

## Chapter Fourteen

Standing outside Winchester train station just before 9pm on a warm Saturday night was more rewarding than Carl would have expected. All sorts of interesting people, dressed both up and down, were coming into Winchester for the night life or leaving for Southampton or London. His gaze was attracted by a lithe young woman getting out of a car. The woman had fine blond hair falling down her back, and wore tight fitting black trousers and a revealing white top covered over by a minimal cut, pink leather jacket. As she came away from the car he realized she was heading his way and for a moment he wondered if his interest had been too blatant. His embarrassment rapidly faded before taking on a new air as he realized that the woman was WPC Thatcher. As she came up to him he noticed she had subtle traces of eyeliner that hinted at a heroin chic look. She looked much younger without the authority of her uniform. She smiled as she approached apparently seeing the slight confusion in his eyes.

“Do I scrub up alright then?” she asked cheekily.

“Um, Yeah. You look great.” In fact thought Carl she looked just like all those girls in nightclubs dressed to drain the ability to speak coherently from men. He’d never been able to cope with such hostile mating environments. The WPC seemed pleased with his response though. “I don’t think I’m going to be able to call you WPC tonight.” he observed, “Is Louise right?” She smiled and nodded.

“Come on then let’s make tracks.” She turned and headed back to her car parked on the curb. The vehicle was a sky blue family car with a child seat in the back. There was an associated menagerie of attached soft toys including a large koala bear. Catching the direction of his gaze she smiled and acknowledged, “Not super cool I’m afraid.”

The car smelt faintly of the WPC’s, Louise’s, perfume. Carl hadn’t really thought about dressing up, he was just in some old jeans and a dark blue sweatshirt. This wasn’t a date though. Absolutely it wasn’t, Carl reminded himself. This week’s track record with women was bad enough already. The policewoman moved the car out into the road and started to negotiate the one way system in search of entry onto the M3 motorway.

“Are you still happy to be doing this?” she asked seriously. “We’re probably not going to find anything out, you know.”

“Yes I want to,” he replied. “Helping investigate seems like a good way of coping with Andreas’ death still.” She seemed to accept that and the conversation tailed off. He couldn’t think of anything smart to say but the silence was awkward, so he asked about her child.

“She’s just over two, called Chloe. Tiring, but great fun too. Well, if you like singing nursery songs and banging things together,” she smiled.

“Not sure I’m at that stage yet,” admitted Carl. At University the only acceptable posture was anti-children and since then he’d been thinking physics and career.

“You’ll see; when you reach thirty, jobs suddenly seem to look endless and repetitive. You’ll swear you’ve seen the latest Hollywood film before, and be bored of eating out. Suddenly the chance to have a family as a new adventure is appealing – it’s like a chance to fall in love again, too,” she glanced across at him and obviously didn’t think he looked convinced, “Well, you’re a bloke, so maybe thirty-five!” Carl considered pointing out that the last woman he’d spoken to had thrown a bottle at him and other prospects looked a little low too. Louise’s mind had taken a different track though in the pause,

“I read somewhere that people are worried your particle accelerators might cause the whole Universe to end,” she remembered with furrowed brow. “Is that possible?”

“No!” Carl shot back. This was a standard media scare story that had little merit. “That’s like a caveman worrying about whether he should light a fire because the whole world might burn down!”

“Is that an unreasonable thing for a smart caveman to worry about?”

“Yes, it is – there are bigger fires in nature from lightning strikes and volcanoes than a caveman is ever going to manage. It’s exactly the same with our experiments. The Universe is full of lots of hugely high energy particles. They probably get accelerated by black holes or supernova or some such. There have been cosmic rays that have struck the Earth’s upper atmosphere with energies millions of times more than man has ever given to a particle! Collisions involving those reproduce experiments we can only dream of.”

“Why don’t you use those for your experiments then?”

“They’re too rare – you could never get enough of them together. We have to analyze billions of interactions to see all the rare collisions we’re interested in. You’d have to make them collide right in the centre of a detector too. There are a lot more low energy cosmic rays, so those were used originally to look for new particles – the muon was found by a detector in a balloon for example.”

“So the Universe is safe in your hands?”

“The idea is quite fun actually. The whole Universe could be stuck in a high energy state. Think about water running off a mountain. If there’s a local dip you get a tarn forming. Really the water wants to run to the base of the mountain but it gets trapped by a local hillock. So it could be that all the matter in the Universe could transform some way and give off huge amounts of energy. It just doesn’t have the kick needed to get over a local hill that’s stopping it. So maybe a particle interaction would put enough energy into some region of space to get it out of the dip. That bit of space would then give off energy and trip the neighbouring areas into collapse too. A wave of energy would rush out at the speed of light and the Universe would disintegrate!”



“Cheery! But since it hasn’t happened out near a black hole it’s not going to?”

“Yep. Actually you can constrain theories by the fact it hasn’t happened. For example if the Higgs were too light, then there would be a lower energy state with, as it happens, no limit on how much energy it can give out. So the Higgs has to be more than about 100 times the proton mass.”

They had reached the southern end of the M3 and they began to concentrate on reading the sign posts within Southampton.

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The route through town to the Southampton docks seemed overly complicated but the WPC knew at least roughly where she was headed. They emerged several minutes later on a road along the dock front. A big modern barn promoting itself as the portal to the Isle of Wight, from which the ferries left, dominated the waterfront. Suddenly there was a parking sign and they veered off into a half empty pay and display carpark.

Carl had never been to this end of the city. He had visited the shopping mall in the centre of town but had never heard of Southampton as a tourist centre. He was rather surprised therefore to see great chunks of medieval wall enclosing the city. The flat land at the base of the walls with the docks and car park were presumably land reclaimed from the sea.

“The Ferry pub is up that way, a short walk,” the policewoman indicated. She was pointing up a street that penetrated through the walls. “I’ve never understood why they don’t make more of this end of town. A few shops like the Lanes in Brighton might tempt the ferry passengers to actually spend time here. As it is it’s a bit grim though, especially at night.”

They soon found the pub they were after, a hundred yards in from the wall. The interior of the old city was a little confused with black and white board historical houses, the bombed-out remains of a cathedral and more modern “magnolia” apartment blocks randomly intermingled. The pub was part of a terrace of older buildings though not of notable age. Inside seemed pleasant enough, if suffocatingly smoky. There were the usual array of green upholstered seats and stools, dark wood tables and flashing games machines. The clientele were an assortment of older men, sat guarding their preferred seats, and younger mixed-sex groups standing, most likely stocking up on drinks and perhaps drugs before heading for the city centre nightclubs.

Carl bought drinks at the bar. Did the WPC normally drink alco-pops or was she playing a part he wondered? After he'd taken a sip of his beer he concluded she might just have tried the bitter here before. He settled on a stool next to her against a back wall.

"Thanks," she said as she took the glass. "Not that we should really be giving them money. I've seen two guys selling drugs in here already. They should be closed down." Carl was surprised, he'd not even thought to look for illegal activity yet,

"Really? I'm oblivious!"

"Keep it that way. Naivety is rather knocked out of you in my line of work."

"You're strongly anti drugs then I take it?" Carl was surprised how black her looks about the subject seemed.

"I've seen what they do. In fact you'd be horrified how much of the crime in this country is driven by drugs." Carl had more liberal leanings. He wondered if he should push the matter but they had to talk about something,

"I've always thought it was obvious drugs, all drugs, should be legalised. If you've got a good argument for why people shouldn't take them, then use it, don't make up a law. If they were legal you could tax the sale to pay for treatment for people too. And also, it's ridiculous the way we tromp into Afghanistan and so forth and beat up on very poor farmers, removing their living, when we can't even win the argument for not taking drugs back here." He got a pretty matronly look for that from his companion.

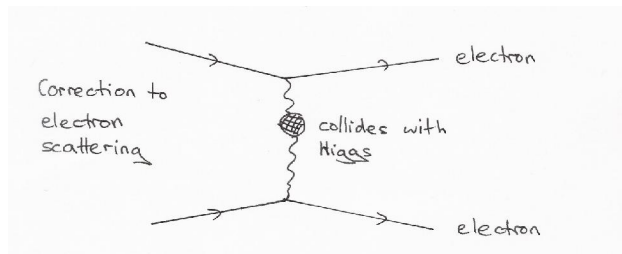
"Well maybe you're right, but can you convince the US and EU governments all to change tack? If you don't do that, you can't change the law. Given the law is what it is, these guys selling are the worst sort of scum. There aren't enough treatment programs, there is no monitoring of quality or the amounts people take. So they're profiting from deliberately inflicted misery. You can come with me some time and visit a mother on a housing estate to tell her that her son is dead of an overdose and was found lying in a pool of excrement some time if you like!"

"OK, I give in."

"Sorry, I'm becoming boring middle class Mum." Carl smiled and she grinned back. He realized he'd got out of the habit of going to a pub with just a female friend; he and Sasha tended to stay in, since they saw each other so infrequently. He wondered if Louise was thinking the same thing. She started up again with a physics question though, so perhaps she was just working.

"This Higgs is heavier than one hundred proton masses then. Could it be so large you'll never find it?"

“Well it depends what you think you’re going to find. There have been some very precise measurements of the interactions of two electrons. Because of the Uncertainty Principle very occasionally the Universe can borrow some energy and make a Higgs in between the electrons – it disappears again very fast. That changes the way the electrons interact though.”



“It’s a very small effect but with sufficiently precise measurements you can see the change. Using that technique we predict that the Higgs is no more massive than about 200 times the proton mass. That number depends on there only being a Higgs we don’t know about that might appear between the electrons though. If there is other stuff, which maybe there has to be, then the measurement is a mixture of lots of effects and it’s hard to tell what it means.”

The WPC nodded thoughtfully. Then she drained her drink and looked like she was getting ready to act. She turned a stern look on him again,

“I’m going to go talk to the pushers at the back by the pool table. You sit here and keep an eye open. Don’t stare though.” She dug into her pocket and pulled out a mobile. “If any trouble starts ring 999 but you’re not to get involved. Agreed?”

“Are you planning on starting a fight?”

“No, I’m going to try vapid.” She put on a slightly goofy smile that was a pretty good vapid and headed off.

Carl watched her walk over to the tables and wondered if the Winnie the Poo sticker on her mobile was the real Louise. Did she think he didn’t have his own mobile? He had switched it off this evening so Sasha couldn’t interrupt – one thing at a time. Louise had latched onto a pair of large guys doing the American pool player look with tight jeans, stubble and grubby baseball caps. At first they didn’t look pleased to see her but she kept her eyes down, flashed some winning smiles and twisted her hips; an awkward attempt at sexy. They seemed to buy it and she soon had four guys gathered close, offering up their own jokes and talking. Carl suspected they would have been somewhat alarmed to know who they were really hoping to bed down with. One of them already had an arm round her shoulder. The pushers’ designs were somewhat blatant but Carl couldn’t help envying how unembarrassed they were by their attempts. He would have been tongue tied by the horror of his own actions.

Carl was beginning to wonder if the WPC knew how to extract herself from the company she had so ably entered. Suddenly though they moved away still smiling but clearly decided to get back to their pool and she turned to head back towards Carl. She must definitely be on top of nightclub interaction rules he thought. Her walk back to him was purposeful and he didn't get a smile.

"Neatly done," he complimented. "Did you learn anything?"

"Well, I take some of it back – those guys only have grass. The landlord kicked the lot selling harder stuff out when he found out what they were up to. Apparently that crew now hang around near one of the watch towers in the old wall to sell. Nobody here was offering to escort me to them though, in fact they dropped me like a stone when I suggested it. Probably these guys run a mile from the real gangs."

"Down to the wall then?"

"How about another drink, to give me a chance to work up my courage again?"