low rumbling sound. Looking offshore, the wave swept closer and closer. He knew he couldn't make it to the safety of high ground, nor could he reach and help Katy.

The jetty on which he sat was made out of plastic barrels, secured together with coarse rope, with wooden planks lashed on top. He knelt down beside the jetty and started unscrewing the top of the closest barrel, the lid grinding against the sand. After three complete revolutions it stuck. Nick kicked it with the side of his foot, then pulled at the lid again. This time it came away easily.

Nick grabbed his camera bag from the jetty. He took out the camera itself, and looped the strap securely around his left wrist. He threw the bag itself into the barrel.

He took one more look along the now empty sea

front, hoping that Katy would make it through. He felt guilty that he could do nothing to help her, and then felt even more guilty as he turned to face the wave. He lifted his camera, zoomed out as far as possible, and captured what he knew would become the defining image of Nature's destructive indifference.

He then climbed into the barrel and jammed himself in as securely as he could. He looped the camera bag strap through the handle in the center of the barrel's lid. He pulled hard, and the lid flipped into place. It didn't fit perfectly, as the lid was facing the wrong way. Nick hoped it would let in little water, but just enough air to breath.

By this time the low rumbling had become a roar. A few seconds later the sunlight that seeped in through the cracks around the edges of the lid turned dark. Nick braced himself and took a deep breath.

The wave hit. Nick felt the entire jetty jerk violently. The bag's strap ripped out of his hands and disappeared along with the lid. As the jetty broke apart, the wave swamped Nick's barrel and flushed

him out into the deep, black water.

He could see nothing. The pressure was intense. Nick had no idea which way was up or down, the entire concept of direction seemed irrelevant in the tumbling water. Noise itself lost meaning too, or else noise became everything; his whole body felt the continuous vibrations, his ears playing only a minor role. His head brushed against something solid, so he decided to swim in the opposite direction. He twisted his body, and with his lungs bursting, thrashed for what he hoped wasn't the ground.

After an eternity he broke the surface. He gasped for air, and felt the wind in his face.

The wave carried Nick inland at high speed. He now felt relieved at the lack of tall buildings, as the worst thing at this point would be to hit one. The trees that still stood were the only obstacles to miss.

As the wave reached slightly higher ground it slowed but still rushed forwards. Nick noticed some barrels floating a dozen meters away and swam in their direction. The camera weighed down his left arm and slowed his progress. Should he let go of the camera? His pumping heart told him he wouldn't

make it to the barrels with the extra effort, but his mind told him he needed to get the ruined camera to safety, just for the memory card it contained. He finally made it and grasped a length of rope. He pulled himself along the rope to two barrels that had survived the initial wave still lashed together. Only then could Nick relax his tired body.

He looked around, desperate for some sign of Katy, though found no sign. He spotted many other people. Some held their heads above the water. Others floated face down.

"Hey! Hey!" he shouted, trying to get the attention of other swimmers. Some heads turned towards him, and he saw some try to swim in his direction. He helped the first man when he got close enough, grabbing his hand and pulling him the final meter to the barrel.

The second man to arrive refused to take Nick's hand. Instead, the man grabbed the barrel and pulled himself up out of the water. He then swung his arm back, made a fist, and punched Nick full in the face.

It was the last thing Nick had expected. He fell away from the barrel, tasting blood in his mouth.

Turning, Nick thrashed clumsily towards another barrel, this one thankfully unoccupied. On the way, the wave washed him up against a tree. The impact winded him, but he quickly pulled himself onto a branch. Then, for good measure, he climbed a few branches higher.

Nick sat still, and slowed his breathing. He noticed the water no longer flowed towards the distant hills. Instead it was now being drawn back out to sea.

Dozens of people swept past his tree, but he was weary of trying to help. He ran his tongue along his lip and felt a lump forming. *I'll deal with guilt later,* he thought, *for now I'll make sure there is a later.*

He tried his camera, but he found it broken in a number of ways, both visibly and internally. The lens had a large scratch and the focus ring wouldn't turn. Water drained out of a crack in the camera body, and the battery compartment was open and empty. Nick removed the the memory card and slipped it in into his back pocket, then pitched the camera into the water.

With no other options, Nick waited in the tree as

the water level dropped. Again his thoughts turned to Katy and her chances of survival, but he forced himself not to linger on that subject, knowing he could do nothing.

Looking inland he could see parts of the higher ground emerging from the water. Every new patch he could see, the ground had been scoured clean. *Strange how no animal bodies floated in the water, only humans. Was a second wave likely to hit? Or was that just aftershocks following an earthquake?*

Until the water receded, he could do nothing but sit and think but try not to think too much...

*

Nick woke with a start. Someone was shouting up from below and shaking the trunk of the tree. Nick looked down. He sat higher above the ground than he first thought, and every low branch had been stripped away.

"Do you think you could get a ladder?" Nick shouted down.

The old man below shouted something back and

waved his arms. Nick couldn't understand a word. The man walked away, periodically looking back over his shoulder.

Nick took in the devastation. As far as he could see, north and south along the coast, the destruction was complete. Not a single building remained standing and most vegetation had been stripped away. Debris covered the ground, left over from the last draining of the water. Bodies lay alongside overturned boats and twisted deck chairs. Inland, Nick made out a ragged line along the base of the hills, beyond which the jungle appeared unchanged. Small groups of people cautiously picked their way across the wasteland to see what help they could provide. Or maybe to find something of value to loot.

Looking back to the sea, about seven or eight hundred meters away, Nick saw that small waves still crashed onto the beach and into the harbor, churning a soup of roof thatching, small broken watercraft and a couple of blue plastic barrels. Further out he could see people trying to swim ashore. Maybe. He wasn't quite sure.

He looked at his watch. The second hand sat as motionless as the minute hand. He guessed an hour had passed since the tsunami hit, but it might have been far longer. What felt like another hour later, the old man returned carrying a coil of rope. He threw it up to Nick, who caught it and looped it round the thickest brach he could find. He lowered himself carefully to the muddy ground.

"Thank you, thank you." Nick said, shaking the man's hand. The man smiled toothlessly and, after the hand shake, left his hand out, palm up. Nick looked at the hand.

"Fuck it," he said with a smile, and reached into his pocket. "Here you go." Nick handed over a soggy five dollar bill. The old man grinned again, pulled the rope out of the tree and coiled it over his shoulder. Without a word, he turned his back on Nick, and picked his way down towards sea.

That left Nick alone, safe, and without a clue what to do next. He knew he wanted to find Katy, but had no idea where to even begin. Was there any way she could have avoided the water? Surely nobody in the town could have made it to the safety of high

ground. Nick looked around, but couldn't see anyone else hanging in the nearby trees. Dead or alive, the best place to find missing people would be the sea.

Nick made up his mind and followed the old man.

10

Otis.

The representatives from the Otis management board and technical departments sat in the conference room at the Prince Royal Hotel. Most leant back in their chairs, arms crossed over their chests. Peter didn't need to be an expert in body language to know that it wasn't a good sign.

Thankfully Peter had convinced Andrew to do all the talking. He knew it would be a real test of public

speaking. The pitch would be quite technical and involve some tricky concepts.

"Gentlemen," began Andrew, "there's one factor beyond all others that limit the height of super-tall skyscrapers. We know it's technically possible to build a mile high tower, even Frank Lloyd Wright had that vision. The one thing that stops us is the space that elevators take up on each floor. As we add extra floors we need more elevators. Past a certain height limit this creates a situation where the bottom floor is taken up entirely by elevators that take people to the next floor, which in turn is taken up ninety nine percent by lifts taking people to the floors above. Of course, Otis would love such a building!"

Some of the Otis reps smiled at the joke, and the rest at least nodded, obviously familiar with the problem. Peter thought Andrew had made a good start. Humor was a good way to win over an audience.

"Your clients, however, have more pressing needs for floor space. At the moment, some tall buildings have a sky lobby for the top section. An express lift takes people up, then each person takes a further lift

journey to their destinations. It's the best solution so far, but the lifts still take up a lot of space, and waiting in the lobby adds a lot of time to the overall journey for each passenger.

"Our scheme, patent pending, is an elegant solution to the entire problem. To make the concept clear I'll use a theoretical building two hundred floors high. And, in a shocking move, I'll assume floor thirteen exists."

"The basis of our idea is to have fewer elevator cars that make fewer stops, yet each elevator car stands ten stories tall. When it stops, ten doors open on ten consecutive floors.

"The next key step is simple. As opposed to the sky lobby, where lift passengers are sorted at the top of the building, we can now sort people at the bottom of the building. Here we have a lot more space, as we can spread things out laterally.

"People entering the elevator car at the ground floor can leave it again at floors 10, 20, 30, 40 and so on. But there will be smaller elevators, plus escalators, ramps and stairs, at the base of the building, and people will use these to make their way to any of the

bottom ten floors. So if they ultimately need to be on floor 243 they first take the escalator to floor three."

As Andrew spoke and gestured to the images on the screen, Peter watched the idea slowly make an impact on the audience. Some of the Otis reps held their frowns, but some nodded to show their understanding, and others smiled openly.

"Following current trends, most of the ten lowest floors will contain shopping arcades or hold other public facilities, so such elevators and escalators will already be required.

"Why not dig ten sub-levels of parking too? Now if someone wants to go to floor 58 they don't need to make their way up eight floors from the ground level lobby, just down two. People who work on floors ending in four will park on parking level four. Those working on floors ending in six park on six.

"Every elevator car will automatically stop every ten floors, and in doing so there can be a regular schedule, like a rail service. People know there'll be an elevator car at their floor every six minutes exactly. They'll leave their desks to arrive at that time, so waiting will be reduced compared to present

situations.

"People often move between floors, not just from their office to the exit. There are multiple ways to do this. For those with disabilities, or those who want to pay a premium, you can install traditional elevators that stop at every floor in the tower.

"Companies that rent offices on multiple floors can use floors ten, twenty, thirty and forty, or they could rent contiguous floors and install their own lift.

"But what this entire system encourages particularly is a greener, a healthier and, above all, a more cost-effective behavior. Instead of locking stairs away behind emergency exits, they'll be part of the primary method of moving between floors.

"And here's the key. You never have to walk *up* stairs, only down. A trip from floor 34 to 189? Walk down five flights of stairs then go up on the lift.

"Again, if employees don't want to put in this effort they can call the private lift. But this will be treated like calling a taxi, and carry a premium price. Unlike current buildings, where the lift costs money for each floor it passes, this lift will pay for itself.

"Gentlemen, thank you for your time. We'll now

take questions."

The mood had improved markedly during the last part of the presentation. The technical people now leaned forwards in their seats, and the management types, while still frowning, were taking notes.

"You've based this around elevator cars ten stories high," began one technician, "but it doesn't have to be, right?"

"Not at all. The base number just has to match the height of the elevator car itself."

One of the business people spoke up. "Do you understand that Otis doesn't make money directly when installing lifts in super-tall skyscrapers?"

Andrew hadn't broken eye contact with his questioner. "We are aware of this," he lied smoothly.

"It's a loss leader. Saying we provide the lifts for the Buhj Kalifa nets us contracts with smaller and profitable projects--"

"However," cut in another businessman who was studying a file on a laptop, "it seems that we could, by using this scheme, actually make a profit. Look at these numbers..."

The conversation continued but no longer

involved Andrew. Some of the technicians found flaws in the scheme, but others suggested simple solutions. Some of the business people, checking over the numbers, concluded the research would cost too much for the idea to be profitable in the long term. Others disagreed. After five minutes back and forth, Andrew stepped forward and cleared his throat.

"The invention of the elevator transformed the shape of our cities, creating more than just new skylines, but new forms of architecture and design. More than that, it created an environment where new types of culture and enterprise could thrive. Modern life, as we know it, is dependent upon the elevator. City life, once merely horizontal, changed to vertical, and I believe it changed for the better.

"But cities have reached a limit. The roofs of buildings have been reaching higher, but the top occupied floor rarely breaks one hundred and twenty.

"And now you have a chance to tell your clients *The sky's the limit!*

"Develop this technology, and who knows how it will impact city life in the future? Who can say

materials aren't strong enough? This area is improving all the time. And the costs?" Andrew cast his gaze around the conference room, making eye contact with every person in turn, daring them to disagree. "How can we *not* take this step?"

*

"Do you think they'll go for it?" asked Andrew, as he and Peter waited for the lift to take them to the hotel lobby.

"I'd say yes," said Peter, "your speech at the end was very effective. Ever thought about getting into politics?"

Andrew ignored that question. "But you heard them, tall buildings are prestige projects. Demand is limited."

"Unless they retrofit old buildings," offered Peter. "Then we could really start making money."

"I think you and I should set up a formal business agreement," said Andrew.

"*Now* you want to become a partner? Sure, let's do it."

"I'll have my people call your people."

"Wait, I thought *you* were my people!"

*

"Peter," said Jennifer, "I think we need to talk."

Peter groaned inside. Here it comes again. And he thought it might be different this time.

"Talk about what?"

"I just got off the phone with Nigella."

"Of course. She called and asked for you before."

"She told me something disturbing. I'm not sure if I believe it or not. I'm not even sure if I *want* to believe it or not. But I'm going to ask you about it, and I want you to be honest with me. A hundred percent honest."

"I'm not sure if I can promise that, Jenny... no wait, let me finish. When we met... remember? In the Tate Modern? I said at the time I had secrets. I meant it. There are some things I'm just not able to tell anyone. And it isn't for my benefit, it's for everyone's safety."

"I should have known!" moaned Jennifer.

"Known what?"

"Known that you wouldn't take me seriously!"

"If you've got questions, go ahead and ask. I'll not lie to you. But some things... some things I just can't reveal."

"Nigella heard *some things* from Andrew. You've been spending so much time with him recently, almost every evening--"

"Your idea," Peter sneaked in.

"... and there's this whole building project you've got going--"

"Engineering."

"Whatever! Andrew asked his lawyers to look into your background. They found inconsistencies."

There was a long pause.

"Go on," said Peter.

"Your name."

"My name?"

"Yes! What *is* your name?"

"My name now is Peter."

"But Peter didn't exist more than a few years ago. Andrew's lawyers hired a private investigator who matched photos of you now to a student who

disappeared six years ago. The student's name was Nicolas Hasting."

"My mother called me Nicolas. My friends called me Nick."

"Why did you lie to me these past eight months?"

"That's one of those things I just can't tell you. Trust me, it's just who I am."

"But I saw your passport."

"There are places to get passports."

"Are you on the run? Did you do something bad?"

"Nothing of the sort. If I was trying to hide, I've done a really bad job. What would I be doing still living in London?"

"How can I know, Peter? Or Nicolas. Or whatever your name is."

"I'm not going to insult you by asking you to trust me."

"Good. I don't. But tell me, you didn't study computer science, did you? This Nicolas enrolled as an art and photography major, but he dropped out after four months."

"True. I studied photography at university. But

afterwards I studied programming with the open university."

"And your video codec work? You claimed you were the only developer, but Andrew's experts found the codec was far too advanced to be the work of a single person."

"I did the theoretical work alone, and part of the programming. The rest I outsourced. The individuals didn't know the final project, even when they provided key segments of code. Other people were involved, but the overall project was mine alone."

"Is that even possible? No wait, you'll just say you can't tell me."

"True."

Another long pause.

"So what are you going to do?" asked Jennifer.

"It depends on what you want me to do."

"I don't know what I want! I don't think I can live with you anymore. I don't even know you!"

"I understand completely. So... I'll probably sign the patent over to Andy, then move on, change my name, spend some time abroad. They probably need volunteers for the tsunami recovery so I'll--"

"Change your name again?"

"I've changed my name many times."

"You have?"

"Sometimes I'm Graham, sometimes I'm Sid, sometimes Patrick, or Grant, or Simon. Once I was Gregory."

"While you've been with me... have you been using another name? With someone else?"

"I would never do that. I only ever use one name at a time."

"So you say."

"It's the truth."

"I don't see how you could've had all those different names in just six years."

"I admit I can't explain that fully."

They sat in silence for a few minutes. Finally Jennifer sighed. She looked at the floor and shook her head.

"This is just great," she said, "I find the perfect man, someone wealthy, intelligent, has interesting plans, has lots of time for me... turns out it's all a lie."

"No, I am all those things. Everything I was when you met me is as true today as ever. The story of my

parent's death? That happened to me for real."

"To Nicolas."

"I am Nicolas. I am Nick."

"Good. Now I know what name to use when I say this." She stood up, tears glistening in her eyes. "Goodbye, Nick."

11

The beginning of it all.

Nick sat at his desk, typing a homework assignment, when he felt all the hairs along his arms stand up on end. He frowned. The heating was on, he knew that. He turned to check his bedroom window. It was closed.

So where is the cold air coming from?

He stood and held his hands up, trying to feel any kind of breeze. But the chill had stopped. He shrugged and sat down again to type.

A few lines later he felt the same thing. No, not the same thing. Colder, this time. And not just temperature but... electricity?

Something flashed behind and above him, lighting up the whole room. He swung his chair round in time to see an object drop from the ceiling. Nick couldn't see it clearly as it fell, except that it was about twenty centimeters long and glinted silver. It hit the floor and bounced under his bed.

"What the hell?" he said out loud. Nick picked up a pen, got down on his knees and looked under the bed. He reached forward with the pen, hooked the mysterious object and pulled it closer.

The object was a linked series of cylindrical metal segments, each the size and shape of a chunky pen lid. The joints looked fully articulated but the object was rigid as though frozen in that position. The last segment looked shorter than the rest, and ended abruptly at a seemingly random angle, like it had been sliced clean through with a sharp blade. The other

end split into three prongs. Each prong ended in what looked like a different type of sensor. One clearly showed a camera lens, and another might have been a microphone. The last of the three could have been anything.

"What the hell?" he said again. He looked up at the ceiling and could see nothing out of the ordinary. But it must have come from somewhere.

Nick grabbed his camera and snapped a few close shots. He then took his key and walked out into the corridor. Nothing else in the halls of residence seemed out of the ordinary. After locking his door he took the stairs to the floor above. The layout here matched his floor exactly, so he easily found the door to the room directly above his own. The name plate read "James Mallard." Nick wasn't sure if he knew James, but guessed he'd seen him around the campus from time to time. Nick knocked on the door with his fist.

"What?" came a muffled voice.

"It's Nick. From D 23. From downstairs."

"I'm not making any noise."

"What are you doing in there?"

"What?" Nick detected a touch of panic in James' reply. "Nothing!"

Nick rapped on the door again, louder this time, hurting his fingers. He heard indistinct sounds of movement in the room, then the door opened a crack.

"Look, I'm busy..."

Nick pushed hard against the door, forcing a red-faced James back into his room.

"Right," said Nick, "busy doing nothing."

"What the fuck? Fuck off!"

Nick ignored James and stepped into the center of the bedroom. He swept his gaze around, trying to spot anything out of the ordinary. Except for the wadded toilet tissues kicked under the bed, everything seemed completely normal. Actually, for a first year university student's room, stray tissue was to be expected.

"Has anyone been in here? Working? Putting in cables?"

"No! Fuck off!"

"You sure?"

"I said *fuck off!*"

"Fine." Nick walked back out into the corridor. "Wanker," he muttered under his breath.

"Fuck off!" James called from behind. Nick had obviously not muttered quietly enough.

Nick let himself back into his room. It felt colder than before. The object lay on the floor where Nick had left it. He decided not to touch it. He sat down at his computer and opened a browser. He searched for a number of subjects, all to do with spying and surveillance equipment. Some results looked promising at first, but all led to dead ends or crackpot conspiracy theories. Image searches brought up nothing useful.

"I need to ask an expert," he told himself. He checked the university intranet to see who might be the best point of contact. If anyone knew where the object came from it would be Professor McArthur, a lecturer in material science and product design. Nick looked up the contact number and called him.

"Hello?"

"Hi. I'm Nicolas Hasting, first year photography and arts."

"What can I do for you, Nicolas?"

"I've found something, maybe a part of a machine, and I'm not sure what it is. I'm wondering if you'd be the right person to ask."

"Can you describe it to me? Or better yet, email me a photo?"

Nick thought about that for a moment. If it really was some kind of surveillance device...

"Actually," he said, "could I just bring it and show you?"

"Sure, if that would be easier. If you're free now you could bring it right over. I'm just marking papers, and I could do with a break."

"Thanks! I wish my lecturers were so easy to talk to."

"I wish my students were so enthusiastic. Do you have my office's room number?"

"Yes, right here. Thanks again."

"No problem."

"See you soon."

Nick cancelled the call and looked at the object on his floor. He found a towel and draped it over the top of the object. He carefully rolled the object over until the towel wrapped it completely. When he lifted

the towel he noticed it weighed hardly anything extra. He placed the whole thing in an empty plastic bag and picked up his keys. At the last minute he decided to transfer the photos from his camera. He plugged it in and left the computer to automatically grab the files.

Nick paused when he reached the front door of his building, and checked for anything suspicious. He wasn't exactly sure what he expected to see. Maybe someone watching his building. Maybe a van parked near by, one with newspaper blocking the view in through the rear windows. He saw nothing. The campus, as far as he could tell, looked the same as ever. Grass, small hills, trees, the lake, the other halls of residence, the sports fields, and, in the distance, some faculty buildings.

He'd covered about three hundred meters when he heard an alarm ringing behind him. Nick recognized the sound from the fire drills. He stopped and turned in time to see the first students walk briskly out of same building he'd just left.

Was it just a drill? He guessed not. Fire drills didn't happen in the afternoon, as most of the

students had classes. Also, the smoke gave it away. A crowd of students gathered in front of the building, and most looked up at a single window. Starting from the front door, Nick counted up one, two, three windows and across one, two, three... yes, it was *his* room. Flames flickered inside.

Nick looked at the plastic bag in his hand. *Could this be a coincidence?* he asked himself. He'd be stupid if he thought so.

He started running back towards the building as fast as he could. As he passed a rubbish bin he shoved the plastic bag inside without even slowing down. He didn't yet know what the object was, but he knew he didn't want to be caught with it. Not now. Not at all.

Nick tried to push his way through the crowd and into the building. People shouted and grabbed at him, and soon his fellow students had him physically restrained.

"You fucking idiot!" James shouted, while others pinned Nick to the ground, "Don't go back in there. It's your room!"

"It's not worth it, Nick," said another student,

"your life is more important than your gear."

"But my camera! My photos!"

Campus security arrived within one minute. A fire truck drove up after another five. The crew stormed into the building with axes and hoses. It was the kind of incident Nick would have found quite exciting if it hadn't been his room going up in smoke.

Half an hour later the security guards allowed Nick back into the building. The fire crew were rolling up their hoses and gathering the last of their gear. The chief officer showed Nick his bedroom from the door, but wouldn't let him inside.

"We couldn't save much here. The fire was a lot hotter than we expected. What the flames didn't burn up was probably ruined by the water. Sorry about that, but you know how it is, the building's more important."

"Right."

"It's a well designed building though. Every door's a fire door and it has strong walls... the fire didn't get past this room."

"Right."

"We're putting it down to a faulty light fitting."

"Right."

"Right. Well... good luck, I guess."

The officer slapped him on the back and walked away. Nick thought about putting in a recommendation for extra sensitivity training for officers. He ducked under the black and yellow tape and stepped carefully into his room.

"Can you can still hear me?" he asked the ceiling. He presumed any surveillance devices had been destroyed by the fire, but he spoke for his own benefit, to clear his own mind. "I don't know if you wanted to kill me or just wanted to cover your mistake, but I survived. Whatever you want, you're not getting it from me. I'm leaving, but let's make a deal, okay? I won't tell anyone about you, and you don't follow me."

12

Paving the way.

To: Jacob Tristen, Manager, Space Tours Corp.
From: David Roundtree.
Subject: Technical advice.

Hello,

Maybe you get offers like this all the time, but I am an engineer and an aerospace enthusiast, and I'm offering my services. While looking at your publicly released plans I've noticed some areas where you might find reliability issues. You may have them covered already, but if not, my suggestions could mean the difference between reaching orbit and not reaching orbit.

If you think I'm just a crackpot who doesn't know what he's talking about, that's fine. However, if you want to test my ideas, here is an example:

- The fuel line connectors. In most instances these are aluminum. After calculating the pressure inside your fuel lines, I predict failure under even the slightest conditions of corrosion. By replacing aluminum connectors with stainless steel you'll be increasing weight slightly, but the increased reliability and reduced costs may make up the difference.

Please pass this on to your technicians. If they find it helpful, tell them I have more.

Until next time,
David Roundtree

*

To: David Roundtree.
From: Jacob Tristen.
Subject: Re: Technical advice.

Dear David,

Thank you for your email and your idea. We are not replacing any parts at this point as the fabrication stage of our first launch prototype is already under way.

Jacob Tristen Jn. Managing Director.

*

To: David Roundtree.
From: Jacob Tristen Jn.
Subject: More technical advice?

Dear David,

I'm sure that you, a private space initiative enthusiast, saw the news about our first test flight. We've been analyzing the telemetry data and the wreckage, and we've reached a number of conclusions:

- The oscillations at the start of the launch were caused by a faulty fuel connector. This connector then broke completely, cutting the power to the main

engine by 70%.

- The failure was down to the corrosion of an aluminum fuel connector fitting.

- You were right.

- We are looking into other options for pressurized fuel line components, and we are leaning towards stainless steel.

You don't need to write us an "I told you so" email. We already know. As we like to learn from our mistakes, we would appreciate hearing any further insights into our designs you may have.

Please find attached detailed schematics of our launch vehicle. If you're willing to help you must enter your key signature on the non-disclosure agreement.

Thanks in advance,
Jacob Tristen Jn. Managing Director.

*

To: Jacob Tristen Jn.
From: David Roundtree.

Subject: Re: More technical advice?

Hi Jacob,

I did read he news, but in this case I'm unhappy to be proved correct!

Thanks for the plans. I've found even more issues that may or may not be serious, and I could hand over my suggestions for free. However, by ignoring my first recommendation, you lost upwards of nine million dollars and over eight months of development time.

Shall we make an informal deal?

I'll give you a list of problems and suggested fixes. If you address all these issues and the next test flight reaches orbit, I've saved you and your investors many more months and millions. Maybe your lead technicians won't think I contributed anything. But maybe they will.

I don't ask for any pay, but once your company is doing regular manned flights I'd like you to keep my name in mind for, let's say, one of the first twenty or so passenger slots.

Here's the first set of big problems I see with the design:

- Rotation. You predict a maximum rotation of under one degree per second. I suggest this is far too optimistic. I've included a full breakdown of individual influences which could increase the rate of spin by much as eight degrees per second. Too much rotation during stage separation may result in first stage coming into contact with the second stage engine nozzle. It wouldn't do much damage but may knock the nozzle out of alignment.

- Rotation part two. As rotation and other movement increases the liquid oxygen will begin to slosh about in an emptying tank, exacerbating any existing oscillation. I recommend baffles inside the LOX tanks. Again, full calculations are included in the attachment.

- Staging problem part two. After stage one's rocket is stopped, residual fuel will continue to exit. This will provide additional thrust to stage one even

as the stages separate. Stage one will still be undergoing acceleration while stage two will be experiencing free fall. This may result in a collision. My solution is to wait until all residual fuel is emptied from stage one before commencing stage separation. This will only add four seconds between stage one engine cut off and stage two engine ignition.

I'll send more suggestions when I've had a closer look at the plans. Meanwhile, I look forward to hearing back from you on the subject of my payment.

Until next time (remember the last time you read that in an email from me?),

David Roundtree

*

To: David Roundtree.

From: Jacob Tristen Jn.

Subject: Re: Re: More technical advice?

Dear David,

Thank you for your input. Our technicians have told me your suggestions are invaluable and from now on you should communicate directly with them. They will be contacting you shortly.

As for your request about future inclusion in a manned space flight, we can offer no such deal. You have supplied some suggestions and solutions, but our team of technicians have personally discovered, and fixed, many more such problems every week for the past four years. They do not ask for, nor do they receive, free flights.

I can, however, mention your input to our investors and shareholders. I expect you will be paid a suitable consultant's fee.

Thanks again,
Jacob Tristen Jn. Managing Director.

*

To: Jacob Tristen Jn.

From: David Roundtree.

Subject: Re: More technical advice?

Hi Jacob,

I understand your position. In light of this rejection, I've decided to purchase your company.

Until next time,

David Roundtree

13

Job hunting.

Gregory was running low on funds. When he arrived in London he thought he'd spend a few

weeks learning how to live in a city once more. He'd begun by opening an e-cash account for his viewsers and transferring all his dollars. After gauging the prices he realized he wouldn't be able to stay in the city as long as he'd planned. Two days later he was ready to leave.

He had two destinations in mind; the town where he grew up and went to school, and the town where he went to university.

He thought the larger university town would have better job prospects, but he'd only lived there for a few months. His home town was smaller, so employment might be a problem. Would people still remember him? And would they recognize him? Would it matter? Was anyone still tracking him at all?

Gregory was pretty sure nobody had been keeping an eye on him for the years he spent in Sumatra, but maybe they'd picked up his trail since he returned to England. His viewsers were nearly anonymous, registered under a single name with no address provided. Gregory suspected the name didn't matter, and that the linked biometric data points of retinal and voice scan did. Did they have a retina scan

from his last time in the country?

During his two days in London he'd used a paid internet access feed to look up developments in surveillance technology and tracking techniques. Even in the historical technology sections he found nothing useful.

However, he did find many conspiracy theories. At first Gregory snorted as he read the claims. Many theories involved viewsers, and some small groups shunned their use. He also found a whole branch of theories about the iscan technology, and how "They" were storing databases of people's thoughts and memories until a time they could be decoded.

Bollocks, all of it, he thought. And yet, when he considered his own story, from the point of view of an outside observer, he'd have to conclude that he was just as bad. A paranoid lunatic whose whole life had been shaped by a single unexplained experience. What evidence was there that he'd been watched since then? None.

But in Gregory's case, unlike all the others, he had evidence of some kind of conspiracy at the start, even though the scale wasn't clear. Either way, if he

told his story on a website he'd surely be lumped in with all the crazies. Which was why he'd told nobody in the intervening years.

He decided on a plan. He'd go back to his university town first and look for a job there. Then, when he had time, he'd go back to his home town, see what had changed, visit his parents' graves, all that kind of thing.

To save money he once again took a free train service. He didn't mind seeing the job offers so much now, as he certainly needed some more income. But he soon got sick of copying out contact details, and closed his eyes. To compensate, his viewsers turned up the volume and played audio-only advertisements.

He rode a high speed train, so in less than thirty minutes it stopped at his station. Gregory stepped out of the train and ripped of his viewsers. *Damn things!*

He soon realized he didn't know where to go, so had to put the viewsers back on again right away.

"Errrr... cheap accommodation? First feed.... um... second entry."

A dotted red line appeared. He'd read that it was

called a *dashing*, and that the act of walking a long a dotted line was to *dash* somewhere. Gregory dashed at slow speed, keeping an eye out for other pedestrians and motor vehicles.

The hostel was unmanned. *Unstaffed,* he thought, trying to get into the politically correct mindset of modern Britain. Outside the front door he was met by a crude representation of a porter. Gregory didn't see the point of a virtual porter if it couldn't help carry your bags.

"Are you looking for a room for tonight, sir?" The prices displayed were far, far cheaper than those in London.

"Yes. A room for three nights. Use this account."

"Follow the dash to your room."

"Thank you."

Was one meant to thank a piece of software? It couldn't hurt.

His room was affordable, but tiny. Just a bed, a small cupboard, a sink, and an attached shower and toilet cubicle. Nothing else. A guest needed nothing else. Viewsers fulfilled all their needs; alarm clocks, television, radio, internet.

How did I ever live without them?

Gregory threw his one bag onto the bed and stepped back out the door. He tested the door. It hadn't locked. He thought about that for a second. He took off his viewsers. He tried the door again. Locked.

A few minutes later Gregory began his walk through the town to see what had changed since he'd left. Half of the shops had closed and now seemed to be homes. Some buildings had been removed completely. Canceling the local feeds, he found the town had the same empty, anonymous look of the other places he'd visited. No signs. No text.

He passed a huge new development made up of massive, white, windowless buildings. Gregory had no idea what they might be for. He guessed some kind of high tech manufacturing. The lawns outside were flawless, and he soon spotted the reason. An un*staffed* lawnmower slowly plotted a course around the edge of a flower bed. Was it a robot guiding itself? Or was someone controlling it remotely? Gregory guessed it was a robot. *It seems easy enough to make people follow set paths these days,* he thought,

controlling a lawnmower can't be that much different.

The open lawns reminded him of his old university campus. Sure enough, when he found his way there, ten minutes later, the only thing that remained unchanged was the landscaping. The same number of buildings sat in the same locations as he remembered, but not one of them was the same size or shape or style. Such was the way for modern university campuses, they're always the first places to try the newest architectural experiments.

Gregory oriented himself and walked across to his old lecture hall, and on from there to the site of his old hall of residence. It was long gone. In its place stood another white, windowless cube.

"Local feeds."

A sign appeared above the building's door: The New Free University Dark Energy Research Institute. Gregory asked for more information. He found a lot of material about the building and the professors who taught there, but nothing on dark energy, or not at a level he could understand.

After visiting the place where it all began, Gregory could think of nothing else in the town or

on campus he particularly wanted to see. He lay down on the grass, picking a favorite spot he remembered from his short time at the university. He polarized his viewsers and started reloading some of the saved employment contact details.

The first agency asked for a resumé. He didn't have one. The second agency would only deal with people using a real name. Gregory was a stupid name, he admitted that, but it was real. Maybe by "real" they meant registered in some kind of census. The next agency was fine with matching unskilled immigrants of dubious legality with private employers needing casual workers. Gregory bookmarked it for later if he could find nothing else.

He tried a different option.

"Job openings on local feeds."

Gregory selected the feed at the top of the list. It offered three jobs with a company with the initials N.F.U.D.E.R.I. He ignored the name and went right to the job descriptions. One looked too technical, something to do with onsite computer assistance. The third focused on data analysis. The second job caught his eye though. He read "Roaming Sanitary

Control" and saw it tagged as unskilled. The time stamp showed it had been added within the last hour. He immediately made a call.

"Hello?"

"Hi, I'm enquiring about the job listing. Roaming Sanitary Control."

"Right. Let me see... yes, the position is open. We wanted a student to take that job but the first application flagged up a regulation against it."

"I'm not a student."

"Good. I take it you've checked the hours and the pay."

"Yes." Very little money for almost twenty four hours on call. *Welcome to the modern world.*

"Ok then. Your record is clean. If you want the job, your minimum term is seven days. Sign the contracts and I'll send you the manuals and access codes."

"Thank you."

Gregory disconnected. *That was easier than I imagined,* he thought, *I should have tried that approach first.*

He stood up and asked for a dash to the

N.F.U.D.E.R.I. The red line extended out from his chest, flowed thirty meters down the small hill and stopped at the front door of the closest building. He frowned, then compared the initials to the sign in his viewsers. D.E.R.I. Dark Energy Research Institute. Of course! The closest results always showed up at the top of the default local feeds list.

*

As it happened, Gregory didn't set foot in the DERI building for a long time. He read the manuals and found that he'd be doing all his work from home, or from wherever he may be when they needed him. His hunch about the lawnmowers being robots proved both correct and incorrect. They had preprogrammed paths and routines, but things didn't always go smoothly. If the mower found itself in an unusual situation, it called a human operator to take control.

The same held true for the cleaning machines inside the DERI. They would go about sweeping, mopping and drying the floors of every room and

hallway in the building. They automatically charged themselves at power outlets, emptied themselves of dirty water, and refilled themselves with clean water and soap.

But, no matter how well they'd been programmed, things went wrong. At that point Gregory would be connected to the cleaning robot, take over, and guide it away from danger. Or out of a dead end. Or, when the researchers were bored, out of specifically designed traps. If a robot *really* got stuck, Gregory could control a handler robot to help it.

He could have done the job from anywhere, but in his contract he found a relevant clause. The town council had passed a "local employment first" law requiring all positions to be offered to the physically local unemployed before being outsourced.

The lack of extensive background checks surprised Gregory at first, but again this was answered by the manual. He would never actually go inside the building, nor take anything into the building, nor remove anything from the building. His codes only allowed access to the robots and the overview cameras throughout the building.

He found it a peculiar but very easy job. It suited him well. On the first day he made eight interventions, each one taking over twenty minutes to sort out. The next day nine, three of them in the same places as the previous day. The third day there were none until late in the evening, then five or six incidents happened all at once.

So when he wasn't controlling the cleaning machines, which was most of the time, Gregory read. The internet opened up to him once more, and any topic lay just a simple command away. He caught up on recent history and politics. A general election had taken place a few weeks before he'd arrived back in England, and now the news scandals about the newly elected government filled the news feeds. Opposition parties expressed their outrage, and the pundits declared that if the voting public had known these stories before the election the outcome would have been reversed.

Gregory found out all he could about new technology, though it really made his head spin to see what he'd missed. He even listened to lectures about Dark Matter and Dark Energy, the mysterious ninety

six percent of the universe that nobody truly understood. While Dark Matter made some kind of sense, Gregory didn't even pretend to understand the question of Dark Energy, let alone grasp the hypothetical answers.

But what he did come to understand, until he knew it literally inside out, was the layout of the DERI building. He knew it better than the people who physically worked there, probably. Not just the rooms, corridors, toilets and lobby but also the service ducts, ventilation system, and the special connecting tunnels for the robots.

Some areas lay off limits to the cleaning robots. The plans referred to these places, ironically, as "clean rooms"; sealed areas where sensitive experiments took place. They showed up as blank parts of the floor plans, and Gregory could never see what happened inside.

He began to get a feel for the different robots too, assigning them personalities that didn't exist outside of slightly differing mechanics. He also, in a peculiar way, got to know some of the scientists, including professors, students and research assistants.

Three months passed, and Gregory grew more used to modern life. While his job proved easy, it was less than satisfying intellectually. He could get by on the money he made. His job paid very little, but he accordingly spent very little. The only significant outlays were for food and accommodation, and, by moving into a tiny one room apartment, he cut down the second cost as much as possible. The job was adequate, he simply wanted something more challenging.

And then, completely by accident, he found a new challenge.

He woke to an alarm early one morning. A small sweeper robot had jammed under a trolly. He checked the room's camera feed, and saw that the trolly, one usually left standing against the wall, had been left in the center of the room.

As Gregory zoomed in to get a better view of the robot, something caught his eye. Attached to the trolly was a large articulated arm. The links of the arm got smaller and smaller until it took the form of a twisting silver snake. The room's camera pointed down at an awkward angle, so the end of the

appendage was obscured. But the arm reminded Gregory of something very specific. A cold shiver ran down his spine.

He connected to a handler robot and ordered it to the same room. The handlers were larger and slightly more humanoid than the other robots, and were capable of manipulating heavy objects with their arms. When the handler got to the room, Gregory guided it to the opposite side of the trolly, then switched to its camera feed.

And there *it* was. Unmistakably. The end of the articulated arm split into three prongs, one of which glinted as the light reflected off a tiny lens.

Very interesting!

14

Stunning election win.

London, May 5th.

It's all change at Ten Downing Street this morning after yesterday's win by the coalition of Andrew Gateman's New Democrats, the Greens, and three single issue parties. The victory came as a huge shock to both the outgoing Conservative Party and the old opposition Labour Party, both of whom hoped to win.

The win was made possible by the Representative Government Act which Parliament signed into law just last year. This took the United Kingdom away from its historic local constituency elections, where MPs could gain power by winning a mere plurality of votes. Now, in line with the rest of Europe, Britain has a government of proportional representation.

And, in the first test of the new system, the two-party setup that has characterized British politics for centuries has been soundly rejected by the electorate. This turn of events badly stung the Labour leadership, as they enthusiastically backed the Act along with the New Democrats from the start,

assuming they'd be part of any resulting coalition.

But then, six months ago, Andrew Gateman, a relative newcomer to the political world, organized the coalition we see today. This afternoon he'll visit the King who will ask him to form the next government.

Unlike the past seven prime ministers, Gateman is not a career politician. He spent almost twenty years as a city banker before joining the New Democrats. The New Democrats were a breakaway party formed after the Chokergate scandal that ended the Liberal Democrat party four years ago, and now they've achieved what the Lib Dems never managed...

*

"I'd like to make a toast..."

"To victory!"

Cheers filled the room, and twelve men and women, Andrew Gateman's inner circle, downed their drinks. They'd gathered in a conference room on the top floor of the brand new Great Britain Tower, a three hundred and twenty story multi-use

skyscraper in the Docklands district. The New Democrats didn't usually rent an office on the top floor, instead they'd simply hired a room for the night. It was a symbolic gesture for the press; the new leader of the nation looking out over the greatest, most expensive view of the capital city.

"Good toast," said Andrew, "but I really want to make a toast to the one man without whom none of this would have been possible. To my closest friend and advisor, Julian Turner."

The group gave another cheer. Andrew stepped forward as though to shake Julians hand, then changed his mind and gave him a strong hug.

"Eight years ago we were nowhere," Andrew continued, "and while the press give me credit for changing the political landscape, it's really down to this guy. He's the one who convinced me to get into this madness, and all my best ideas are really his."

"Nothing of the sort..." said Julian, but the newly elected politicians drowned him out with their loud jeering, as though practicing for their coming days in the Houses of Parliament.

15

Blast off!

Grant lay back on the couch and closed his eyes. He'd trained hard for this, but still felt anxious. He knew he shouldn't, as privately funded manned space flight had a one hundred percent safety record. The promotional material said that he was far more likely to die in an automobile accident than on a trip into space.

Except I'm not in a car! he thought. *The chances of me dying in a spaceship in the next few days are infinitely greater than my chances of dying in a car.*

He heard the flight controller talking over the radio and concentrated on that voice to clear his

mind.

"All systems set. No problems." A pause for a few seconds. "We have clearance from air traffic control for the next eight minutes. Fire when ready."

Grant heard a different voice. "Grant, this is Tony." Tony was the pilot. "This is your flight, so go on and hit the button."

"Can I do a countdown?"

"If you want. But don't count from too high. We only have eight minutes."

"Ok then." Grant cleared his throat. "Preparing for liftoff. Liftoff in ten, nine, eight, seven, six, five, four, three, two, one, blast off!" Grant aimed for the button on the panel between his legs and stabbed at it with his finger. "This is the starship Century Hawk... on a peaceful mission to low earth orbit and the CSS..."

Nothing noticeable happened so he kept talking.

"...delivering a new living module, much needed supplies, scientific equipment, and, most importantly, taking the good Captain Freeman on his first ever space flight..."

He stopped talking and started laughing as the

rockets below finally roared into life. At first he couldn't feel any movement, but then the acceleration started kicking in. He blinked his viewsers to a video feed and saw the hot nozzles of the engines pass the top of the support tower. He blinked away and turned his head carefully towards the window. It showed nothing but empty blue sky. The window was really only in place for when the craft reached orbit.

Thirty seconds passed. The acceleration increased the whole time. The weight of the fuel, and therefore the weight of the entire rocket, decreased as it burned, but the power stayed constant. The video feed now showed a tiny black dot above a dash of yellow, both sitting on top of a massive column of white smoke.

Grant noticed himself grinding his teeth together so he consciously relaxed his jaw. He smiled again at his brand new memory of takeoff. The computer controlled everything, of course. The countdown was for the non-expert human audience only, to let them keep track of when things were meant to happen, so they didn't look away at the wrong time. Now that space flight had become a regular and

everyday event, the countdown had been dropped for almost every takeoff. Grant could have asked for something more official, as a lot of people would probably access this launch; a trip into space by internationally popular musician. But he wanted everything to be as normal as possible, as normal as space flight could ever be. Besides, it was fun to do the countdown himself. He was the captain.

The acceleration increased even further. The blue sky deepened.

The captain? he thought. *Don't kid yourself!*

He was the captain only because nobody else was on board. When it costs upwards of twenty thousand dollars per kilogram for a payload to reach orbit, having a dedicated pilot for a cargo delivery didn't make business sense. And Grant knew he was just a human cargo. An onboard computer controlled the entire flight, backed up by the flight crew on the ground. If disaster struck, Grant could press the second button on the control panel to "blow the cone", and the passenger capsule would jettison from the top of the rocket, which could then parachute back to earth or into the sea. The system was sound.

The capsule could survive re-entry from any point in orbit, and it would land safely even if jettisoned while the rocket still sat on the launch pad. However, it had been made clear to Grant that if anything went wrong enough for him to have to press the button himself, as opposed the emergency jettison being triggered automatically, the chances were he'd already be dead.

"Two minutes flight time. Coming up to staging. Hold on, Grant."

"I'm holding!"

The acceleration disappeared, and Grant felt weightlessness for the first time. He clamped his teeth together again and breathed deeply through his nose.

Must not vomit, he thought, *must not vomit.*

"Good idea, Grant, you go ahead and not vomit."

"I didn't mean to say that out loud."

He felt more than he heard the jolt as the first stage separated. Almost immediately the second stage's single engine ignited and his weight returned. For simplicity, and economy, the Century Hawk class rocket only used two stages. The cargo capsule

attached directly to the top of stage two. Once Grant reached the Century Space Station, the large second stage tank would be recycled as a new garden and air purification chamber. The cargo capsule would become a new bedroom in the hotel complex. Not Grant's bedroom, of course, he would take one of the existing rooms.

While the second stage held less fuel, it also had a much smaller rocket, and so the second stage burn would last far longer than the first. This, he had been told, was when he really began to pick up speed. It wasn't height you needed to reach and stay in orbit, but lateral momentum. During the second stage burn there was little to no atmosphere for friction, slightly less gravity and, most importantly, much less weight. And again, for every liter of fuel and oxygen burned, the weight dropped even further. The acceleration increased until Grant's vision blurred and breathing became difficult.

No chance of vomiting for a few minutes yet. He made sure he didn't say that out loud.

Just ten minutes passed between takeoff and the end of the second stage burn. The sudden return of

weightlessness startled Grant. No one had told him it was going to happen, or maybe he hadn't been paying attention. He breathed heavily through his nose to calm his stomach.

"How are you doing up there?"

"Fine, thanks."

"You're going at about eight kilometers per second. Orbit reached."

"Great."

"We're going to turn you so your window faces down."

Grant looked to the window. The capsule shuddered slightly as the corrective thrusters fired. Earth drifted into view. Grant gasped at the sight.

"Just beautiful!"

He decided he needed to write a song about this moment, and actually write it himself, using his own words and ideas. Normally he stole from others, even if the original creators had no idea he did so. But this moment was his and his alone. The resulting song would be truly his own too.

*

The applause died down. Grant wiped his eyes with his sleeve. In zero gravity, nothing else drew the tears away.

"Thank you, thank you. When I wrote *Above The Air* I dreamed of playing it in space one day. I just didn't believe it would happen so soon."

The media billed this small concert as the most exclusive gig in history. Some of the guests had already booked their stay on the CSS when Grant signed up, but some booked after Grant, in part to be there for his performances. Other people had played music in space, but this was the first time tickets had been sold. Each ticket cost over twenty five million dollars.

The eleven other guests made up the live audience, along with the two flight crew from the Aris shuttles and the four members of the science team. They all wore viewsers and each streamed a live feed back down to Earth. Grant Freeman fans, space enthusiasts, plus an estimated eighty million other curious people selected one of the seventeen feeds.

It was, by far, the largest and most important

concert of Grant's life. Considering this, he could have been in a far better condition. His stomach hadn't stopped churning and his face had swollen out of shape. The strumming motion of his right arm felt weird without a constant source of gravity, and muscles Grant didn't even know he had ached constantly.

Humans just aren't built for zero gravity, he thought.

"I've only got a few songs to go now," he said, "any requests while we still have time?"

A businessman guest put his hand up. Or down, as it seemed from Grant's perspective. "How about *The Better Man*?"

"Sure," said Grant, "from the same album as *Above The Air*."

Grant strummed his guitar to warm up for the song while he thought up a good introduction.

"You know, I was just thinking about this. Here I am, my guitar strapped to me, me strapped to this frame, and the frame held by these cords in the center of this module. What I need here is another pair of hands. You know, like the apes. We really aren't as well suited to space, except that we built the

technology first. A chimpanzee would get around far better than I ever could. And it would be smaller too, cheaper to get up to orbit. One day, I reckon, the apes will inherit this space station from us, and maybe the rest of space as well."

Grant sang the song, then finished his set with an audience favorite called *Breathtaking*. His voice gave out at one point, and he had to hold himself in a weird position to play. It certainly wasn't the best he'd ever sung, especially the high middle eight. Even so, the audience stayed enthusiastic.

After a predictable encore of the song *With You*, Grant insisted he had finished for the night. He would stay on board for another eight days though, so hinted he might do another show. The small audience in the module cancelled their feeds, one by one, until they finally disconnected the entire audience down on Earth.

"Thanks, guys," said Grant. "Now where can I get one of those squeeze drinks?"

16

Discoveries.

"You must be Graham, correct?"

"Yes. And you must be Christine. Sorry I'm a few minutes late, I didn't leave myself enough time to get here from the station."

All lies, of course. His name wasn't even Graham. Gregory, as he usually called himself, had walked from his apartment, not from the station.

"Well, come on in!" Christine said, opening the door.

"Oh, thank you." Gregory stepped through and shook her hand. "I'm glad that you're willing to show me around."

"Let me get this straight. You're a freelance writer doing a piece for... for which news feed exactly?"

"To begin it'll go on my own feed, but it can be

licensed by whomever choses it. I'm aiming for what we call in the business *light geek*. You know, for people who have a basic science interest and who want an introduction to a new field. New Scientist, Boing Boing Extra, those kind of places."

"So a real basic level?"

"Real basic for you, sure, but less basic for me, and not basic at all for the readers."

"I'll keep that in mind." She led him through the lobby and into a visitor reception room.

Gregory couldn't help feeling like he'd been there before. Of course, in some ways he had, but only vicariously. It felt strange to see the familiar rooms and furniture from a human eye level. He was used to seeing the inside of the building, but from the cameras fitted up near the ceiling, or from the usual height of the robots, thirty centimeters off the ground.

Christine handed Gregory a paper cup of coffee and perched on the edge of a table.

"To be clear," Gregory began, "you don't only work on theories about Dark Energy?"

"No, but it is, by far, our main area of study. It's

one of those problems that we didn't even know existed fifty years ago."

"So let's start at the very beginning. What is Dark Energy?"

"Put simply, it's a force that seems to be accelerating the expansion of the universe. Within a galaxy, indeed within a cluster of galaxies, gravity is strong enough to counter Dark Energy. But in the mind-boggling distances between galaxy clusters, the tiny force of Dark Energy adds up, and it pushes everything apart faster and faster. One day, trillions of years from now, other galaxy clusters will be rushing away from us so fast that their light will never reach us. Our sky will be dark. Of course, by then all the stars will have burnt out, so the sky will be dark anyway. But the point stands."

"Where does this energy come from?"

"That's the key question. We know how much Dark Energy there is, and the acceleration of the expansion. But what is it? Here at the DERI we are taking mathematical models and trying to find ways to test them."

"But how do you test something you can't yet see

or detect?"

"That is the sixty four million dollar question. Remember the Large Hadron Collider? The world sunk billions and many years into that project, all to find and test something we couldn't yet see or detect. But we didn't just build one big collider, we took lots of small steps. The original idea, to find smaller and smaller particles with bigger and bigger colliders, was born first. Here at DERI we're aiming to do the same thing for Dark Energy."

"In what ways are you attacking the problem?"

"To explain I'll have to go back a bit. The universe has a cosmological constant. This is all down to vacuum energy... actually, let me go back a bit further. Vacuum energy is the continuous quantum bubbling of particles into and out of existence in a vacuum. This happens all the time, and it cancels itself out perfectly."

"And this is established?"

"In every model of quantum physics you care to chose. However, what happens if the vacuum is expanding?"

"Why is it expanding?"

"The Big Bang provided the initial expansion push. Now, if the volume of vacuum is expanding, even just a tiny bit, the balance of vacuum energy over time is unequal. It must cancel itself out completely, but in an expanding space it doesn't. Energy is created."

"But this is impossible, right? Free energy breaks all kinds of Laws. Laws with a capital L."

"Exactly right, you can't create energy within a closed system. So here it is: Energy that can do work must reduce in a system. If energy is created, the system can't be closed. What if the universe expands at exactly the right amount so that each tiny bit of energy is spread out over a greater volume than before?"

"Wait... what?"

"Because energy is being created, the universe gets bigger to make sure that the volume of space in the closed system keeps ahead of available energy."

"That's bonkers!"

"Yup! But it turns out our measurements of the expansion of the universe and our measurements of vacuum energy match each other exactly. Vacuum

energy creates a field that has a negative energy density, meaning it can push things, but only in the space between galaxy clusters can it counter gravity."

"Wow. So that's it?"

"Maybe. We don't know. It's just the start of one way of looking at it, but it's the start we needed. We measure vacuum energy via the Casimir effect, a process that's notoriously difficult, so we're developing new techniques."

"Ok, you said a word I don't understand, and my brain is starting to melt. What's the Casimir effect?"

"Come with me and I'll show you."

Christine led Gregory into the interior of the building. They crossed a threshold, a point past which Gregory had never seen. Christine showed him a large white structure the size of a small car in the center of a room.

"This is a classic Casimir effect measuring device. First, we made a vacuum chamber with no magnetic field or any other form of energy."

"Except gravity."

"Of course. If we work out how to negate gravity we all get invited to Stockholm for our Nobel Prize.

Second, inside the vacuum we placed two tiny metal plates mere nanometers apart. What happened?"

"They just sat there?"

"That's the logical thing... no energy in, no work possible, nothing happens. Except for vacuum energy. In this setup there are two different levels of vacuum energy. On either side of the plates there's plenty of room, so the vacuum energy exists like normal. But between the plates the space is so narrow that the creation and negation of vacuum energy is interrupted, and is slightly reduced. Remember what I said about the conservation of energy? In this case, there's suddenly too little energy inside and too much outside. The plates move to make up the difference, and they stick together."

"Every time?"

"If we do it right. We've got it to the point where we can create a Casimir effect that's equivalent to two atmospheric pressures pushing on either side."

"And all that goes on inside this machine?"

"It did, yes."

"But you said this was established science. What was your next step?"

"This is the good part. We could then start using the Casimir effect to build the next experiment. It's like using gravity to help build a machine that will measure gravity."

"Using a counterweight to help lift something on to a set of scales?"

"Exactly. We're working at such small scales the Casimir effect is taking an active roll in the operation of the machinery."

"And the next machine?"

"Come with me!"

They walked back out into corridors Gregory knew so well and, and from there across another threshold into a larger cleanroom. Christine showed Gregory another white structure, slightly bigger than the first.

"This is a factory. It builds series of Casimir plates, but plates with another plate attached... so, end on, it has an L-shaped cross- section, and it's contained in a tiny collapsable vacuum capsule. We can then, very gently, build larger building blocks by combining individual segments, which in turn can be used to build up even larger blocks. It's all fractal."

"And what did you build?"

"So we built a massive ring. When I say massive, I mean about a hundred and thirty thousand Casimir blocks wide, or about twice the width of a human hair."

"Wow!"

"First of all we built a disk, then triggered a few key Casimir blocks. The inside then collapsed, falling outwards from the center, resulting in a ring. The idea was to create new space on the inside of the ring in a way that Dark Energy would be a factor. We hoped we could simulate what happens between galaxy clusters."

"Where the unbalance is greater than the local gravity."

"The inside of the ring would measure larger than before we actually built it."

"But?"

"Results were mixed. We were overcome. It turns out we weren't thinking along the right lines. Creating new space and expecting it to stay in a two dimensional plane just didn't work."

"So the next step?"

Two minutes later they stood in a gallery looking through a large window into yet another clean room. Inside sat a machine twice the size of the last.

"This is our next step. A Casimir construction in three dimension. And we've started thinking big."

"How big is big?"

"About four orders of magnitude larger than before. The space inside will be just over thirty centimeters across."

"Why so big?"

"First, we have to be sure we see the effect we want. Second, the geometry of the Casimir blocks make it tricky to create three dimensional structures at a small scale. But it all means the factory has to work overtime. This machine will be finished in about eighteen months."

"And what happens then?"

"The blocks will be arranged into a solid sphere, but with a cone shaped indentation on one side. We'll set off a limited chain reaction that will collapse them into place. This will induce a Dark Energy field in the interior of the now hollow sphere. The cone shaped hole will now be a window in the side of the

sphere, and once it's stable we'll insert a probe through that hole. Along with other sensors it will measure the volume of space inside. And, hopefully, it will find dimensions larger then those on the *outside* of the collapsed sphere."

"How much bigger?"

"We're still working on it, but we estimate about 100.001 percent."

"One part in a thousand bigger?"

"Roughly."

"It doesn't seem like much."

"It's not, but it's the best we can hope for according to our calculations."

"And then what happens?"

"We can reverse the collapse using more basic, but more powerful, Casimir blocks. Between sessions it'll take many months to reset."

"I mean, what happens when you find the inside bigger than the outside?"

"We've shown that Dark Energy is indeed vacuum energy and not the competing ideas."

"And then you get the call from Stockholm?"

"We've got to get the machine to work first."

"And the sensor?"

"Let me show you."

Christine led Gregory into the less secure part of the building. She took him into a workshop that Gregory recognized very well indeed. He looked at a flexible arm with a narrow articulated appendage on the end.

"This is a mockup of the probe. It'll extend into the opening of the Casimir machine."

"How big is the opening?"

"About fifteen centimeters."

"Why so big?"

"Again, it's down to what's possible with the geometries of our Casimir blocks. Do you want to see anything else?"

"Nothing else, but I have a few more questions."

They walked back to the lobby, talking along the way.

"What about the safety of this kind of experiment?"

"Aha, the end of the world scenario! No such luck, I'm afraid. Again, there's no net gain of energy. We can only get out what we put in. Even if we

create energy, and space for that energy, when we reverse the collapse the energy is dissipated."

"Are you sure?"

"Humanity has yet to find a way to break the Second Law of Thermodynamics. We're not about to break it here. Not by accident."

"One last question. When the experiment takes place, could I be here to watch?"

"If we allowed in every journalist who asked we'd have no space for the physicists."

"You could create more space with a bigger Casimir machine."

"Sorry, but the press can access the proceedings via the net like everyone else."

"Maybe I could visit a few days before and see the final preparations? I find this just fascinating."

"I'm sure I can arrange something."

"Great! I'll stay in touch."

"You do that."

"See you later."

"I hope so."

Gregory walked out the front door. He frowned and looked back. The glass in the door was frosted

white, and he could make out nothing from the shadows inside.

Was she hitting on me?

But something more important nagged at the back of his mind. He needed to test something out. He walked up a small hill thirty meters away from the building, the same one where he'd sat when he found his cleaning job.

"Image search feed. Search current location, current view, return images over twenty years old only."

He picked a promising example from the selection. It showed his old halls of residence from the time he was a student.

"Display left eye only."

He then walked backwards and sideways until he stood at the exact spot the old photo had been taken.

"Zoom out image... stop. Link image to location and gaze vector. Fade fifty percent."

He looked at the composite view, made up half by what he actually saw in front of him and half by an image many years out of date. Much of the background behind had changed but a few landmarks

stood out in both images.

Gregory looked at his old bedroom window, three floors up, three windows across.

"Save gaze vector. Open earth view. Import gaze vector as line. Import latest version of DERI floor plans."

In the three dimensional, stereoscopic view of the local area he traced the yellow dotted line that represented his saved line of sight. It passed though the center of the DERI building. He'd extracted the plans for the building from those he used while controlling cleaning robots, so there were a number of empty volumes, like the cleanrooms he'd entered for the first time that day. The yellow line dissected one of these volumes exactly. Gregory recognized this area as the last he had visited. By matching the old photo to the earth view, and by estimating the position of the newest and largest Casimir machine, he confirmed his suspicions.

The center of the machine sat very close to the center of his old bedroom, probably up near the ceiling.

17

Breaking news.

David watched the bank heist in progress. It was the first time he'd seen an operation like this.

The criminals didn't know they were being watched. They'd started preparing months in advance; an international team of experts working hours on end on the latest techniques for breaking into high security areas. They'd left many false trails to obscure the path back to their ultimate location, but once he'd tracked them down, they'd done nothing without David seeing their every move.

They did everything electronically, of course, with nothing so crude as actual physical activity. And,

unfortunately for the team on the bank job, they didn't know their equipment was already compromised. David knew a technique that rendered all their encryption measures useless, and now he could snoop their system however and whenever he wanted.

The heist began with a remote login from what looked, to the bank's system, like a secure connection. The team had spent months trailing an employee and gained access to his personal computer, which they then cloned. This was the trail that had originally alerted David to the teams' existence.

David knew that this first attack was a diversion, but the bank's security protocols treated it as a real threat. It sent out crawlers to track the source, crawlers which the team spoofed and returned empty. Or almost empty. Each contained tiny part of a larger program. Individually, they all looked random and harmless. It was only once they were brought together again in a single directory that they activated, tunneling further into the layers of protection in place at the bank.

At a precisely timed moment, about a second later, the team launched another set of attacks. The bank's automated defenses decided the best course of action would be to close off that entire section of the network to stop every attack. This would have been the end of it, but the business still needed to function. It made a backup connection, one that was impossible to detect from the outside.

Except the team wasn't just on the outside, and they'd already installed their agent on the inside. When the bank made the backup connection, it linked directly to a nexus already compromised by the criminals. The handshake between the quarantined section and the rest of the bank seemed legitimate by both sides, but they both shook hands with an unsecured Windows XP box in a basement in Goldberg, Ohio.

And then, a few moments later, a simple request for a money transfer. The international money market was going through a particularly fluid phase, so nothing was flagged as out of the ordinary when a series of five hundred million dollar loans were made to dozens of Fortune 100 companies. The money, of

course, never reached its intended targets.

The hardest work hadn't been spent on the bank job itself. The next step involved a network of thousands of receiving accounts set up in online banks across the world, and half a million real bank accounts compromised without their owners' knowledge within the previous year. Each one looked innocent, but funds started poring through, shifting from one to another, between countries and currencies, into internet payment services, onto and off of credit cards, even onto mobile phone accounts which made phantom calls to premium numbers. It would be a veritable symphony of financial obfuscation. David saw that it could work, work very well indeed...

David's software made his move for him, and triggered an attack into the hackers' massively distributed system. His attack changed just a few lines of code. The difference was slight, but the result significant. The vast majority of the money ended up, not in the accounts that the team had hoped for, but in a single account in the very bank they had broken into just moments before. He

siphoned some of the money into his own rainy day fund. He sent the rest off on a journey designed for his own amusement.

David executed his next program; a simple widget designed only to create a slight delay. This caused a special network query by the bank's security systems, which in turn spotted something slightly wrong with the call and response time between the two parts of the bank's network. This launched a massive tracking effort. Another delay at an opportune moment let the bank track the team all the way to their sources. David watched the members of the team scrabbling to disconnect. For some it worked, but for others the bank captured certain network addresses and numbers. The bank, which was attacked daily but only rarely compromised at such a large scale, immediately contacted governments, banking institutions, cybercrime specialists and many other agencies.

David had a few final jobs to do. He checked the increase of funds in the personal account of the President of the United States of America. One and a half billion dollars. Not bad! David chuckled to

himself as he made a transfer from there to a similar account belonging to the President of Venezuela. From there he transferred it through another few accounts which were promptly deleted from their banks' systems, and finally back into an account with the original bank.

His favorite parts of the whole project was, of course, the link between the two presidents. If the president of the free world ever admitted to his account being compromised, he'd never reveal where the money had gone. And if he did, would the leader of Venezuela admit to receiving it? Doubtful on both counts, but they'd probably talk to each other. Sometimes people needed an external threat to bring them together.

Am I treating this too much like a game? David asked himself. *Am I setting myself up for a fall in the future?*

But he didn't think about it too much. Sure, the FBI and CIA and other initialed agencies would be searching for him. But they'd never come close to catching him in the past. Why worry this time?

18

National security briefing.

"Prime Minister Andrew Gateman," said Julian, "how's the new title suiting you?"

"I've only had the job three days," said Andrew, "meeting the King was certainly surreal. Today I'll be told everything about the UK's nuclear deterrent and all the other secret security material."

"You mean the secrets that added twenty years to the face of every previous prime minister."

"You'd have told me about those already, Julian, you've warned me of everything worth knowing so far."

"Do you think I know what you're about to find

out? Prepare to be disappointed."

"You know I can't share it even with you after I'm told."

"Well, nobody elected *me*."

"Wish me luck."

*

"So... was it all that bad?" asked Julian.

"I don't know what to tell you," said Andrew, frowning. "I don't know what I *can* tell you."

"How bad can it be? We've not been at war since Iraq. Is there a current crisis the rest of us don't know about?"

"I think so, yes, but the previous four governments..." Andrew paused for a second. "Julian, take off your viewsers."

"What?"

"Your viewsers. Take them off. Turn them off."

"Ok," said Julian, and did so. After a moment Andrew did the same.

"It's the viewsers, Julian. Every one of them. They're all compromised."

"Compromised how? By who? And why?"

"It goes all the way up. The United Nations. Back in the War on Terror days they were powerless to stop America acting like a bull in a china shop. And America acted that way because they were powerless to stop the terrorists themselves, and yet they wouldn't stop trying. Wars, invasions, regime change, more spies, propaganda, suspension of habeas corpus, trashing of their bill of rights, domestic spying, the Patriot Act..."

"I get the idea! There's no need to make speeches, not to me, of all people."

"Then a new technology started taking off and the Director General saw potential. He asked Sony, Nokia, Apple and all the other manufacturers of viewsers, with incentives, to install a backdoor in every device. It runs in the firmware and encodes its transmissions in the syntax of network requests. It's virtually invisible."

"But what does it do?"

"It checks every activity of the wearer and flags up suspicious behavior. This is filtered many times and is finally analyzed by a team in Japan. It's the

ultimate intelligence gatherer. Forget these brain scans they're doing at the moment. Who needs to scan your memories when they can watch as you form those memories?"

"This is impossible. I don't believe it. There are too many people doing illegal things in the world. I've done countless illegal things of my own--"

"But, Julian, they only target terrorism, which is defined as violence carried out against humans with an international political motive. Stealing they ignore. Murder they ignore. Everything is ignored. Normally the quote goes: 'If you're innocent you've nothing to worry about'. But in this case you don't even have to be innocent. You can be as guilty as all hell."

"Except you can't spark international acts of aggression."

"Exactly. They showed me a file of over forty planned attacks by various groups, but they thwarted each attack before it even began. Some attacks slipped through, but cooler heads are in power now. The leaders of all militarily capable nations know the deal. This is it, Julian, the way to put the genie of terrorism back in the bottle."

"The perfect solution, right?"

"As close to perfect as we're going to get."

"So why did you make me take my viewsers off while you told me about it."

"I don't know, Julian."

"I think you do, Andrew. Because it goes against everything we've been working towards these last twelve years. Our coalition won because we stand up for more freedoms, more liberty, more... how to put this... hippy bullshit? But I believe that hippy bullshit, and so do you, and so does the entire next generation."

Julian paused and held up his finger, a sign to Andrew that he was thinking. Andrew knew not to interrupt.

"Let me tell you something I've never told anyone else, ever," he continued. "Years ago I was convinced I was being watched. I'd been involved in some criminal activity online... nothing big, looking back now, just some content piracy. I didn't know who had installed a camera in my bedroom, but when I discovered that proof I was almost killed in an arson attack. I ran away from everyone and everything. I

was declared dead at one point, drowned after being swept out to sea, and I deliberately let people think that, reasoning it was the best way to stay hidden. I lived off of royalties from a photo I registered with an agency under a fake name. I avoided coming back to England for years.

"But you know what? It wasn't like that. There was no surveillance. There never had been. It was all a mistake. The fire was just a side effect of an unconnected incident. Yet I wasted years and years of my life, disconnected from everything, purely out of fear."

"When was this?" asked Andrew. "You're not old enough..."

"Let me finish. You don't need to be guilty of anything. When you *think* someone is watching you there is fear. Real fear. I know from experience. It wasn't the punishment for breaking a pointless law that scared me, because with enough stupid laws, like the ones I broke back in college, *everyone* is guilty of something. No, it was the discovery of the secret surveillance itself that really got to me. I thought they'd tried to keep me quite... that they'd tried to

destroy any evidence.

"So, now that the surveillance is real, what happens if the rules change? What happens if the next new leader isn't told? What happens if a new government gets in and they decide to do things differently? Tell me I'm wrong," concluded Julian, "tell me you aren't now afraid."

"You're right, I am afraid, but only because I know I'm being watched. Only you and I and other heads of state know. The rest of the world is free from fear at the same time it's free from war."

"Until the United Nations makes a mistake. What happens in the future? What happens when a dictator gets hold of this technology and uses it for his own purposes? Somebody may already be using this technology for all kinds of things, accessing confidential information, stealing money, and who would ever know?"

A few minutes passed in silence, the two old friends both lost in their own thoughts.

"You're right," Andrew said finally, "we have to do something. We need to make this public."

"There'll be panic and widespread mistrust in the

United Nations," said Julian.

"The people have a right to know."

"The leaders of other countries may come under pressure to resign," said Julian, "because they knew about it and said nothing."

"Those leaders chose to do the wrong thing."

"Terrorists will know to plan their attacks without wearing viewsers."

"Then we need to give people more freedom, and get to the root of the causes of terrorism, not just apply a patch later."

"What if people stop using viewsers completely?"

"It wouldn't be such a bad thing. Maybe they'll spend more time with each other in the real world."

There was another long pause.

"Andrew, I was just pointing those things out to make sure... to make sure you really want to do this. I agree completely."

"Ok, let's do this."

*

Very few things could surprise Julian. However,

the reaction to Andrew Gateman's announcement was, on the whole, surprisingly underwhelming.

The UN security council owned up to the facts and released all records to the public. The viewser manufacturers released a universal firmware update, as well as opening up their source code for inspection. Public opinion of Gateman's government rose in inverse proportions compared to how much it dropped for the other world leaders involved.

And that was about it.

It turned out the people of the world understood the old problem of terrorism, and understood why their leaders compromised the viewsers in the name of preventing the worst attacks. The majority of people agreed it was better than continually being searched in airports, a practice that had gradually fallen out of use.

But they also understood the need for viewser surveillance had passed. The world had become a safer place. And, it seemed, a more sensible place.

Julian started having doubts. He'd gotten involved in politics to change the world for the better. Maybe, he thought, it was already better than he was himself.

Fear at being watched? Did people really not care about that any more? A whole generation had grown up with a new outlook on privacy and living life in public...

Maybe, yet again, Julian would fail to change the world. Maybe the world was already better than any one person could make it.

19

Have a plan.

Gregory spent a long time preparing his next big move. He had just one shot, as far as he knew, so he couldn't afford to mess it up.

He already had a rough plan in mind, so he spent a long time thinking up ways it might go wrong. He

soon held the necessary steps in his mind, with multiple options if things didn't go exactly right. And yet... he was most nervous about the things he couldn't know. He'd been away from the western world for so long that some of his most basic assumptions were plain wrong, and time after time he discovered the differences only after huge amounts of research.

With his plan of action under development he started putting together the data package he would deliver, trying to work out the form it would take. In the end he went to a computer museum and, after being struck by nostalgia, managed to buy and borrow what he needed. Formats and connectors had totally changed over the years. These days devices did very little without some kind of wireless component. Even batteries were charged wirelessly. After a few days he went back to the computer museum and tested his project on a period machine. It worked perfectly.

It was while he researched data storage that he found the latest process that pushed the requirements for disc space. Years ago it had been

DNA, then the LHC produced more data than anyone could deal with, but now it was research iscanners.

Gregory's eyes lit up as he read about the high resolution synapse imaging. He knew he needed visit another university. Gregory once again loaded his science writer credentials into his viewsers.

*

"... and that, Graham, is the highest level of scanning we can do."

"Tell me more about implanting memories back into the brain."

"We've only done this in mice and monkeys, as we're still not sure if it is as safe as scanning. What we do is scan a few small areas of the brain in which, say, a monkey remembers a sequence of buttons he has learnt to push to get food. We then damage that same area subtly and present him with the same buttons again. He now has amnesia and is unable to push the buttons in the right order."

"And then?"

"Then we use a machine like this... and it directly stimulates those brain cells into forming connections in the right configuration. It turns out this takes a lot less precision than we first thought. We stimulate in only roughly the right place and the brain automatically encodes the info into the correct cells and synapses."

"So you'll one day be implanting memories into other people's brains?"

"No, because as I said before, every person's brain is different."

"But this could store people's memories, and if they forgot something they could reload their memories."

"Theoretically that's what we've already done with the monkeys."

"What if you scanned an entire brain, then found a blank brain and installed all the saved memories."

"Well, as far as we can see there would be a major mismatch between the character and memories. The character, or personality, are the processes and chemicals and the wiring of the brain. The memories are integrated but separate."

"But done at a full brain level you could make a working copy?"

"I doubt it would work. The brain is a very individual thing, and a physical thing. It isn't a blank slate."

"That memory implanting machine is a lot smaller than I expected."

"Yup. The scanner must track and read at the same time. The implanter can run a lot slower. The best way we've found to do it is during non-REM sleep. That's when the brain usually processes memories of the day, so stimulating the brain at that time is only natural."

"Interesting. Would it be possible to have a scan myself?"

"Not here, I'm afraid, but we've already licensed our techniques to a private firm. They'll be selling backups as insurance against late life memory loss. They also think people could make fresh recordings of special events, like weddings, holidays, sporting wins, that kind of thing. Then years later they rent or buy an implanter, take a sleeping pill, strap the device to their head... you get the idea. The technology isn't

ready yet, but probably within the next year."

"I get the idea. It sounds perfect."

*

The day of the experiment arrived. Everything was set.

Gregory had visited the DERI two days earlier, and hid his packages under a sink in the male toilets.

Over the next few days he guided all the handler robots into place. As far as he could tell, nobody noticed anything amiss, even though each handler had an extra module attached to one of their grasping arms. It had been quite an operation; diverting their paths during their normal course of duty, making them all meet each other and perform the modifications. Only one would be needed for the final delivery, but he couldn't be sure which handler would be in the best position on the day.

He'd been unsure that he'd be able to do everything in the two days he had available, but extra power had been requested from the national grid and extra bandwidth had been installed to cope with all

the media attention. The power and data cables needed for the big experiment trailed the corridors, causing an increase in stuck cleaning robots.

Every member of the DERI scientist team had jobs on the day, so they asked a celebrity science expert to talk the public through the process.

"Hello and welcome, I'm... Dirk Tjumba. This... is a momentous occasion. Long... have we wondered about the mystery of Dark Energy. Today... history will be made as the DERI team tries to harness this power in the confines of their laboratory..."

Dirk wasn't presenting from the DERI building as there simply wasn't enough space. Instead, a large lecture hall had been converted into a media center. Gregory, not wanting to submit his dodgy science writer credentials to more scrutiny than necessary, had decided to stay at home.

The presentation continued, but Gregory turned his attention to the privileged and exclusive data feeds he was receiving from the DERI building. Someone opened a door and knocked over a cup of coffee. They requested a cleaner robots to sort it out. Gregory knew this was going to happen, as he had

earlier instructed a handler robot to place the coffee in that exact spot, and he knew when the door would next be opened.

The cleaner robot, as Gregory expected, had trouble getting behind the door to the source of the spillage. After a few minutes it requested help itself. The building called Gregory to bring the situation under control.

He guided a handler to the right location, quickly flipped the cleaner onto its back, then pushed it into a gap under a counter. While the smaller robot was out of action, Gregory could do what he needed with the handler, but only for a short time. If the problem wasn't sorted within thirty minutes his inaction would be flagged up by the building administration software.

He checked the time and the news feeds. The timing looked close, but if the experiment went according to plan it would be over in twenty or twenty five minutes.

He requested another handler to help the first and then, instead of using them to lift the counter to free the trapped cleaner, he guided them both as close to

the center of action as possible. All the humans ignored the robots. The scientists and students who worked at the DERI were used to seeing them all the time. And so, as much as he could, Gregory ignored the humans.

The handlers reached the door to the restricted area. Without hesitation Gregory guided them both inside. At a set of thick cables the handlers executed a well practiced move. One lifted the cables and let the other scoot underneath, then they reversed their roles. They ducked behind a console and pretended to be busy.

Gregory was nervous. He'd been told the probe would be prepared and then, once the Casimir machine was initiated and stable, would be guided into the room for the test. The timing would be tricky if he was to get one of the handlers into the inner chamber. But there they sat, just one airlock away.

He had no room-wide video feed of the two handlers' current location, so he made sure one handler always had the probe in view. As he'd noticed two days previously, the probe was installed on a

remote controlled trolly.

A female scientist who Gregory recognized as Christine made some final checks on the probe and its systems. As she finished and walked away it automatically rolled forwards towards the first door of the airlock. Gregory set one handler to keep watch, and rolled the other to the far side of the probe. On the front end of the trolly he noticed an empty section. He brought the second handler over and used it to lift the first onto, and into, the trolly itself.

The operation was going as well as Gregory could hope for. Better, even. Now he didn't have to worry about timing. The handler robot was hitching a ride, and it should be fine, as long as it avoided detection. The probe and the trolly stood ready in the airlock and the outer door closed. After a few minutes, the video feed from the handler showed the inner door opening. The trolly rolled into the room to take its place in front of the Casimir machine.

Gregory determined the news feed had no delay so he used that to keep track of events in the control room. Time dragged by as the clock counted down.

"... three, two, one, now. The command... has been sent, the Casimir machine is now undergoing the initial collapse. We see no change in the machine itself, but here is a simulation of what is happening inside. Let's... go to the feed of the lead scientist, Professor Banks."

"... All stable. Next phase. Collapsed. All internal systems optimal. Next phase... collapsed. Looking good. Final phase... collapsed. Now we... oh!"

Gregory checked the feed and saw an image of Banks gasping. Banks turned back towards the camera with a look of horror on his now ghostly white face.

"This is..." he gasped. "I don't know what this is..."

Behind Banks, in the control room, everyone began panicking. Some technicians vomited. Gregory saw Christine hold up her hands up in front of her face and watched as her skin turn black. An observer stood up to leave, but collapsed before he reached the door. The camera cut back to Dirk.

"We don't know what is happening in the control room... it's like... like... wait..." Dirk breathed heavily,

trying to control himself. All the color drained from his face. His eyes crossed and he fainted, pitching forwards towards the camera and dropping out of sight.

The feed cut back to the camera in the control room. Banks was speaking.

"... this must be some kind of radiation created in the machine. I don't think we're going to make it." He paused and breathed heavily. "The abort will take a minute to run, I'm going to insert the probe."

Gregory noticed he was getting a headache and his stomach was churning. He lived a few kilometers from the DERI building and even at that distance the radiation was having an effect.

He took control of the handler, and it pushed itself off the trolly. The left arm of the handler unclipped Gregory's module from the right arm and turned towards the Casimir machine. In another well practiced move, it swung its arm back and threw the module into the opening. It didn't go far inside, but then the probe extended into the opening, and pushed the module deeper.

"Data incoming..." groaned Banks over the feed,

"... that should do it. Phase completed... I hope someone can use this data. My password is M, G, 4, 3, F, T, asterisk, G.... no... J... I think... Mika, I love you. Aborting."

Banks reached forward, hit a large red button, then collapsed face down onto his console. Nobody else in the control room moved. A pair of digits counted down from ten seconds, at which point the outer layers of the Casamir machine would collapse and bring the experiment to an end.

Only a minute had passed since Banks first activated the Casimir machine. Everything had happened a lot quicker than Gregory, than anyone, had expected. If his plan had worked, he could, next time, warn of the dangers.

Or not, he realized. He hadn't known the danger before he completed the data package.

As the last seconds counted down he found himself becoming more and more ill. His mouth felt dry and his vision was greying. Then the counter hit zero, and he felt nothing.

20

The beginning of it all.

Nick sat at his desk, typing a homework assignment, when he felt all the hairs along his arms stand up on end. He frowned. The heating was on, he knew that. He turned to check his bedroom window. It was closed.

So where is the cold air coming from?

He stood and held his hands up, trying to feel any kind of breeze. But the chill had stopped. He shrugged and sat down again.

A few lines later he felt the same thing. No, not the same thing. Colder, this time. And not just temperature but... electricity?

Something flashed behind and above him, lighting up the whole room. He swung his chair round in time to see two objects drop from the ceiling. Nick couldn't see them clearly as they fell, except that one was about fifteen centimeters long and glinted silver, and the other was a dark object about twenty centimeters long and ten wide. They hit the floor and both bounced under his bed.

"What the hell?" he said out loud. Nick picked up a pen, got down on his hands and knees, and looked under his bed. He reached forward with the pen, hooked the mysterious objects in turn and pulled them closer.

The first object was a linked series of cylindrical metal segments, each the size and shape of a chunky pen lid. The joints looked fully articulated but the object was rigid as though frozen in that position. The last segment looked shorter than the rest, and ended abruptly at a seemingly random angle, like it had been sliced clean through with a sharp blade. The other end split into three prongs.

"What the hell?" he said again.

He took a closer look at the second object. It was

some kind of case. Nick pushed at it with his pen, unsure of what to do. He held his hand next to it and felt no heat. He put on a pair of white gloves he used for handling photographs, and picked up the dark case. It felt heavier than he first imagined. It had some kind of latch on the front, so he tried pushing it. It didn't give, so he tried pulling it. Finally he twisted it, and the case opened.

Inside he found a small USB thumb drive, a pair of glasses and a curved object with an attached strap. A note, stuck to the glasses, read: "Put me on right now. Urgent."

Nick lifted the glasses out of the case, opened the arms and slipped them on. As soon as they were in place he heard a voice.

"Nick, I'm going to save your life. If you want to live, listen to me. These glasses contain a computer that is playing this recording. It also scanned your retina, so I know I'm talking to the right person. By GPS and the internal clock I know you are still in your bedroom.

"In a few minutes your room is going to burst into flames. You need to be outside before this

happens. Take only what you can carry with you, but make sure you take these glasses and the other contents of the case. Do not lose them.

"Tell nobody about what just happened here, and don't let anyone else know about these glasses. The next time you put them on I'll give you more instructions. Get moving."

Nick took the glasses off and looked at the ceiling.

"What the hell?"

He didn't know what to think about the message, nor what he should do about it. He looked about his room, wondering what he would save if there was a fire. He put his backup hard drive, his camera, and all of the mysterious objects into his bag. He walked out into the hall, locked his door, and made his way downstairs. Leaving via the front door he strolled up the path, then cut across the grass to a small hill about thirty meters away from the building.

Nick put the glasses on again.

"So, you're still alive," spoke the voice. "Well done for trusting me. Just keep the other two objects with you until tonight and all your questions will be

answered. The fire will be blamed on a faulty light fitting, but you must act distraught at losing everything or else you might be blamed."

As the message ended Nick heard a fire alarm. Sure enough, the noise was coming from his building, not thirty meters away. He checked his window and saw that, yes, flames licked against the inside of the glass.

If this is a game, Nick thought, *I'm not finding it very fun*. By that point Nick had no choice but to follow the instructions. He put the glasses back in his bag and then, not having to put on much of an act, ran back towards his building, shouting about how his bedroom was on fire.

*

Nick sat down on the bed in the guesthouse. The room felt a bit empty, especially as he owned no changes of clothes to put in the cupboard or chest of drawers. All he had was his camera, a hard drive, and the mystery objects. He hadn't had much time to think about them all day, nor about the voice in the

glasses that gave him instructions and saved his life.

The fire fighters had turned up quickly but by then everything in his room had been lost. For the entire afternoon he took part in meetings with the university administrators, meetings with the building superintendents, meetings with representatives from an insurance agency...

The voice had been right, and the fire inspector blamed the fire on a faulty light fitting, nobody suspected Nick, and the university insurance company agreed to cover everything.

He took the glasses out of the case and, nervously, put them on.

"Hello Nick. This will be my last message. If you put the glasses on again all you'll hear is a repeat of this message. Unless you say a password that you'll soon learn.

"In the case is a USB thumb drive and another device you won't recognize. Take this second device and hold it up..."

Nick followed the instructions carefully until the device was pressed against the top of his head and held in place with its strap.

"Go to sleep with this device in place. When you wake up in the morning all your questions will have been answered. If, for some reason, this doesn't work, feel free to access the data on the USB thumb drive. However, I'd try it a few nights in a row to make sure."

There was a pause in the recording.

"Here ends the last message. Good night, and sweet dreams."

Nick got undressed and slipped into bed. Of course, the last thing he felt like doing was trying to sleep. Nerves alone kept him awake for a long time. But he'd had a long, stressful and exhausting day, and he soon felt his eyelids drooping. Within a few minutes he fell into the deepest sleep of his life.

*

He woke the next morning in a panic. Where was he? He tried to remember why he lay in a strange bed in a strange room with old fashioned furniture and antique wall paper.

What's the last thing I remember? he asked himself.

He'd visited a clinic for... what? An iscan, of course. He recalled the last moments of a conversation.

"This is the highest resolutions scan possible?"

"Not quite. The highest level of scanning actually destroys the brain."

"Well, I think I'll go with the second highest resolution. I need this brain."

"Ok, lean back and don't move. You'll feel a sting as I clamp your head in place. You'll receive injections around the scalp to deaden the feeling and stop your muscles from moving."

"That's fine. Have you done this?"

"Yes, I know there's nothing to worry about."

"I'm not worried. Not really."

"So, once this red light goes on the scanning has begun. You then need to think hard and try to remember as much as possible. As you do, the scanner will track the general locations of your most important memories, and then it should even record things you don't actively remember."

"Really?"

"That's the theory. We're still analyzing the data."

"My ears are cold."

And that was it. From then on? Nothing.

Except there was that dream... I was back at university and...

Gregory sat bolt upright in bed. He looked at his hands. They belonged to a twenty year old boy, not a man in his forties. He stood up and checked his reflection in the mirror. He grinned and pulled the memory implanter off his head.

His plan had worked! He wasn't Gregory, he was Nick again, a name he hadn't called himself for over seventeen years. Or since last night, depending on which way he wanted to look at things.

He picked the viewsers off the bedside table and put them on.

"Hello Nick, this will be my last message. If you put..."

"Password Dark Energy," he said, interrupting the recording he'd obviously made since his memory scan.

"Thank you."

The viewsers' screens came to life, showing the file system and a date from many years in the future. A message flashed in the corner of his vision: "No

data services available." *Of course not,* he thought, *and there won't be for a long time.* But all the data he needed was stored on the viewsers, plus a partial copy that current computers could access sat on the USB thumb drive.

He had a whole life ahead of him, and he planned to live it differently from his last. Very differently. First things first... money?

"Access file Football Results."

21

Only the lonely.

Nick stepped off the U-bahn and walked out into the warm evening air. He'd been to Berlin a few times before, but never in the spring. He found it a

pleasant city, if a bit ugly. At least it had a lot of open space.

He turned off a main tree-lined boulevard into some narrower streets. The majority of shops were cool cafes, or cool clothes boutiques, or cool antique stores, or cool record shops. Nick found what he was looking for. A second hand English book shop. It wasn't just a bookshop, he'd been told, it also hosted social events in the evenings for English speaking residents of Berlin.

The first room of the shop looked like something from a movie, right out of the mind of an over-imaginative set dresser. Shelves reached up to the ceiling, crammed full of books on every subject ranging from cooking to philosophy. Antique furniture filled the floor, stuffed birds in display cases hung on the walls, the surface of every table and desk was stacked with yet more books, a little old man reclined in a chair, snoozing, with an open book resting on his chest...

Nick explored further. The next room was dedicated to crime novels and historical fiction, with a pulldown screen and a video projector for showing

films. The next room after that was full of travel books and short story collections. On the floor stood a number of boxes with *Summer Books for Girls* scrawled on the side.

He wandered back to the first room. A bearded man now sat behind a desk. Nick guessed he worked at the shop, though he saw no sign of a cash register or any other business apparatus.

"Something you're looking for?" the man asked Nick.

"Not a book, no. I heard there was a meal here tonight."

"Ah, yes. We eat downstairs. You're a bit early. People'll start arriving soon though. Later there'll be a film. Tonight's the Red Violin."

"Nice. I've seen it before." Nick had seen most films.

The bearded man mumbled something and nodded. Nick was unsure if that signaled the end of the conversation. After a few seconds he said "I guess I'll be downstairs then."

He took the stairs into the basement. Where tall people could bump their heads hung a sign that

stated: "You are now entering the FANTASY CELLAR!!!" Three exclamation marks. The cellar actually held equal parts science fiction and fantasy, and probably more books than the rest of the shop combined. Nick quickly became obsessed with finding obscure Jack Vance novellas from the 1950's he'd not yet read. The books were arranged in an only roughly alphabetical order so it took him quite some time.

Other people started turning up half an hour later, and quickly filled the empty chairs. They grabbed drinks from fridges, crates and wine racks.

"Do you pay for those?" Nick asked an American musician.

"We just pay what we owe at the end of the night."

The guests also included four students from Canada, a photographer from New Zealand, an author from New York, three Irish guys visiting Berlin until the summer, and a dozen others to whom Nick wasn't introduced. It seemed like most people visited the bookshop regularly, at least for the Friday night meals.

Nobody served the food. Instead the cook emerged from a hidden kitchen and laid the dishes on a long table. Everyone loaded up their plates with what they wanted, and carried their meals back to their own table.

Nick had just started on a second helping of an unidentifiable but utterly delicious vegetable dish when she walked down the stairs. Nick had made sure he sat facing the door, so that when she entered the room he could take in every detail of her face. He found it instantly familiar in so many ways, yet different in thousands of others. She looked left, then right, spotted a spare seat, but wondered weather to get some food before claiming it. Nick realized he knew what she was thinking even before she did.

Nobody else noticed her arrive, but Nick had to force himself to stop staring and start eating again. A few minutes later he stood up to get a drink, and, without bothering to make an excuse, took an empty seat to her right.

The conversation around the table continued for a while, about some bands visiting Berlin, then evolved

into a discussion about airports. Seeing as she wasn't interested in the city's transport infrastructure, Nick made his opening move.

"Hi, I'm Simon." It was the named he'd used so far that evening. "Your name is...?"

"Dana."

"Ah! Nice name."

"'Thanks."

"I once visited a place called Dana. It was in Israel... no wait, in Jordan. There's a nature reserve there."

Dana looked at him properly for the first time and showed him a wide smile. Simon held his face as neutral as possible, but his heart leapt.

"Normally people mention the X-Files."

"Why?"

"You know... Dana Scully."

"Gillian Anderson never did it for me."

"Me neither. But for some reason people think I'm named after her."

"Wait a moment... how old are you?"

"Exactly! I was born way before the X-Files. My parents used to tell me I was named after a silent

movie star."

"Used to?"

"Yeah, until I looked through some photos with my mother. She'd shot them during a holiday my parents took before I was born. She pointed to a photo of a hotel and said 'You were conceived in that hotel.' I asked her where it was and she said it was in Jordan. A town called Dana."

"Wow," said Simon.

"You're the first person I've ever met who guessed the true origin of my name."

"So let's see if you can do the same for me then. Can you guess where my name comes from?"

She laughed and leaned towards him across the table. "You're named after Simon Magus."

"The heretic sorcerer mentioned in the Book of Acts? Correct!"

"What?" She sat upright abruptly. "Seriously?"

Simon nodded his head for a second, then broke out a smile of his own.

"Nah, I'm just kidding. My parents loved Simon and Garfunkel..."

*

Dana kicked off the covers completely and collapsed onto the mattress. Simon slowed his breathing and opened his eyes. He glanced towards Dana and realized she was staring at him with a slightly unfocused look in her eyes.

"Oh my fucking god that was incredible," she slurred, saying the whole sentence as a single word. Simon put his arm out and she rolled against him.

"It sounds like a cliche, but *you* were incredible," he said.

"I don't mind cliches after something like that."

"After three things like that."

"Sure, no need to show off."

They lay in silence for a while. Dana broke it first.

"Do you mind if I stay here until tomorrow so you can show off a bit more?"

"Sure!" Simon said, not minding how enthusiastic he now sounded.

"Can I get a drink?"

"I'll bring you one," he said, getting up off the bed and arranging the blanket again over Dana's

naked body. She grinned up at him. "You want a wine?" he asked. "Or hot chocolate?"

"Just water, thanks." She closed her eyes, and her mouth relaxed into an enigmatic smile.

Simon slipped on a dressing gown and walked through to the kitchen. He poured two glasses of water and set them on a tray. The bed lay empty when he returned but noises emanated from the bathroom. He put the tray down, took his gown off again, and got into bed. Dana glided back into the room and slipped under the covers beside him.

"I took a drink in the bathroom, but thanks anyway."

Simon could see she'd washed her face. "No problem," he said. She yawned and closed her eyes. She quickly fell into a light sleep.

Simon waited another hour and a half until he was sure Dana was in a deep, non-REM phase of sleep. He reached into a cabinet beside the bed took out an implanter device. Simon gently pressed it against Dana's head, then slipped the strap under her chin, securing it in place. When he finished he realized he'd been holding his breath. If she'd woken

up right then he wasn't sure if he'd be able to explain himself.

He pressed the activation button on the implanter and lay back, knowing it would run perfectly well without intervention. He didn't mean to fall asleep so quickly and deeply himself, but it truly had been an incredible evening.

*

Simon woke to a scream. Dana huddled in a ball at the very edge of the bed, covers pulled tight around her shoulders.

"Who are you?" she hissed.

"Dana, it's me, Simon."

"No! Simon is older."

"Dana, I have a lot to explain. I wanted to be awake when you woke up to say..."

"Are you Simon's son? What going on?"

"Dana, think, think. Remember. What's the last thing you remember?"

"I was..."

"Yes?"

"I was in a clinic. I was with Simon. We were both recording our memories. Simon said it was for insurance reasons and perfectly safe."

"And what do you remember from last night?"

"Last night I was... in Berlin? No, I've not been to Berlin in years..."

Simon got up from the bed and found a mirror. He held it up in front of Dana.

"Take a look. See yourself."

Dana gasped. She slowly touched her fingertips to her face. "Is this a dream?"

"No, but maybe a dream come true. Let me explain." He sat down on the edge of the bed. "I'm Simon. Really. But I'm young again, just like you."

"How is this possible?"

"Because I saw a possibility and went for it. We lived together, and worked together, for seventeen years. That's the longest I've ever stuck with anything in my life. But I wasn't honest with you. There's always been a huge issue I could never explain. You'd have thought I was crazy."

"I'm beginning to think you *are* crazy."

"When I was at university something happened

very close to me in space, but not, as it were, in time. Scientists, in the future, found a way to send something back in time, and that thing materialized in my bedroom. I didn't realize what it was, and thought my life was in danger, so I fled the country. Years later I returned, and found scientists working on a high-energy experiment. It had nothing to do with moving objects through time, but I knew it couldn't be a coincidence. The scientists aimed for one thing, but stumbled upon a side effect. A side effect about which only I knew.

"So I recorded my memories and sent them back in time. I tricked my past self into implanting those same memories. I was the same person, but a new person at the same time, my conscience self extended. I had another chance at life, and I knew I could live it differently. Better."

Dana closed her eyes for a few moments. She opened them again and locked her gaze to Simon's. At that moment he knew Dana trusted him and believed his story completely.

"I always knew you were different," she said. "Even when we first met. The tsunami. You knew

exactly where to look."

"Exactly."

"And your money too. I guess you knew exactly where to find that."

"It's actually hard to make too much money from trading without influencing the markets, and changing them so much that further investments are any more than guesses. Knowing where not to invest is the biggest factor. I also passed off many future successful inventions and artworks as my own, though it pains me to admit such lack of creativity."

"And now you've done it all a second time, and you sent my memories back too."

"You're almost right. This isn't my second time. I've lived more years than I care to count, and I'm not even sure how I should count. Every time I'm afraid it will be the last. I've never lived into old age, though I've lived longer than anyone else in history. The worst part is that in my first life, my real life, I kept myself so distant from the rest of civilization that I had no impact on the world. During my second life I tried to do nothing to change history as compared to my first. If the scientists built their

experiment anywhere else, even by a few meters, or started their experiment at a different time, I'd not be able to send my memories back a second time."

"But you did."

"Many times. It turns out that the world is quite robust. Even so, I've tried to change things, in subtle ways, to try to make it better."

"I don't understand. With the tsunami you were trying to save the lives of millions. That isn't keeping a low profile."

"I know. But when I met you I decided that I didn't really care about living longer, only better. I set about changing the world in the way I thought most meaningful. I expected the world to be completely different after that day, but events kept unfolding very much as they had so many times before. I was weak, so I reverted to my previous method of keeping a low profile, as you put it."

"That's true. We do... we did live our lives quietly."

"I meant what I said before, that my time with you were the best seventeen years I've ever lived. Yet I wanted to be young again. I couldn't be without you, so I decided to bring you with me."

"We're in Berlin?"

"Yes."

"This is why... this is why you asked me where I lived at this time, and why you wanted to know the places I visited regularly."

"So I could meet you."

"So you could seduce me."

"It seemed the easiest way to get close to you while you slept."

"And it was quite easy for you, wasn't it? Am I such an easy lay?"

"Maybe. Twice now you've met me for the first time and we've ended up in bed together the very same night."

They sat in silence for a while, grinning at each other across the bed.

"I have a question," Dana said at last.

"I'm sure you have many."

"What happens to our older selves? The us in the future? Do they continue living after you've sent your memories back?"

"I don't know."

"I thought you'd be an expert."

"As far as I know, there's no set way that time travel works. Or there's no set theory. Maybe we do go on living and, by sending something back, create a split in the world's time lines. Or maybe the many-worlds view holds true, and new worlds are being created every second. I really can't think of another way this could work."

"So in our old timeline we are still together."

"And I'm now telling you how there's a younger us in a parallel dimension having this very conversation."

"And I'm calling you insane."

"Probably. I've read up on all the theories and that seems the most likely. I'd find out more, but I've been nervous about asking experts directly in case they work everything out, and the DERI experiment happens differently."

"Do you know of anything else to be transported back in time?"

"I've never found anything, and I always keep a lookout. I first thought that if it was possible, everyone would be sending things back to themselves all the time. But I guess in the future, after my first

attempt, not many people get the chance. Maybe there's a law made against that kind of thing."

"And what happens now?"

"What do you mean?"

"With us? What do we do?"

"I don't know. I've never done this with anyone else before. But we're young, I've already got a few million in the bank, and we've got twenty years to go before we do it all again."

Dana smiled, and started towards the center of the bed. Simon met her half way and they finally embraced.

"Simon, I still don't know if this is a dream or not, or some elaborate prank you're playing, but I'm glad you risked it. Thanks for making me young again."

"No problem."

Dana let go and leant back. "And I really do feel young. Not like before. It's like I have the memories of a forty year old but the mind of a teenager."

"Exactly! I feel that every time. I find myself having a young attitude to life, and make the same mistakes again and again. The experts say the same

thing, that memories are data, personalities are the processes that run the date. That's what you are now, with old memories running on a new brain."

"When you put it that way, it feels like I've just raped the brain of my younger self."

"But you are your younger self."

"Right. By the way, it was sweet what you said before, about saving the world for me."

"Hmmm."

"I have one more question I want you to answer right now. All my other questions can wait."

"Go for it."

"Can we get married this time?"

"Before I answer, I need to tell you one thing: my name isn't really Simon. I'm called Nicolas."

"I don't care."

"Ok then..." Simon opened the drawer in the bedside cabinet and took out a small case. He handed it to Dana and she squealed. She opened it and looked at the ring with admiration. Then she frowned slightly.

"Wait... is this...? Did you send this back in time with our memories?"

"Yes. I had two made. One to propose to you now, and one for the other us, the older us."

"This is so weird."

"Welcome to my world."

22

Reset.

David closed his eyes as Günter Schmitz finished the Rachmaninov recital. The virtuosity amazed David. Most people would be staring up at the screen, watching the image of Günter's fingers racing over the keys. David didn't need to do that. He knew the exact fingering of this piece and could picture it in his mind perfectly.

The music ended and the standing ovation began.

David stood and clapped along with everyone else. He was sponsoring the concert, so appearances must be kept up.

After the encore, and while the audience made their way out of the concert hall, David went back stage to congratulate Günter.

"Well done, young man. Exquisite!"

"Thank you. It's good to have such an opportunity."

"What I wouldn't give to be up there myself!"

"You could have joined me on stage."

"No, you misunderstand. I meant that I'd love to play the piano like you."

"Do you play the piano?"

"I learned once. Since then I've lost all my skill."

"That's such a shame."

"Yes, it is. I know a lot about piano playing, but it's all intellectual now, all theoretical. Once I learned a Rachmaninov, just to prove to myself I could do it. It took me almost fifteen years. But now? Nothing."

"You're joking to me, right?"

"No, you're German, it is pointless telling you jokes."

"So what happened?"

"I have a unique condition. Over time I lose skills. Anything basic is no problem... anything I learned when I was young I can still do. But anything that requires special training just gets lost. I remember how to do it on an intellectual level, I even remember what it feels like to do it. But the ability? It just disappears." David snapped his fingers dramatically.

"I'm so sorry."

"Not just piano playing either. Once I learned to juggle. I could do seven."

"Jungle?"

"Juggle. Jonglieren, auf deutsch. Now I can only do three."

"A shame."

"I don't think so. For years I would keep learning new skills, knowing the day would come when I'd lose everything I'd learned. Some days it seemed pointless. But I kept doing it. Piano, juggling, violin, car maintenance, knitting, martial arts, all kinds of things. I needed to prove I could keep bettering myself, even if those improvements were to be lost. The journey was more important than the

destination."

"What are you learning now?"

"Nothing at the moment. I'm concentrating on more intellectual pursuits. And a good thing too, as that way I can earn enough to sponsor young artists such as yourself. Let me ask you a question. You're twenty, right?"

"Twenty one."

"Close enough. If you knew that when you turned forty you'd lose all your pianist skills, would you keep improving your piano playing until your fortieth birthday, or would you give up?"

"Would I remember what it felt like to play the piano?"

"Yes."

"I would keep playing, and try to make as many memories as possible."

"Exactly."

23

Zero gravity.

"I have a question," Grant said to Jimmy 'Ace' Truman.

"Ask away," Ace told him.

"Have you ever had zero gravity sex?"

"Whoa! No beating around the bush for you!"

"I'm not propositioning you, if that's what you mean. But you're called Ace. You're a space pilot. You're the real star around here, not me. Surely you've tried it."

"As it happens, I have."

"Well, yesterday, after the show, I was approached by one of the science team who offered, you know, free entry to the Hundred Mile High Club."

"Would this be a male or female member of the science team?"

"Female."

"So it was Marion then."

"I didn't say that."

"Sasha's currently involved."

"Who with?"

"Myself."

"Ah. That makes sense. Yeah, it was Marion."

"I didn't expect that from her. But then again you're the great Grant Freeman, musician extraordinaire. I guess you both get what you want from the deal. You get sex in space and she gets bragging rights on bedding you."

"I accepted the offer but was just too tired last night. What do I need to know about zero gravity sex?"

"You've not read the how-to guides?"

"I looked at them before I came out here, but I got the feeling they're not written by people with first hand experience."

"You'd better believe it. It's a lot different from what they think. First things first, hygiene. Have plenty of towels handy. Sweat, and all sorts of stuff, pools up on your skin, then floats away in clumps. Things drift about that you really don't want to clean off the walls. Much better to wipe it off the skin or

catch it in the air."

"Yuck... but noted."

"Second, location. The guides say to do it in a large empty volume where you can float without touching any walls. Bullshit. What you need to do is find a place where, at any point, you can brace across the room in two different directions."

"Why?"

"When you try it'll make sense. Third, positions. The trusty sixty nine is the easiest for amateurs. Once you get the hang of that you can try the X."

"The X?" asked Grant. Ace used his hands to demonstrate what he meant. "Oh... right."

"Forth, straps. Sometimes you don't want to put in so much effort, so tying yourself together can work wonders. Fifth, humor. There is no way to have sex in zero gravity without it becoming some kind of game or joke. If you've never laughed during sex..." Ace paused and smiled, obviously remembering past events. "What I'm trying to say is that you can't take it too seriously."

"So I've failed already, I'm asking for instructions beforehand."

"No, that's just being smart. People say the best way to learn is from your mistakes. Bullshit. Nobody learns how to drive by their mistakes. Nobody learns how to fly a spaceplane by their mistakes. Nobody learns what foods are poisonous by their mistakes. Learning by your mistakes means you live your life repeating everybody else's mistakes."

"So... where's the best place on the CSS for zero G sex?"

"Well, airlock B is the best size, but a bit too public. Check store at the end of section D to see if it's empty. If you do end up using it, cover the window on the hatch."

"I'll learn from your mistake on that one."

"Yup!"

Grant thanked Ace and went exploring in section D. He opened the hatch and looked into the store. It was half full of packaged meals and the remaining space felt smaller than his bedroom. He pushed the hatch to close it again, but that only resulted in him floating backwards. In light of what Ace had just told him about zero G sex, he considered his actions again and smiled. On his second attempt, by holding

both the hatch and a strap at the same time, he got the hatch closed.

He pulled himself down section D and made his way slowly across to section B. There he found the equivalent storeroom and looked in the window. It turned out to be a slightly larger module than the store in section D, and it was obviously slated to be used for something else in the future. Why would a storage compartment need an external window?

It was also only a quarter full, with some large flat packs strapped to one surface. Grant opened the hatch and pulled himself inside. He straightened his body and reached out his arms. As far as he had been told, it was just the right size.

*

Grant met Marion and showed her the section B store. She smiled and led him inside. There she opened her bag and took out some of her supplies; towels, some elasticated straps, some drinks, and another bag.

"What's the second bag for?" Grant asked as he

stuck a sheet of paper over the window in the hatch.

"To hold your clothes when you take them off," she said in her delightful French accent, "you really don't want them floating around."

"Aha! You've obviously done this before."

"Of course, I've been here eight months. The opportunity has presented itself a few times."

"Ace said you weren't the type."

"Ace doesn't know shit!"

It turned out that Ace did know at least one thing; zero gravity sex was as humorous as he'd said it would be. Grant also discovered it had to be planned out, not so much in advance, but as they went along. If either party did something unexpected, or out of time, they would spring apart. The resulting increase in communication had an unexpected benefit. Marion didn't just tell Grant what she was going to do, but also what she wanted him to do. Combining that with the facts that he was an experienced lover and that she was experienced in the zero gravity side of things, Grant and Marion had a very satisfying time.

Afterwards they floated together, still naked,

holding each other close for warmth. They both tensed at the same moment as they heard a loud tapping noise.

"What was that?" asked Grant.

"Someone wants to come in, maybe."

"I'd prefer it if they didn't."

Marion pushed herself towards the hatch when the tapping noise sounded again. This time they were both paying more attention to the direction, and looked towards the *other* window, the one looking out into space. A bulky white hand waved at them. The reflective faceplate of an EVA space suit drifted into view. Grant smiled and waved back. Marion scowled and quickly used a towel to cover herself.

The white hand formed a thumbs up sign, then both it and the helmet disappeared. Grant and Marion pushed themselves over to the window to see the where the figure had gone. They watched it approaching the central node of the space station.

"Who was that?"

"I'm guessing one of the building crew. They're out there all the time."

"How did he know to look in here?"

"The light. Normally one would be in here for a minute at the most."

The figure drew itself to a halt, changed orientation, then started checking some joints between the structural frame the central node.

They watched him work for a few minutes.

"What's in that module?"

"Nothing yet, but one day there will be a fly wheel. We're building it section by section. One day this space station will spin to produce gravity."

"Can't you just use thrusters to spin it?"

"We will, but the station will need to be stopped and started again when taking deliveries or adding new modules. Throwing reaction mass away is just a waste, and over time it adds up to a lot of weight and money."

"It all comes back to money."

"So with the flywheel we can stop our rotation by powering it up in the same direction. Then, when we want the rotation back, we brake the flywheel. It's heavy, but over time it'll save us a lot. All it takes is electricity, and we have plenty of that to spare."

"If the station is spinning, what will people do for

zero gravity activities such as... this?" Grant made Marion squeal.

"We're adding a large empty module to the axis opposite the flywheel..." Soon she could no longer concentrate. "Shall we cover the window?"

"No, just turn off the light."

24

Only the lonely.

Dana kicked the covers off completely and collapsed onto the mattress. Simon slowed his breathing and smiled. He'd been in this exact position twice before, but yet again he was amazed at the energy and excitement.

Dana stared at him with a slightly unfocused look

in her eyes.

"Fantastic... how did you know... oh my God..." She said the words between deep breaths. Simon put his arm out and she rolled against him.

"You were incredible." He'd said that the last time. Or had she? Simon wasn't quite sure. "I'd love for you to stay until tomorrow."

"There's no way you're getting rid of me tonight!"

"Can I get you a drink?" he asked.

"I'd love that, thanks."

He stood up and arranged the blanket over Dana's naked body.

"Do you want wine? Hot chocolate? Just water?"

"Water, I think." She closed her eyes and smiled.

Always the same smile, he thought.

Simon put on a dressing gown and headed for the kitchen. He poured two glasses of water and set them on a tray. The bed was empty when he returned, but he expected that. Dana glided back into the room and slipped under the covers again beside him.

"Save the water for the morning," she said, "I just had a drink in the bathroom."

She fell asleep within a few minutes.

He waited the usual hour and a half before taking out the implanter device. This time he hesitated. *Why do it now?* he thought. *Would Dana really mind if I spent some more time with her younger self?* He found her innocence appealing, and he always experienced a kind of perverse thrill when seducing her again. With other girls he'd never felt this way. Maybe it was because he had Dana's permission trick to her like this. Not this Dana's permission, but the Dana stored in the implanter's memory.

But he didn't hesitate long. He had the chance to do it now. Maybe he couldn't keep up the act long enough to be sure he'd be with her again as she slept. He didn't want to resort to stalking and sneaking into her bedroom at night.

Simon secured the implanter and pressed the activation button. He didn't need to be awake in the morning. Dana would have no questions this time, as she'd know everything already.

He fell asleep with a smile on his face. He'd been without her for almost a year. In the morning he'd have her back again.

*

Dana still slept when Simon woke the next morning. He reached over and carefully removed the implanter, kissing her gently on the forehead as he did so. She didn't stir so he left her sleeping.

Simon drank some of the water left over from the night before. He looked at Dana again. She seemed to be sleeping peacefully, but her head lay crooked at an angle. He decided to wake her before she developed a stiff neck. He shook her gently by the shoulder.

"Dana, wake up." She didn't. He shook her again. "Dana? Wake up!"

She wasn't even stirring, she just lay there calmly, with eyes closed and her mouth slightly open. He put his cheek next to her mouth and could feel her breath. He shook her harder, but she still didn't react. Finally he lifted her eyelids, one at a time. Nothing. Her pupils contracted in the light, but he saw no spark of life or intelligence.

She wouldn't wake up. Simon began to feel

scared. He looked at the implanter on the bedside cabinet. This couldn't be a coincidence. Something must have gone wrong with the memory transfer. He didn't know how wrong, but he feared the worst. He had no idea what to do in this situation.

After a few minutes he called an ambulance. The crew, when they arrived, were confused. Drugs? No drugs. Only alcohol. No, he didn't know her medical history, he'd only met her last night. No, he only knew her first name, and no, he didn't know her next of kin. No, really, no drugs that he knew about. She was just like this when she woke up. Or when she didn't wake up.

They took her to the hospital for more tests. Half an hour later he was talking to a police detective. Simon kept his story straight by sticking as close to the truth as possible. He told the detective everything that happened since they'd met the previous night at the bookshop. He said that any of the other guests would confirm that he and Dana hit it off and left together. He didn't, however, make any mention of the implanter, and didn't mention that his real name was Nicolas. Using future technology and techniques,

he'd inserted his Simon identity, along with many others, into all the relevant databases. He knew his identity would survive any amount of scrutiny by the German police.

Word came back from the hospital that Dana was in a stable condition, but an MRI scan showed irregularities in brain function. The doctors wanted to do further testing.

"If she dies, what will happen?" Simon asked.

"There will be a..." the policeman stumbled over the word, "...how do you say in English... an autopsy?"

"It will show we had sex."

"So you said in your statement."

"Am I under arrest?"

"No. But I'm going to ask you to stay in Berlin. And stay in touch. Just in case."

That afternoon, a young man named Julian left Berlin on a private flight to an unknown destination. Four days later the German doctors came to the conclusion that Dana's brain damage wasn't caused by violence, nor by any known drug. A week after that, without any outside intervention, her brain

function stopped entirely, and she died without ever waking from her coma.

Julian, when he found out, felt numb. He'd actually killed Dana. But, for Julian, that wasn't the end of the story. He still had the implanter and the data. He'd have to spend twenty years without her, but he, and Dana, had a second chance. Meanwhile, he had his own life to live, though now his life seemed devoid of colour and meaning.

Then, on a whim, he used his viewsers to analyze the Dana's scan data in the implanter. It took a long time to run the entire program. As a control, he also analyzed the his own scan data.

When the result finally appeared, Julian wept. The data files on both devices were an exact duplicate of each other. At some point, while copying files between devices, he'd accidentally swapped Dana's memories with his own. Ironically, because it had happened after his own brain scan, he had no memory of how or why he'd done it. By running an implanter containing his own memories on Dana he'd damaged her mind beyond repair.

Digging deeper, he found a huge amount of

unidentified data, which analysis told him were partially deleted and unordered segments of Dana's memory scan. So he *had* copied her file over, but somehow copied his own over the top of it. Nothing he could do now could make that data whole or useful.

His only option was to find Dana again next time and begin their relationship over again from the start... but he wasn't sure if he could love the young version of Dana again. He mourned the loss of the Dana who'd spent over sixty years by his side. How could he be with her again; he with so many memories of their lives together and she with none?

So he blamed himself. He blamed his own stupidity, both the stupidity of his older past self for an incident he didn't even remember, and that of his recent younger self for not checking the files before meeting the young Dana.

He blamed himself too much.

*

Julian came to his senses four months later. He'd

never had time for indulgence in narcotics before. The only reason he'd lived so long was by avoiding such risk.

I'm completely overreacting, he told himself, *Dana would hate to see me like this.*

Julian made a decision. This life he'd do all he could to change the world for the better. And not subtly this time, by manipulating financial systems, or by writing songs, or by reporting lesser covered news stories, or even trying to fight nature itself. No, this time he'd *be* the news. He'd get into politics and *really* make a difference.

Except, Julian knew, he could never be a politician. He'd work behind the scenes instead, and pick someone else to stand in front of the cameras and crowds. Julian knew just the person, a friend of his many times over. Andrew Gateman would need more experience, but he certainly had the organization and orating skills. Julian felt sure he could convince Andrew to do anything.

Changing the world would mean he may no longer be able to send his memories to the past, but he'd thought about that many times before. *It isn't*

suicide, he told himself, *I'll simply live to age fifty and beyond for the first time.*

Growing old wouldn't be a bad thing, and changing the world for the better, or at least as much of it as he could, would be the best way to remember Dana.

25

Something big.

"Andrew?"

"Julian. Something big. An incident in space. You always know what to do."

"In progress?"

"Yes, check the report on the internal net."

"I'm already there." Julian scanned the preliminary

report. A hostage situation on the Century Space Station. No definite identity of the group as yet. No demands as yet. "I'll be with you in five."

As he shrugged on his jacket he realized he felt quite nervous. Since the removal of the spyware from the viewsers there had been a tiny upswing in the number of terrorist attacks, but only small cross-border incidents of very little importance. This though, this was something new. In all of his previous lives nothing like this had ever happened in space.

Andrew had said Julian always knew what to do. The truth was that he only knew what not to do. This normally meant things that other people had done before, things that had ended in disaster. Learn from other peoples' mistakes. He remembered Ace telling him that. The thought of Ace also brought to mind Marion and the others he'd met on the CSS. Where they up there now? Were they involved?

"Got any new data?" he asked as he stepped into Andrew's office. Four other men stood in the room, including the head of MI5 and ministers from other relevant departments. Julian realized they must have

been informed before him. Andrew was relying on him less and less, which was a good thing. In a year Julian might be gone.

Well, not gone, I just think that way. The real me will still be here whatever happens.

"Michael, bring us all up to speed," said Andrew.

"Right, it began two hours ago," stated the head of MI5, "with a dumb booster launch from Kazakhstan. The payload was a scheduled delivery to the CSS. The station span down on schedule and they docked with no problems, about thirty minutes ago. The new module was meant to contain supplies and a new toilet. Instead, the station crew found four armed men."

"Armed with what?"

"Explosives. They said they'd blow themselves up if they weren't allowed free reign of the station."

"Great," said Julian, "fucking extremists. I thought these were gone."

"They were. Until you put a stop to the only surefire way of catching them."

"Gentlemen," Andrew interrupted, "I take full responsibility for that. Continue, Michael."

"They've crowded everyone else into section A and welded the hatches. Everyone's alive and unharmed."

"Are we in the loop on this?" asked Julian. "The United Nations has the final say in Earth Orbit."

"The heads of state from each country with a citizen on board the CSS are being kept fully informed. That means the UK, the USA, Canada, Brazil, Australia and Israel. To be honest, the UN seem to be dragging their feet on this one. Our ambassador in New York is getting nowhere."

Julian frowned. It wasn't a good time for global bureaucracies or diplomatic confusion.

"Can I talk to the crew?" he asked.

"We can get a patch through no problem."

"Do it."

Thirty seconds later Julian was face to face with one of the Century employees.

"James Truman here."

"Ace! Good, I know you'll talk sense."

"What? Who is this?"

"Call me Julian. I'm with the British government. We need more information. The hostage takers. Did

you see them?"

"Yes. But they had masks on and spoke only Kings English. I can't tell you where they're from."

"How did they move?"

"Move?"

"When they entered, did they all orient themselves the same way up?"

"Wait, let me think. No, they all faced in different directions."

"To keep track of you better. Did they seem uncomfortable in zero G? Did they move easily or clumsily?"

"They moved smoothly."

"These are professionals, not extremists." Julian was thinking out loud, "They probably don't have real explosives, they're just trying to pass themselves off as suicide bombers. Which is both good and bad. They probably want something on the station and have an escape route planned. Where are they now?"

"Section C, I think."

"Do you have anything valuable in section C?

"Not that any off us can think of."

"The largest inwards facing airlock is in section C,

right? Is there anything outside that they might want?"

"I'll have to ask the building team."

"You do that." Julian looked around the room. Everyone was looking at him strangely. "Once we find out what they're looking for we'll know who we're dealing with."

"You know a lot about the CSS," accused the Foreign Secretary.

"I checked the plans on my way over," Julian lied.

"Julian, it's Truman. The building crew can think of nothing. This is a glorified floating hotel. The real valuable stuff is over at the ISS. But you must be on to something, we checked the port holes and two of them are going EVA."

"What can they access by EVA but not internally?" asked Julian. "The panels? The dishes?"

"They're heading for the central module."

"The flywheel? And the batteries? The zero G room?"

"And our backup water tanks."

"Keep us updated."

Ten minutes passed while the other ministers

discussed various courses of action. Negotiation seemed off the table as the hostage takers hadn't contacted anyone or laid out any demands. The other options weren't even worth considering, in Julian's opinion. Sending up a special forces unit? What kind of unit? And how long did they think it would take to find and prepare a human-capable launch vehicle? Send a team over from the ISS? In what? The old NASA shuttle they kept there? And who would go?

No, the attackers would have considered all this. Whatever they wanted to do, they would finish with plenty of time to spare.

"Julian?" It was Ace.

"Talk to me."

"There are three outside now. One is attaching something to the central module, it looks like a booster and a guidance rig. They must have brought it with them. The other two are unbolting the central module from the support structure."

In a flash Julian saw what they planned. He turned back to the ministers in the room. "They're after the solid weight. That flywheel weighs maybe twenty tons. They're going to drop it from a great

height." While he spoke he opened up more information on the CSS, and projected the display onto a shared screen. "Somewhere along its path there's something they want to hit..."

He stopped speaking and zoomed in on a red line that indicated the path of the CSS during its next full orbit. It followed the same orbit as the ISS, with an inclination of fifty two degrees. "Fifteen orbits a day. That means we have about an hour and a half..." Julian thought back over to list of nationalities on the CSS. One stood out in his mind over the others. He put his finger on the map. "This is the target."

"Jerusalem?" asked Michael.

"I'm thinking Tel Aviv. It's a more populous city."

"Good work, Julian," said Andrew, "I'll make the call myself."

"Tell them to evacuate," said Julian, cutting to the heart of the problem.

"Evacuate where?" asked Andrew.

"Tel Aviv."

"There are millions of people in Tel Aviv!"

"They need to move out."

"You're saying they are going to drop something?"

asked Michael. "Why don't we use the Star Wars system to knock it out the sky?"

"Didn't you hear me? That flywheel weighs twenty tons. It's a disk of solid steel. It'll be coming in at five or six kilometers a second. We have nothing that can stop it. It will drop from the height of three hundred kilometers, that's about three times the ceiling of the current anti-ICBM system. And when it hits it'll release what I can only describe as a shit-ton of energy. If it hits solid ground it'll release the same energy as small, strategic nuke. It'll flatten half a city district, and maybe create an earthquake. But the terrorists don't even need to hit Tel Aviv, they just need to drop it a few kilometers off the coast. The resulting wave will drown the city. We need to start moving people. Right now."

Andrew spoke up. "I trust Julian. We need to take this seriously." He walked to the far side of the room and made the call. The other ministers in the room began making calls of their own.

Julian reconnected to the CSS. "Truman?"

"Yes."

"Any way you can stop them?"

"I can't breathe in a vacuum, and even if I could, there's no way to get out there from here. The module is completely detached now. Let me show you."

Ace switched to his viewsers' camera feed and looked out the window, just in time to see the booster attached to the module fire. It quickly accelerated away, though Julian knew it was actually slowing down compared to the CSS. He requested and received radar tracking data. The flywheel module now had its own red line extending out beside that of the CSS. As he watched, it changed. The far end faded to a dotted line and stopped at a point over the Indian ocean, showing the projected impact location.

Over the next few minutes the line slowly shortened as new radar data came in. Julian frowned as the dotted line receded past Israel, and kept reducing in length.

"There must be another target," he mumbled, and followed the line further back. He noticed the red line fell directly across a city at the northernmost point of the CSS's fifty two degree orbit. Julian

clapped his hand to his forehead.

"Andrew, tell the Israelis not to worry," he said, cutting off all other discussion in the room, "but we now have less than thirty minutes. The target is here. The target is London."

*

Ground based radars and cameras in orbit tracked the flywheel all the way down. Once it hit the thicker atmosphere it would only take six minutes until impact.

What looked like flames built up around the leading surface as the air compressed in front and the friction increased. The high spin rate kept the solid disk completely stable as it fell, and the wide profile kept the trailing side from the worst of the heat. So protected, the attached guidance module finessed the flywheel's course for a surprisingly long time. But eventually that module burned away completely, and the flywheel fell without any further guidance.

Unfortunately for the target city, the initial boost and the corrections that followed meant it fell with

an almost perfectly trajectory. The glowing streak in the sky pointed directly at the southeast of England, at one of the most populous cities in the world.

It didn't happen very often, but it was Israel's lucky day.

Two intercept rockets reached the flywheel above the north Atlantic. One missed completely. The second made a direct hit. Whoops of joy filled the North American Air Defense Center, but they died down as the flywheel continued along its previous course with no deviation. No other rocket stood a chance of flying so far so quickly.

The Chinese military turned on a powerful orbital laser. The energy beam also had zero effect. Heating an already red-hot piece of solid steel achieved nothing, aside from exposing the secret of the laser itself.

The flywheel appeared in the sky over London just seconds before it hit. Whether the attackers intended it or not, the Great Britain Tower, the tallest building in London and the second tallest in the world, became ground zero. The tower was designed to withstand hits by aircraft without collapse, but

nobody had planned for something as dense as solid steel impacting the structure at such high speed.

Due to its efficient elevator design and open access to the stairwells, the building was completely empty when the flywheel struck. It hit the forty third floor. The building had four central load-bearing cores, any one of which could fail and leave it standing, and hopefully be repaired to full strength. The flywheel passed directly through two cores, and out the other side. Most of the energy was absorbed by the building itself. A shock wave passed up and down the structure such that not a single pane of glass remained intact. The flywheel disintegrated as it hit a second empty skyscraper.

The tens of thousands of people who had evacuated the Great Britain Tower stood in the streets and plazas below. Dozens of people close to the building were killed by falling glass. The rest surged away from the building, fearing the worst. The inevitable held off for almost seven minutes, by which time the area was deserted. The two remaining cores gave way simultaneously, and the building collapsed.

It once stood over nine hundred meters tall, and so when it fell sideways it took out five other buildings. The dust cloud filled the sky for hours while the rescue team rushed in to find survivors. The vast majority of people had been wearing viewsers, so hundreds were found alive within the first few hours. That evening, when the emergency services released the initial casualty figures, the nation and the world came to terms with losing four hundred and twelve people, the largest loss of life in a single terrorist attack in decades.

Meanwhile, the Space Terrorists, as the world immediately named them, tucked themselves into a emergency re-entry capsule. Less than ten minutes after they'd set the flywheel on its fateful journey, they'd detached from the CSS. They stayed in orbit for another half an hour, then descended over the pacific. UN security forces went to pick them up, as they had jurisdiction in space-based criminal activities. Even though radar tracked the capsules all the way down, there was a delay by the UN helicopters in reaching their landing site. The capsules were found floating in the open ocean,

empty of terrorists.

Without direct evidence of any involvement by any known terrorist organization, seventeen tried to take direct credit, each one explaining why their group felt the need to attack London.

*

Julian mourned the loss of life. If it hadn't been for him, the attack would never have taken place. In any previous life, at the first signs of someone planning such an attack, a call would have been made to stop it. But Julian had pushed to change everything. He'd put Andrew in power, a leader who valued freedom over personal risk as much as Julian himself.

Had his meddling directly caused more suffering than improvement in peoples' lives? He grappled with the question. He told himself that in the future the viewsers snooping technology could have been used for something far more destructive to humanity. *But it would happen after I sent my memories back,* he thought, *so I'd never have known.*

Another thought hit him. He'd been keeping track of certain technologies and events, the deciding factors in a successful return of the implanter device. They'd all been on track until that very day. He imagined this would be the end of it for sure. In this life he'd managed to wield enough power to *really* knock the world off track.

But, maybe, he could use the same power to make sure everything would still happen on time. He'd have to look into it.

"Julian?" Andrew's face showed up in his viewsers. Julian was startled by the call, and felt disgusted that all he could think about was his own continual survival. Wasn't he meant to put the lives of others above his own this time round?

"Andrew," he said.

"The big story is about the cracking of the target and the method of attack, and how the answers came from our office! The press can't get enough of the smooth evacuation of everyone from buildings to the streets. It showed true leadership apparently, and the loss of life is tiny compared to what might have happened. This isn't going to look too bad on us."

"Isn't going to look too bad on *us?*'"

"Well, too bad on me, I took full responsibility."

"That isn't my point. When you exposed the viewser spying you knew something like this could happen, and you accepted it. Why should you care what looks bad now?"

"I'm here to do good, remember. I can't do that if I'm forced to resign."

"The means justify the ends?"

"What?" Andrew sounded shocked. "I didn't order those men to attack us! They're the ones responsible. I've done nothing I'm ashamed of, and I'd do it all again in an instant. Why should I be made to look bad?"

"All leaders believe what they do is right. Sincerely."

"I know my history," Andrew said.

"Not all of us are that assured of our own decisions."

"Why do you keep pushing me? Do you really want to fight right now?"

"Wait, you have me wrong. I'm having doubts in myself, not you. You think you did the right thing,

and I believe you did. I'm just scared of my own actions."

"What are you trying to say?"

"I want less power, Andrew, and less responsibility. I've become cynical of my own influence on you. I've advised you closely so far, but I want to take more of a back seat role."

"But you saved us all today. We called you in because you always seem to see through problems in a different way, like the best route is set out in advance. And today you did it again. You're a step ahead of everyone, even our experts."

"Today was different. I actually *was* working the problem out from scratch."

"What do you mean?"

"It doesn't matter."

"Fine! Be enigmatic again! But you're going nowhere. I need you too much right now. What am I going to say when they want another statement from me? I need you here to tell me."

"I don't know, alright? I've no idea what to do in this situation! I feel bad... and you don't! I feel like this is my fault, and you're fine with it. Necessary

costs and all that. Collateral damage. You seem to care for this world more than I do, so you should know how to speak to it."

Andrew sneered at him. "Stop feeling sorry for yourself. Keep on like that and I'll come over and punch in your teeth. We've all got work to do, and you'll pull your weight, Julian. We're in this together. Nobody is so important they're responsible for saving the whole world."

"I hope your words are true."

"They are. Now, what do I tell them out there?"

Julian held up his finger and thought for a few seconds. Andrew waited patiently.

"Ok," Julian said at last. "I'll help you if you promise me that after this, once a path is clear, in maybe six months, you'll let me drop back. Let me be the science minister or something easy."

"Sure."

"I'm serious."

"Ask me again in six months. You'll be fine. You'll see we're a great team."

26

This time.

"Yes?"

"Is this Professor Banks?"

"Yes."

"I'm Julian Turner, from the office of the Prime Minister. Here's my authentication."

"I know who you are. What can I do for you, sir?"

"You have an experiment that's due to take place next year. I need to know if it's still on schedule. I see here you've mentioned some delays."

"Well, yes. There have been no technical delays, and the construction of the Casimir machine is right on schedule. But we're worried about security, for

obvious reasons. We're thinking of postponing the experiment until we can find a way of showing the event live without the security risks."

"This is what I gathered. However, I believe basic science is one of our most important pursuits. The Prime Minister thinks the same, and we want to prove that point. We want to show that nothing any terrorist group may do can stop us... can stop what we want to do as a country. For every project like yours that's delayed, the terrorists win a small victory."

"I understand, sir."

"So let me propose this: I'll personally take charge of security matters and provide, literally, the best security you could possibly hope for. All you need to do is continue as scheduled."

"I think we can come to some arrangement."

*

Julian stood in the control room looking at the Casimir machine. He'd been there many times, but never in person on the morning of the experiment.

Or not that he could remember.

Professor Banks sat in his usual position. Christine, his usual point of contact, sat three seats down, controlling the delivery of data feeds to the accumulated press.

The first time Julian had returned his memories he'd been working in the building, but not really *in* the building, for months beforehand, and had gained access that way. The next time he'd used the same knowledge, plus a large investment in a team that could hack the security and the robot control feeds. He'd only needed to put in so much effort those first two attempts, and every time since then he'd used the same techniques, with small variations, over and over. Step one, compromise the security feeds. Step two, get the packages inside the building, something he'd managed in numerous ways. Step three, control the handler robots and deliver one of the packages.

Or at least, that's how he presumed he'd done it. The fact was he had no memory of any of this. His memories had to be scanned in advance of everything, so every single time he was flying blind, entirely outside of any previous experience.

And yet, here he stood, the memories of countless years contained within his brain. So far he had a success rate of one hundred percent. Logically, he must have had.

This time his memories had been scanned a few days in advance, as normal. Yet he knew he'd be in the building on the day, so the usual plans had been modified. He'd arrived early on the morning of the experiment and ordered the building searched. He then set up a security detail around the whole area. Nothing and nobody would go in or out, and the security personnel, with their specialized robots, would remain outside of the building completely. The scientists and technicians could get on with their work undisturbed.

This left him inside the security perimeter, free to control the handler robots as he saw fit, free to stay in the control room if he so wished. It hadn't taken long to order the handlers to where he'd left the modules in the prep room. From where he stood in the control room he could look through an adjoining door and see the airlock.

Julian watched a timer count down to the start of

the experiment. Professor Banks counted along with the last few digits and activated the Casamir machine.

"... All stable," Banks said. "Next phase. Collapsed. All internal systems optimal..."

It surprised Julian that the machine didn't change or move or hum or vibrate or flash orange lights. He knew that would be the case, but for such an important experiment he'd expected some kind of physical drama.

"Next phase... collapsed. Everything looks perfect. Final phase... collapsed!"

Immediately Julian felt a massive headache and his stomach turned over. His eyes blurred. He saw Christine faint and slump forward onto her console.

"What's happening?" he demanded.

"Some kind of radiation," cried Banks, "something isn't right. Something..." Banks went silent as he noticed the skin on the backs of his hands turning grey, then deeper until black streaks covered his skin. Julian looked at his own aching hands and saw small blisters breaking out in some kind of black rash. He heard someone vomit. Julian tried not to look at how much blood also splashed

onto the floor.

He felt a sudden pain in his abdomen. Whatever the cause, it felt serious. It occurred to him that he might be dying.

"We need to..." Banks started, then stopped to catch his breath, "We need get the probe in there." He started the procedure to insert the probe.

Everything in Julian's body and brain screamed for him to shut the machine down, or to tell Banks to do so. Everything, that was, except for one tiny part of his mind that stood at a distance, like some kind of uninvolved observer. That tiny part of his mind became louder and more insistent.

"You can't stop it yet," it told the rest of him, "your package must be delivered."

"But I'm dying!"

"The younger you will continue."

"That doesn't make me feel better."

"You're immortal."

"Everyone else here is dying. Wait... you are me. I'm talking to myself."

"Just stay uninvolved and everything will be fine. The handler will do everything from here."

"Does this happen every time? For every new life I've lived, everyone in the building dies?" Julian tried to check the feeds from the outside. As far as he could tell, everyone else in the vicinity was experiencing the same thing to varying degrees. "Everyone outside dies too?"

"Except you. Just let the handler send the package."

"I've got to warn... I've got to warn myself!"

It only took a split second for the conversation in his head to play itself out. He shook his head, trying to keep the delusion at bay. He took a pen and a Post-It note and scribbled some words as fast as he could.

Julian lurched into the prep room and hit the airlock cycle button. It buzzed and a sign flashed: "Waiting." It felt like an eternity, and Julian almost blanked out at one point. The door opened, he stepped into the airlock. The air was quickly pumped out, and he felt further bruising of his skin. The change in pressure was as unbearable as his experience in the tsunami. His ears popped and his head ached, but this time the pressure was internal,

not external.

He had to wait another eternity, actually just three seconds, for the inner door to open again. He stumbled forwards and slapped the Post-It note to the end of the probe as it slid into the Casimir machine.

Freezing and suffocating, Julian collapsed onto the floor and vomited. He noticed half of the vomit was blood red. Or just blood.

"I did the best I could."

"You did fine. You'll get the note."

"I hope I understand it."

"At least we now know why nobody else has sent anything back in time. If it's this dangerous, it'll banned from now on."

"I hadn't thought of that."

"You just did. I am you."

"My head hurts." Julian could no longer see or hear anything. Nor feel or smell anything. He existed only as a series of thoughts and emotions.

"It will end soon."

"Thanks. It's good to have company at the end."

"No problem. Maybe next time you won't kill

Dana and she can be with you too."

"Next time this won't happen. I'll stop the experiment. My next life will be my last."

"If you say so."

"I just have to trust in..."

27

The beginning of it all.

Nick didn't see the flash above and behind his head, just the reflection off the walls. He turned his head quickly enough to see some objects falling from near the ceiling towards the floor.

"What the hell?"

He leaned over and took a closer look. One object was a small case of some kind. The other was long

and thin with three prongs at one end. A piece of yellow paper with a scrawled message was stuck to one side. The handwriting looked vaguely familiar.

"Cas mach = deadly radiation!!! Investigate!"

Nicolas was confused. *What the hell is cas mach?*

He looked up at the ceiling and frowned. Next he took a few moments working out how to open the case. Inside he found a few objects, including a pair of glasses with another note attached. This one read "Urgent! Put me on right now!" He shook his head, not knowing what to think. He put the glasses on anyway.

"Nick, I'm going to save your life. If you want to live, listen to me. These glasses contain a computer..."

*

Julian woke the next morning.

Wait, he thought, *not Julian... Nicolas! I'm Nick again.*

He put on his viewsers, said the password, and opened up his "to do" list. It felt good to have new goals in life, especially when you covered more old

ground than a hungry Ouroboros.

"Priority one," it read to him, "reveal UN spyware on viewsers before the technology is introduced. Priority two, take controlling interest in space technologies to stop attacks from space. Priority three, discover who might be behind the space terrorists and why they attacked London."

The time between revealing the UN spyware and the massive attack on London had been under a year. Six months without surveillance, and the world reverted to that kind of violence. Maybe the world *needed* watching.

Maybe the watchers needed watching. Maybe, this time round, that could be Nick's role in life. Let the UN continue to spy, to keep the world safe from large scale attacks, and Nick could keep the world safe from abuses of power at the UN. It might even work.

This is either me taking more responsibility than ever, he thought, *or me taking as little responsibility as I possibly can.*

Either way, now that Nick had the schematics and protocols for the viewser spyware, he could get

access to everyone in the world and nobody would know. Or he could do it in the future, once viewsers became ubiquitous. It was a lot of power.

But if anyone can cope with that power, it's me.

After the attack on London, Nick knew he was capable of making his own decisions, not just relying on options he knew had worked before. He'd learned enough from the mistakes of others, and just as much from his own mistakes. Oh, he knew he'd make more mistakes in the future, but he was the least ignorant person alive when it came to what might happen when choosing between different options.

And yet... and yet he knew he always felt invincible in his younger body. Was this just his youthful personality and hormones taking the lead again?

As the older Julian, just a few days before, he'd reached a different conclusion entirely. The "to do" list showed that clearly.

Nicolas looked at the Post-It note again. It now made sense. "Cas mach" obviously meant the Casimir machine. "Deadly radiation", whatever it referred to, didn't look good.

"Delete to do list. New list. Investigate Casimir machine. Talk to outside experts to check for safety."

But that could wait. He had twenty years before he need worry about anything. First he'd establish a new life for himself. First he needed a new identity and some spending money.

"Open file ID runner. Create new identity. Name: David Roundtree. "

Author's Note.

Non-linear.

I wrote the first two attempts at this novel in traditional linear style, starting with the university

bedroom scene and moving on from there. Both times I got about four chapters in, and then sort of faded out. Trying to write about someone who intentionally removes himself from society didn't make for gripping material. Then I read and reviewed Use of Weapons by Iain M Banks, and the idea of non-linearity jumped out at me. My story involves time travel, one of the oldest and well-worn science fiction tropes, though I hope I've explored it in a new way. Surely this concept should lend itself to writing outside the constraints of time!

Again inspired by Use of Weapons, I reformulated the story as a mystery. Try not to spoil it outright if you review it. From those who have read this novel twice, I've learned that it is just as enjoyable the second time round, if not more so, as dots are connected and subtle references are newly discovered.

The upshot of this is that, for those who don't want to read the novel twice, some plot and timing issues can be a bit tricky to follow. It's maybe a bit of a dodge to lay out the Nicolas-Perspective-Timeline in an appendix, but that's what I'm about to do. If

you don't want it handed to you on a plate, skip forward.

Chapter by chapter:

11 - The beginning of it all. Nick thinks he just survived a plot by some unknown conspiracy. Decides to leave the country.

9 - Wave goodbye. Nick narrowly survives a tsunami.

2 - London without signs. Nick assumes the name Gregory, returns to England.

13 - Job hunting. Gregory returns to his old university town. Gets a job.

16 - Discoveries. Learns that scientists don't know everything they think they know.

19 - Have a plan. Sends his memories back in time.

20 - The beginning of it all. Reloads memories. Second life begins.

3 - Winner. Uses his new knowledge for winning large sums of money.

4 - A new friendship. After a few lives, Nick realizes that passing off inventions as his own is

profitable and shows himself to be more clever and interesting than he really is. Meets Andrew Gateman, who he will befriend in many other lifetimes.

10 - Otis. Promotes mundane, specialized ideas that will be invented anyway, discovers the speaking talent of Andrew. Reveals to Jennifer that he has taken many different identities.

7 - Exclusive interview. More lives pass. Nick gets sick of staying out of sight, so passes off other people's music as his own. He experiments with changing history more and more, knowing he'd be happy with his rock star lifestyle if time changes too much.

15 - Blast off! Nick fulfills a long term dream... space flight!

23 - Zero gravity. Sex in space. Who wouldn't?

1 - Sid leaves Jade. More lives pass. Nick is struggling to find direction. Meets Dana.

5 - Good works. Works with Dana on non-mundane inventions of his own devising.

8 - Good works? It turns out his own ideas aren't that good. The tsunami happens anyway, months too early. Removes himself from the world stage

completely, in an attempt to get the world's timeline back on track. This way he can start a new life in a world where he isn't responsible for the many thousand deaths.

21 - Only the lonely. Sends Dana's memories back to spend more time with her. Tells Dana the full story, the first time he's ever told anyone the truth.

24 - Only the lonely. After another few lives with Dana, he accidentally wipes her mind. Decides to stop playing about and make a real difference.

14 - Stunning election win. Befriends Andrew once more, put together a political program. Uses knowledge of scandals and corruption to help engineer victory.

18 - National security briefing. Finds out that viewsers are not the benign technology he first thought.

25 - Something big. Uncredited terrorist attack on London.

26 - This time. Pulls as many strings to once again go back in time.

27 - The beginning of it all. Finds out that the Casimir experiment might be highly dangerous.

Doesn't realize how dangerous. Takes the name David.

12 - Paving the way. Under the name David, decides to control space flight, hoping to prevent further space terrorism.

17 - Breaking news. Uses viewser spying protocols to play with both bankers and bank robbers.

6 - I think, therefore... as usual, Nick makes sure all the technologies are in place to continue his semi-immortal lifestyle.

22 - Reset. Nick laments losing muscle memory.

Wide ranging.

The novel ends with a few questions unanswered, and a number of ideas raised but not fully explored.

You can read the next part of this story in Combat, which features a new cast of characters,

with Nicholas only appearing as a mysterious minor character.

The third novel, Broken Glass, completes the story of Nicholas, and answers all the questions you may have at the end of Minding Tomorrow. It also ties in the events and characters in Combat.

Get That Rat Off My Face! is also set in the same universe, features one of the characters from Combat and Broken Glass, though in timeline where his story doesn't intersect with this series.