

## Chapter Seven

A late night dinner with Chief Inspector Bothridge of the Winchester police had been in Geoffrey Montford's diary for several weeks. They were supposed to be liaising over security for a street science festival. The previous day's events were foremost in their minds. Geoffrey cautioned himself against the thought that the meeting's timing was 'lucky'. He was also careful to let the Chief Inspector broach the issue first.

Bothridge was of a square build, with an expanse of chest that seemed designed for the display of medals. His light blue eyes had an appropriate steely character that must also have helped his rise in the ranks. Age was only reflected in his face through deepening jowls. When out of his regalia, on occasions such as this, he was a perfectly pleasant companion – sharp and intelligent but not bullying. He was quick to dive in to the matter on both their minds, only pausing to order a bottle of wine from the restaurant's waiter.

“The Phi was supposed to spiritually and intellectually enrich Winchester not provide us with sinister sounding stories for the news broadcasters wasn't it?” he began. Geoffrey winced in sympathy with the thought. The local television news reporter had tried his utmost to hint at dark goings on at the Phi though he had only had the bare facts of the case to report. Geoffrey was glad he had declined an interview.

“Your woman who spoke to me gave the impression the case was just an unfortunate accident. Has that changed?”

“No, no - drug overdose most likely. Not the image you want, I'm sure. But then it won't close you down, I suppose.” The Chief Inspector's tone conveyed the impression the issue was not really a high priority and that they should move on. Geoffrey was happy to hear it. Presumably the Chief Inspector had felt he had to say something but their dinner was ill-timed from the investigation's view point. He thought he could risk a probe in the direction of his own interests,

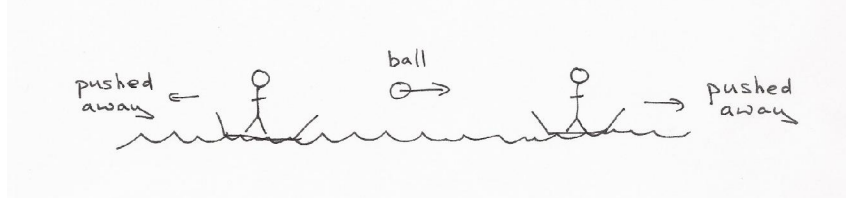
“There was an old bookmark, your officer told me. Manuscripts too?”

“Nothing worth getting excited about Geoffrey, I don't think,” his eyes narrowed a little as if to say ‘I've spotted your ways’. “My officer suspects there was some sort of hoax going on – a forgery or some such.” Geoffrey carefully feigned disinterested surprise and muttered his ignorance. He'd better push no further he decided. In any case the waiter returned with the wine bottle and the ceremony of tasting and pouring naturally provided a break. After a few sips and a contented grunt Bothridge moved the conversation on,

“I think the Phi is making a very welcome impact Geoffrey. I even attended one of your public lectures myself. My son is doing physics A-level and seemed to get a lot out of it in any case. I became rather unstuck when the speaker started talking about forces being due to particle exchange.” He scratched his eyebrow and developed a look of puzzlement. Geoffrey tried to hold up his side,

“Quantum theory always makes these matters seem peculiar,” he suggested. “When particles interact and exchange energy that energy must come in lumps or quanta – you can consider those as particles.” The Chief Inspector still looked unconvinced,

“He showed this video of two boats. A man in one threw a beach ball to the man in the other and the boats moved apart.” Geoffrey nodded pleased that the demonstration had been remembered somewhere. “So I can see repulsion, but what about attraction?”



“Ah yes, that’s awkward,” smiled Geoffrey. “In quantum theory all possible things can happen with some, often small, probability. One weird thing that can happen is that a particle that is moving from right to left can nevertheless end up further to the right! So in the analogy, the ball can give the boat that catches it motion back toward the first boat.”

“Well if you say so Geoffrey!”

“These sorts of weird things only happen rarely to elementary particles. As humans we are used to throwing balls made of many millions of atoms. The vast majority of the atoms behave as you expect and so therefore does the ball. The result is that our brains have evolved not knowing anything about such strangeness. That things can be so different from your expectations is part of the fun of studying these exotic parts of nature.”

“I hope your science festival will be a bit more well behaved,” Bothridge quipped and with that they got down to the business of the evening.

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Back in the Royal Oak, Paolo had been digesting the previous discussion of science on the radio and had come to one of his usual black conclusions,

“Rule is don’t get involved in popularising science.”

“That’s a bit harsh. We have to tell people what we’re doing if we want them to fund us,” said Carl.

“Yeah, but it’s all lies. The theories are all mathematics, yet we say all words. That’s why we get these nut cases writing to us sometimes with “new theories”. They’ve just read a popular science book and mistaken it for the core of science. They change some words and think they have a new theory. They don’t understand that you have to get the numbers right for every experiment you can think of. It’s just misleading.”

“Well, OK,” conceded Carl, “but you can make the point that you’re just reporting a simplification and that if people want the real thing, they’d need maths.” Everyone sought inspiration in their pints again.

“The closest I ever got to writing a book,” Carl mused, “was an idea for a science fiction thing. It was going to be an alternative history of the Earth where scientists had formed a society and didn’t share the technology with the uninitiated. They were going to be these super magicians amongst the serfs. It was all a rather unsubtle attempt to point out what a benevolent bunch we are, giving all our ideas away for free. Probably I was just feeling bitter about my pay packet at the time!”

“Oh God,” he continued, “and can you imagine – everyone you knew would think that they were one of the characters in the book. It would just be a pain!” Kay started giggling,

“You worry too much. I had this idea about rock stars being possessed by a God – Loki mostly likely. He’d pick them up and make them do amazing things. They’d become successful, then Loki would leave for the next up-and-coming guy. The old guys would then keep performing, thinking it had been their talent but just making fools of themselves. The ones Loki really liked he’d make commit suicide before he left so they remained great. The hero was going to be some sort of John Constantine-type who went round murdering rock stars to try to put an end to it all.” Kay started giggling again, “guess I was obsessed by a falling rock star in my teens, we won’t mention his name. Anyway I decided it would be better to hope Neil Gaiman picked up the idea through the ether because I’d rather read it than write it!”

“You ever thought of writing a book Andre?” asked Carl. Andre ruffled his brow.

“I was at the Trieste physics centre over in Italy a month back,” Andre began rather earnestly, “They’re a UNESCO centre who bring students to Trieste from around the third world to learn frontier physics. It’s a really striking atmosphere – there are Palestinians and Sudanese and Philipinos all studying away. These people have fought their way out of wars and famine to learn particle physics. It reminds you how lucky we are and how important what we do is to people all over the planet. Well anyway there was a guy from Somalia who had all these tales of hiding from militia and automatic machine gun fire every night. He has a story people should read.”

“OK you win,” Kay conceded, “gosh we are in a cheery mood this evening aren’t we?” Everyone round the table was reflecting on Andreas again.

“This was something else weird,” Carl had recalled the police’s questions about the heraldic crest, “Do any of you recognise this?” He split a beer mat in half and used a pen from his pocket to sketch the lion, roses and inverted V.

“That’s a relief, I thought that was going to be an equation,” joked Paolo, “what is it?”

“You tell me, the police asked.”

“I know,” said Kay and all eyes switched to her. “That is the Trinity College Cambridge crest. I had to walk under it daily when I was at Cambridge. What’s the relevance?”

“Beats me,” said Carl. A thought occurred, IN? “Was Newton at Trinity?”

“You bet.” Kay beamed as if boasting of a fellow sports team member. “Actually he didn’t speak much.” Her three colleagues looked at her startled and she started smirking at some private joke. “We tried to get him to do one of our undergrad problem sheets!” She enjoyed the blank looks that induced, “Nobody could touch this problem we’d been set, so we had this séance thing. Candles, all holding hands and someone read out extracts of the Principia. Didn’t work,” she grinned, “maybe we were laughing too much... I’d better get another round.”

Carl pondered the possibility that the IN in Andreas’ notes might indeed be Isaac Newton. Newton did dabble in alchemy but there hadn’t been any direct sign of his work in Andreas’ apartment. Could the police have found a book by him and not said?

Paolo and Andre had started discussing that week’s seminar speaker at Phi. Carl had forgotten that Ash Burnley, a famous American, who had pioneered many of the most popular models of particles that might be found in the future, was visiting on Friday. Apparently, Fields had declared that Andreas would want their work to go on, so the seminar was still going ahead. Well perhaps Andreas would have wanted that, or else for them all to get very drunk instead. Kay returned with a round of drinks and Carl inwardly dedicated his first sip to the latter possibility.

“I suppose all the Oxford, Imperial and Southampton academics will be down here,” interjected Kay into the conversation as she sat down, “I hope they don’t repeat that boring discussion of which of their universities lead in which league tables again. Ugh, dull.” Everyone round the table whole heartedly concurred and gave silent thanks for the benefits of the Phi Institute.

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WPC Thatcher’s husband emerged from the bathroom and clambered into bed next to her.

“Are you still working?” he demanded. His wife was peering intently at a brightly coloured leaflet.

“Sorry, love,” it’s just an ‘Introduction to Particle Physics’ handout I picked up from the front desk at the Phi. It was in my jacket pocket and I dumped it on the bedside table when I changed earlier. Put it in the bin!”

“Not worth the effort?” he scrunched the paper into a ball and hurled it across the room. It bounced off the rim of the wicker waste bin and disappeared behind a wardrobe.

“Stuff I already know – quarks and electrons and neutrinos,” she explained. “Actually it explained why the weak nuclear force is weak. Forces are the result of two particles exchanging another particle between them, apparently. Electric forces are due to the exchange of photons of light which are massless. Since  $E=mc^2$ , that means you don’t need any energy to make them and it’s easy to exchange them. The equivalent particles for the weak force are called the W and Z but they have a big mass. You have to use a lot of energy to make them so it’s less easy for particles to exchange them and that’s why the weak force is weak.” She received a blank stare from her partner.

“Are you going to pick that up and put it in the bin, Mike?” she asked sternly.

“Only in return for sexual favours,” he replied.

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Carl had finally bid farewell to his friends at the pub door around closing time and they had all trooped off in the directions of their homes. The sunshine of the day had ended in a warm night so Carl could wander back relaxed towards the part of town where he lived. The alcohol had left him pleasantly reflective and he idly retraced the evening’s conversations. He tried groggily to construct a more coherent interpretation of quantum mechanics. Ah well, generations of sober physicists had failed before him.

There was the usual dilemma of whether he should phone Sasha when he got back. She’d been going out tonight too he recalled. Half past eleven was an awkward time because she could still be out with her friends in Birmingham or she might be back and in bed. Probably best to wait until the next day Carl concluded.

The sound of someone scuffing their shoe on the pavement echoed down the street from behind Carl. He casually looked back over his shoulder expecting to see a fellow carouser heading for home. Adrenaline immediately began to charge around his veins though; there behind him was the man he had seen that afternoon on the Green, the man with the swirling tattoos all over his arms. The mirror shades were gone but his eyes still seemed to glare with menace. Carl’s drunken mind immediately leapt to the conclusion he was about to be attacked by this fearsome brute. As the previous day, his natural reaction to threat was to run.

Carl pounded off down the street, barely thinking at all, until he had fumbled his key into the lock of the main door of his apartment building. Relief flooded through him as he heard the lock reconnect with him inside. Sweat was pouring off him and he was barely able to do more than breathe. Finally he gathered himself enough to look outside for his pursuer. The man was walking still, now some way back down the street, acting oblivious to Carl. Those dark eyes must surely have seen where he had run though. Mentally Carl congratulated himself on so blatantly revealing where he lived. Great, he reflected.

As Carl climbed the stairs he was planning on calling the police in the hope they would send protection. When he tried to construct what he would say though, his confidence began to flag. He was a little drunk, he had simply seen the man twice in a day, and he had done nothing suspicious on either occasion. Yeah, great, protect me now! He crashed instead on to his bed for the night.