

## Chapter Three

WPC Thatcher parked her car on the gravel drive of the Phi Institute the next morning at ten to nine. Direct sunlight had not yet made it through the layer of misty cloud that had formed in the night. The grounds of the Institute were eerily still and deserted, in sharp contrast to the morning rush she had just left at the police station and on the roads of Winchester. She adjusted her jacket and regarded the Institute's main building, the central block and its two wings, with a sense of resignation. Above the main door she noticed for the first time the large dull metal shield stamped with a large  $\Phi$  and an artistic representation of the tracks left by sub-atomic particles in a detector. The emblem had a slightly Masonic overtone, she thought, reinforcing that she had to try to break down what she feared would be an impenetrable society.

The Chief Inspector's eyes had lit up the previous evening when he'd dredged from his memory that Thatcher had done a degree in Physics. Who better then to interview the staff? She had considered pointing out that her commitment to the subject was open to question since she had escaped from the shortest degree course with a scraped two two qualification and immediately changed career to policing. As always though, she reflected, she'd at least had the character to bully herself through hours of tedious revision to escape the classification of third, the degree result that appeared to be for those who had merely attended for the three years. That same determination had prevented her from turning down an important role in this investigation.

In fact, the truth was that she still harboured the interests that had led her to Physics. She still thought it was wonderful that the sun and stars are enormous balls of hydrogen which are crushed by gravity until the very atomic nuclei are forced to merge, liberating energy as light. She loved the elegance of the atomic model of matter and it truly underpinned the way she saw the world; gases are widely separated atoms all doing their own thing, while solids are those same atoms stacked close in rows like eggs in a box. She still played with water when she washed her hands trying to understand that this was half way between solid and gas, tiny atoms almost sticking yet sliding past each other. So perhaps the Inspector was right that she was at least on the fringes of the scientific club.

Physics though is more than thoughts of atoms swirling in the void. Such naïve images are no better than religion, her tutor had once eulogised. They must be underpinned by rigorous mathematics. That a ball thrown up, eventually falls as a result of its attraction to the Earth by gravity, are nice words. Unless though you can compute the moment of its fall to Earth to incredible precision your words were meaningless, she was assured. Only in this way could you refute a fool who claimed invisible fairies pushed the ball down! So to study Physics was to study algebra and proof. This had been her undoing. She did not have the sort of mind that could translate glyphs on a page to physical pictures. For her the slope of a hill was a very different thing from the arcane manipulations of calculus with its derivatives, even when the connection was there in the proof on the page before her. She hoped she had accepted her failings with good grace and moved on to a career that used her talents better. She also knew though that her dabbling in the precise waters of science had taught her something of the true nature of the world that was important to

her. Science's unbending insistence on the continual questioning of everything shared much with the art of detection too. Damn, she was coming round to sharing the Inspector's view that her past left her well equipped to bridge the gap from the Phi to the world outside. She let out a small sigh and headed for the door.

Ten minutes later she had discovered the first dislocation between the Institute and her world. There was nobody at work here yet. The corridors and offices of Phi were empty except for gently humming computers minding every desk. She did now have a good understanding of the layout of the building though. There was a central hub and two wings connected by corridors on each of the two floors. On the ground floor the central building was dominated by a large enclosed lecture theatre, with the most up to date data projectors and screens, faced by ranks of comfortable seats. The colour scheme was a tasteful mix of sombre reds and dark wood. This was no University lecture theatre. The two wings held the offices and meeting rooms used by the Institute's four research sub-groups. In these areas she passed countless white boards scrawled with an intimidating array of equations. She couldn't identify a single English word anywhere, certainly no sentences, although question and exclamation marks seemed *de rigueur*.

This wandering was not helping produce the accounts of interviews with the senior staff the Chief Inspector wanted so she returned to the front hall. On her way in she had had a brief word with the secretary perched behind a desk in the entrance. Her name was Alison Hughes and she at least seemed to work normal hours. She was smartly dressed with long, curly black hair and the WPC estimated her age at early thirties. She had seemed a bit flustered by the presence of a police officer and perhaps also a little tearful about events of the previous night. She had gone home before the body was found but had been telephoned with the news by Prof Clarke, the academic head of the Institute, that evening. Perhaps it had only seemed real the next morning though. WPC Thatcher had noted the absence of a wedding ring and briefly pursued the imagined line that there might be some more intimate relationship between Alison and the dead man, Born. Alison had had to go and look up his home address for her though and only seemed to be able to relate a series of encounters over expense claims.

"Alison, I'm not having much luck finding the senior staff. What time do they usually start work?" the WPC queried.

"Oh yes, it is a bit erratic. They just work when inspiration strikes." Alison seemed to consider this and conclude it didn't present the Phi in the best light so quickly added, "but they're very smart and productive. They write over a hundred scientific papers a year here. It's just that they're free to work where and when they like. There are often staff in after midnight."

"I see. Should I arrange meeting times with them then?"

"They'll all be in by lunch I'm sure. Oh, except for Prof Sinclair. He's at a conference in London today. Mr Montford, our founder, came in a few minutes ago – I said you'd probably be along soon. Shall I take you up to his office?"

Progress at last, thought the WPC, as they headed for the grand marble stairs to the second floor.

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Carl had gone to bed with the intention of remaining there until at least lunchtime the next day. Sleep, though, had been hard to achieve. His subconscious seemed to be perfecting the art of worry and stress, churning over the events of the evening. Sasha had once related the content of a seminar on stress in the army in which it had been claimed that frontline soldiers didn't suffer badly from stress. It was just the poor guys in reserve who chewed themselves to pieces worrying about what would eventually happen. This did not seem like a very cunning evolutionary strategy.

The workings of the brain, Carl reflected, were largely considered off subject in physics. The atomic constituents of a brain were hardly the issue. The interesting stuff was all in the connections and interactions. These sorts of problems involving many, many particles were well known to be inaccessible to simple reductionism. For example, it seemed clear to Carl that however much he studied gases, like those in the atmosphere, he would never have thought of rain and certainly not lightning without the prompt from reality. Similarly, consciousness and self awareness must just emerge from the complicated interactions of the vastly subtle arrangement of atoms in the brain, he supposed.

Carl's thoughts and dreams had intermingled through the night. As he had fallen asleep he had recalled with a jolt the strong chemical smell when he had found the body. He should have included that in his statement to the police. His conscious mind would have left the matter there but in sleep his brain preferred to extrapolate wildly. He dreamt of being on the evidence stand harangued by a very persistent lawyer. He had made this up after the event hadn't he? He was a liar. He was a murderer! Everyone knew the person who reported a murder was a prime suspect for having committed it. The judge's eyes were narrowing and the jury writing firm conclusions on their pads of paper. Carl struggled towards consciousness in the grey light of morning and processed his subconscious thoughts. They did not seem particularly helpful, so with a sigh he hauled himself to sitting and observed his alarm clock. Half past eight in the morning, not really early enough to justify more sleep.

He had only just staggered back from the bathroom and located some underwear when his phone rang. He muttered incoherently into it and listened for a reply.

"Hi sweetie, it's Amber. Are you up?" She must have heard the toilet flush above.

"Only in body."

"That's all I've ever wanted. Oh actually, no, I want your artistic appreciation too."

"Right, my muesli and I shall be down shortly".

Amber's artistic passion had apparently struck during the night and she had been up painting in her dressing gown. Carl tried hard to match her glowing enthusiasm at this ungodly hour. Occasional glimpses of tight silk across her buttocks were after all the best imaginable start to a day. The painting had changed from the night before. The brooding sky had only survived in the top right and the equation not at all. To the left a collection of animal shapes merged into each other. The trademark Amber streaks of light plunged across the canvas from the menagerie ending in bursts surrounded by glowing spherical bubbles.

"Light travelling at constant speed making spherical shells?" Carl pointed at the bubbles. "What about the polar bear, giraffe and.. is that a whale?"

"Mass." Carl studied some more.

"Well, I like it." Amber reacted with a cute unconvinced noise and wriggled her mouth.

"I don't like being restricted by explaining something so directly," she complained, "still it will serve... I'm trying for credit points by understanding more about relativity than the rest of them. I don't get why energy changes form though."

"Oh, well, the rule is that things like to have the smallest amount of energy they can. That's why things cool down for example – a hot thing has lots of energy which it gives away to its environment." Amber frowned in concentration,

"You physicists just make up these rules?"

"No nature does!"

She didn't look convinced but instead ended her consideration with a yawn.

"Time for bed," she declared

"Temptress"

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The staircase at Phi led up to a large landing area which doubled as a museum and art display. A number of bulky and peculiar pieces of machinery extracted from the bowels of some particle detector took pride of place. Geoffrey Montford's office was at the front of the main building with a view out over the driveway through a large round window. The room was lined with floor to ceiling bookcases packed with hard backed tomes. Whole shelves were filled with matching series of leather covered volumes; the display seemed to be more about show than function. WPC Thatcher entered past four lecterns that displayed old manuscripts, velvet dust covers hung down at the backs. As

everywhere at Phi, mathematical formulae leapt out from the pages, here written in spidery ink trails.

“That piece is an original Descartes manuscript, we’re very lucky to have it.” This had the air of a well rehearsed first line. WPC Thatcher made her initial evaluation of Geoffrey Montford. It was hard to reconcile the youth of this man with his position and wealth. He barely looked thirty. Well-cut, gingery blond hair and a welcoming smile that was half grin hinted at a younger man yet. He was casually dressed in a short sleeved, collared shirt and light trousers. Geoffrey was also sizing her up and in this he showed signs of the highly successful businessman that he really was. She could almost feel a hardness behind his eyes as he came to whatever conclusions he was reaching. One of the toughest parts of policing for the WPC was maintaining her authority in front of natural leaders like this. She summoned her courage, trusted to her uniform and tried to impose herself a little.

“Thank you for seeing me Mr Montford, I will try not to take up too much of your time. I had been hoping to speak to most of your permanent staff this morning but they seem to be absent.” She was pleased to see that her riposte to his opening line did seem to slightly irritate him. He responded with, what again, seemed a well prepared speech,

“Officer, you must realize that this is not a company. We do not produce baubles to order. We are a place of sanctuary for some of the greatest living minds. The professors here are uncovering the mysteries of the Universe; they are asking what, why and how about the very substance of space and matter. They do not do this as a job. They do it because they cannot stop themselves asking these questions. They are the epitome of the human spirit. What is the point of our existence if we merely eat and reproduce? We must explore new reaches. That is what these people are driven to do and far from having to force them to work, I cannot stop them working wherever they are. The only job here is mine – these men and women must be nurtured and protected because we need their flashes of insight. Even if just once in their lifetime they turn our thoughts on their head, it is the most precious gift they can give us. So I’m afraid you will not find my staff tied to their desks.” There was real passion here - but then to spend a fortune on the Phi, there would have to be, the WPC reflected.

“It’s not my place or intention to question what you do here Mr Montford. I just wish to complete my duties as quickly as I can, so...” she tried to steer the discussion to the matter in hand. Geoffrey had not yet let go though.

“But I see that you do question us, officer. We are not just an indulgence. The line of natural philosophers in whose footsteps these people walk, have made our world. They have driven out irrationality and religion from our day to day lives and replaced it with electricity and the silicon chip. The car you drove here in, your watch, radio, the fabrics of your clothes, your hair conditioner are all the product of science’s quest to understand what is this world. You will return to your police station and type your report onto a web page, a technology that was created by particle physicists to enable their data processing.” The WPC could not help but give an inward smile at this last assumption.

Montford at the front of the computer revolution clearly did not appreciate how far behind the Hampshire constabulary lagged. Well at least she would type the report on a computer. The proselytising had given way and she allowed a pause.

“Did you know Andreas, was he making an important contribution?” Montford’s demeanour turned more thoughtful, there seemed to be genuine sadness at the fate of one of his staff.

“I did not know him well. I do meet with each of my research groups monthly. They give a presentation for an hour on their progress and ideas. I’m afraid they must rather resent speaking to someone so far from the cutting edge but it is the small indulgence I allow myself. Andreas shared my passion for this subject. He spoke very well and with enthusiasm. He was in love with the idea of extra spatial dimensions that emerge from string theory.” He smiled at the WPC who had shifted in her chair, “I’m not the man to teach you the subtleties though, if you want to know about his work you must speak to Prof Fields or August. They are our resident string theorists with whom Andreas directly worked.”

“Were you here yesterday afternoon or evening, Sir?”

“No, no I wasn’t. I was attending a rather,” he paused to pick his word, “unedifying private meeting in town. I could provide witnesses if you need.”

“That won’t be necessary at this stage. You know of nothing in Andreas’ life that might connect to his death?”

“No. No I can’t imagine... you suspect foul play?” Montford seemed to have thought through the consequences of this latter possibility before, this was a controlled enquiry.

“We tread carefully until the facts are clear. Well I don’t think I need take any more of your time.” As a final thought she extracted the piece of paper she had shown to Carl the previous night with the sketch of the heraldic shield. “Oh, except do you recognise this at all?” Reading the response of somebody under questioning was now taught in Police psychology sessions but the WPC had never entirely trusted her own interpretations. Possibly she found the psychology she had been peddled a little simplistic, a little dismissive of the depth of our thoughts. Here though, she was almost certain Montford recognized the design and with excitement. The first response though had been hidden away beneath a more controlled demeanour in but a fraction of a second.

“I’m not sure... is it perhaps from the Guildhall in town?” She was pretty certain he did not think it was. Then as if he was only politely interested, “Is it related to Andreas?”

“He died holding an old leather book mark with this design embossed.” This time Montford developed a cough and brought his hand to his mouth. An interesting reaction, if not completely conclusive. “It seemed odd but probably is of no consequence.”

Montford did not want to keep her further and she allowed herself to be returned to the landing to ponder the significance of the bookmark.

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A second crucial strand in the Chief Inspector's investigative plan for the day, sketched out the evening before, involved searching the deceased's abode. This task had been handed to Police Constable Steven Martin, or Stu as the rest of the Station's staff called their newest recruit. Stu had found that the Police force was rather regimented in their levels of respect, based on length of service. Not that he minded informality; he was equally likely to forget the 'Sir' to his superiors.

This little house to house enquiry promised to be of more interest than the average. Normally he was trawling round the council estates with everyone he spoke to eager to be anywhere other than talking to the police. Today he was visiting the Cathedral Green in the centre of Winchester. Amazingly this Born, who'd been found dead at the Phi, had an address on the Green, at least according to the neatly printed card in his wallet. The Chief Inspector had attributed this meticulous attention to detail to a German upbringing. Certainly most wallets you found had at most the name of the owner on the credit cards it contained. As Stu approached the address though, he began to doubt the information. The house was an old three story building buried in a row of houses that appeared to have slowly accreted over time. The terrace of houses ran parallel to the Green but back a little behind a high flint wall. The outside had the traditional white plaster with crisscrossing, black timbers that made the city centre so distinctive. The top floor looked to be a single room tucked between the sloping beams of the roof. This was the sort of cutesy property that tourists photographed, there were even flower boxes. It was also the sort of property that set you back astonishing amounts of capital. Capital, he suspected, no young scientist could muster.

The policeman re-examined the small piece of paper with the address as he passed through the black, iron gate before the front of the house, and noted the small "a" after the number 6. Now inside the flint wall, he could see that there was a side door on the edge of this, the sixth house, marked 6a. It looked as though there was a set of stairs up to the attic along the side wall. They may once, before the neighbouring houses were adjoined, have been external. This seemed slightly more plausible. He extracted the key that he had checked out from the evidence bag at the station this morning. It was a long solid piece of iron and matched the character of the house perfectly. He knocked smartly on the door and waited, timing two minutes on his watch. Then the key slotted easily into the lock and he turned it.

He had constructed his expectations of the place while he waited at the door; a cramped musty stair well; perhaps two tiny rooms in the roof with eaves claustrophobically leaning in. One room would have to be a bed sitting room, the other a small kitchen that

might only muster a hot plate. Surely at most there would be a shower in the bathroom. The rent he concluded would be the same as a place three times the size without the view of the cathedral. Stu would have opted for a bigger place with a double bed and a 42 inch plasma TV. Not that he could afford either option.

This prophecy was unfair on the reality of the third floor which was considerably larger. It would turn out the owner of the house below was a ninety year old man who rented out the top rooms in order to pay his council tax. Tax which, Stu got the distinct impression when he interviewed the man later, he, as a representative of the powers that be, was considered responsible for. The rent was therefore appalling low by modern standards and Andreas had, through his grapevine of friends, acquired a bargain.

Stu's whole vision of musty, cramped bedsit life also began to fail as he climbed the, admittedly tight, stairs. The place smelt of chemicals, as strongly as a factory. There were acrid odours that would turn out to be hydrochloric and nitric acid, sulphur and iodine solutions. When he arrived at the top of the stairs and looked within he gave a grunt of surprise. The place was a veritable magician's workshop. A long bench was covered in glass test tubes, beakers and flasks. There were pestles and mortars, spatulas and pipettes. Hanging from the beams were maps of the stars, charts of tides, tables of symbols and everywhere on the floor piles of books and heaps of ancient looking paper. There was a small mattress against a far wall piled high with clothes but no other concession to everyday life. The small front window allowed in a thin beam of sunlight that pierced the gloom. Looking out, the window framed the view of the front of the cathedral with its imposing pinnacles.

Stu knew his brief had been to report back that there was nothing of interest here so this case could be shut up as quickly as the Chief Inspector had hoped. This room, whatever it was, perhaps a drug manufacturing lab, did not fit into that scheme. He reached for his radio to report in what he'd found and call in his superiors.