

CHAPTER ONE

GREASE BOX

FORTY METRES UP, sweat beaded from my forehead as I passed hand over hand, kicking in foot after foot. The aluminium ladder rungs echoed through the tubular tower as I climbed towards the final section. White-knuckling on the greasy rungs, my thighs burned and my feet rattled around in my steel toe boots. The ladder shook with every stroke. Apart from the reinforced struts into the tower wall, it would not have looked out of place mounted on a window-cleaner's van. I leaned back against the wall, shook out my hands and looked upwards, breathed out and swept the sweat from my brow. There was one final fluorescent light casting a half-light into the cavernous tower, barely illuminating the opposite wall a few metres away. The cadence of Gary's steps below me stirred my pride and pushed me onwards. Bursting through the hatch, I poured myself onto the yaw deck, my heart beating out of my chest, sat up against the wall and coughed from the bottom of my lungs.

“I need to stop smoking.”

The yaw deck was greasy and the metallic smell of oil

permeated the small chamber. Red blocks studded a huge gear that encircled me at head height. Geared drives protruded from above and clear hoppers of yellow grease siphoned off in different directions. The volume of Gary's steps increased, and I stood up. I climbed up the short yaw ladder and poked my head through into a wind turbine nacelle, and as my eyes drew level, I was presented with corrugated steel, hoses, cables and large blue pieces of machinery.

"What are you waiting for, Aaron?" Gary shouted up from behind me.

Clang! I banged my hard hat on something above me, steadied it and cleared the obstacle. Careful not to slam the hatch on Gary, as I had done earlier, I held it open for him.

"Don't worry, that's what helmets are for. I'd keep it on for today until you get used to the space."

He slid the hatch to close it and placed his hands on his hips.

"Right, young man, let's get to work," and he unbuckled his climbing gear. "First things first, let's get the crane going. I would recommend standing over there whilst I open the roof and swing it out."

I clambered over some machinery in retreat and stood, stooped, in the corner. Despite his portly figure, Gary moved around the nacelle effortlessly, opening cabinets, pushing buttons, operating controllers and putting locking pins in. He stood at the rear now and pushed a red button. My stomach fell as the wall and roof started to peel away, and I readjusted my position. The roof opened like a clam and the frigid morning air buffeted around me. Far below, the hills and pines of the Scottish Highlands were revealed. I gripped a nearby rail and clipped onto an anchor point. The roof

clunked into a fully open position, a convertible in a cloudy vista beyond the reach of trees, while neighbouring turbine blades churned industriously through the weather.

Gary was swinging the crane arm over the side, and he began to lower the hook down to the ground. He bent his chin into the radio.

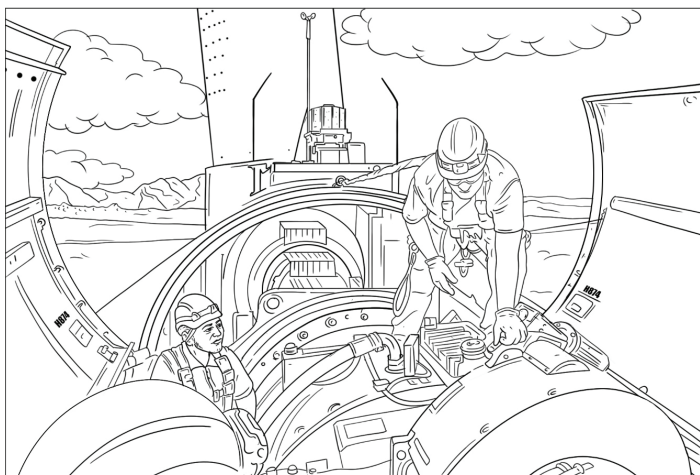
“Hook on its way down to you, Henrik.”

Peering over, I could see the yellow speck of Henrik’s hard hat below.

“Copy,” came the reply.

Gary looked back across at me, and I did my best to appear at ease.

“This will take a couple of minutes, so I’ll give you a rundown of the basics,” Gary said. He jumped up and sat down on the gearbox to warm his arse. It bothered me, how easily he could fall out of the turbine.



“That big blue thing you are leaning on is a gearbox and the thing you hit your head against on the way is the hydraulic union, which feeds oil into the pitch system through the gearbox into the hub from the hydraulic power pack down-wind. Behind that is a good place to poo and also the emergency exit. Next to that is the generator which is full of electrons but what we are interested in today is the caged beast behind you. That’s the up-wind main bearing.”

I spun around to see where he was pointing.

“Now the rotor weight is supported by two main bearings whilst allowing it to spin. Not only do the bearings take the weight of the rotor, but they also take the force of the wind. We’ll restart the turbine later whilst we are still in the nacelle, and you’ll see what I am talking about. The whole nacelle lifts backwards.” Gary demonstrated with his arm. The wind picked up and he started to shout to compensate.

“The main shaft that runs through the centre of the main bearing is hollow and connects to the first stage of the gearbox and out of the back of it. There are some cables and hoses... through the centre of it and into the hub... front. We’ll get you... then we’ll... covers... OK?”

I nodded, although I was only loosely following. My brain was focussing on present dangers and the wind had started to carry every other word of Gary’s away.

Behind Gary, a lift bag came into view and he swung the crane back over the nacelle and lowered the bag safely onto the metal floor.

A loud belch resonated from the yaw deck below, followed by a clatter of metal latches.

“Did I beat the bag?” Henrik asked, surfacing into the nacelle.

“No. But it has only just arrived. Here Aaron, take the cage and the covers off whilst I put the roof back on, would you? It’s Baltic out here!”

He passed the toolbox towards me, and I set about removing the nuts from the metal covers.

“Did you find the magnetic tray?” Henrik asked.

Spinning around towards the toolbox, I knocked the bolts onto the floor. I quickly gathered them and put them into the tray, banging my head again in the process.

Henrik looked away at Gary and tapped his hand impatiently. “Pass me a 10mm when you are ready, and I’ll get started on the next one.”

“Sure,” I said, readjusting my helmet. I didn’t feel at all prepared for this.



I had finished an engineering degree at university a few years before and had not been required to pick up a tool in my entire four years of study. I was alright at maths, I liked cars and nature and I really didn’t want to work at a desk, so Engineering seemed like a good fit. The course was a struggle, there were no girls at all, the substitute lecturers were substituted and did I mention that I didn’t pick up a spanner once? I laboured through abstract maths, fluid mechanics and thermodynamics from books that were drier than milkless Weetabix. But I stuck at it and limped over the line, only to graduate into a recession. After three months of rejections and ghosted applications, I started working at a desk in the closest thing I could find to renewables: flogging solar panels over the phone. I did that for two years and saved enough

money to get myself to California for a two-month course on wind turbine basics, which was a blast, and then got a lucky break. A gearbox consultancy was starting up in wind: they liked the fact that I had taken some initiative, and gave me a job. In the three weeks I had been working with Gary, I had learned so much and rediscovered the subject that I couldn't learn to love at University. I was desperate to prove myself.



We finished removing the top cover to reveal the bearing. There was very little space between the rollers, lined up like toppled baked bean tins, and they were obscured by a thick yellowish-brown grease. I looked over to see how Henrik was doing and he was way ahead in removing the bolts on the other covers. He smiled at me and leaned over the shaft to look into the bearing.

“It looks OK to me but we need to do an inspection and then we'll get you to regrease it,” he said, patting me on the back.

We finished removing all four covers and set about laying pig mat down to catch any grease spills and prevent slipping. Gary slapped some rubber sleeves onto the gearbox behind me.

“Here, put these on.”

“What are they?” I asked, holding them aloft.

“Have you ever seen the Yorkshire vet?”

“Um, yeah.”

“You know when he goes elbow deep into a cow when birthing it? Or at any opportunity, for that matter? I swear that guy does it for anything. Cow's teeth bothering it, is it? Better stick my whole arm up its arse!”

I looked at him, concerned.

“Anyway. It’s the same as that, but instead of trying to retrieve a calf, you are going to be scraping out grease.”

“As long as I don’t need to wank off a horse!”

“That’s a shame,” Henrik said, pretending to unbutton his fly.

“You’ll also be needing this.” Gary retrieved a plastic spatula from the bag and presented it to me. “Use this to get in between the rollers and really drag the grease out. We want the bearing clean at all four positions so we can photograph it with the endoscope.”

“Can I lick the spoon afterwards?”

“Errm. I wouldn’t recommend it.”

I stood there holding the wet sleeves and spatula as if I had been handed a dead cat.

“Put them on, we haven’t got all day!”

With the resignation of a husband in a clothes shop changing-room, I donned my PPE: gloves, goggles and oversleeves. The PPE was oversized and squeaky. Hands on hips and bending knee into pointed toe, I turned to Gary for validation.

“How do I look?”

Gary stole a quick photo.

“That’s going on the WhatsApp group!”

“Can you send it to me as well please, so I can send it to my mum?”

Henrik leaned over.

“I’ll send it to her. What’s her number?” He removed himself from the cramped work area. Satisfied with his contribution, he sat off to my left to read a book.

Gary stooped behind me as I knelt on a platform slightly below him.

“Right, young man. You want to pull out any of the blackened or caked on grease and get it into this bag. You don’t want any of that stuff going back into the bearing.”

I set about scraping and slopping grease into the bag. The grease was heavy and the oversized thick plastic gloves made my movements even more clumsy. I had only just started and there was grease everywhere. I turned to Gary.

“I feel like I’m wiping a marker pen. Every time I scrape grease away, more comes down. Is this right?”

“You are doing fine. Keep going. When you get the bricks and pigeons off, then we can use the spatula with some torn cloth and polish up the rollers.”

It was slow going and every time I raised concerns over the futility of my cleaning technique, they offered token inspection followed by indifference.

“You sure you aren’t hazing me, because I’m the new guy? Is it actually possible to clean this thing?”

“Patience you must have, young Padewan,” Henrik said, barely looking up from his book.

Gary smiled, sat up from a leaning position and checked his phone.

“We’ve got hours left, there’s no rush. Wax on, wax off. I promise to teach you how to clean a main bearing. You promise to learn.”

I rolled my eyes.

“Great movie!” Henrik pointed at Gary. “What’s your favourite movie, Adam?”

“It’s Aaron,” I replied, slinging more grease into the bag.

“Sure.”

“Erm. That’s a hard one,” I replied, and paused. “Maybe *Shawshank Redemption*. If it’s on TV, I can’t not watch it.”

“That’s a good movie! Just pretend you are Andy Dufresne, spending twenty years digging that hole behind the poster. I bet he wished he had all that PPE on when he crawled to freedom through half a mile of shit!”

“Let’s have a look,” Gary said, as he slid a glove on and took the spatula. He leant over me and pushed some grease around, then wrapped some rags around it.

“Pass us that brake cleaner from the bag would you, Henrik?”

“Get it yourself.”

Gary stared at the Dane.

“How helpful. Has anyone ever told you that you work like a man who is paid by the hour?”

Henrik closed his book and shot Gary a look.

“I’ll get it,” I said.

I climbed out and over Gary to the toolbag, falling slightly onto his shoulder.

“Steady,” Gary said as he swapped into my spot.

“Right, we’ll do the roller first. Pass me the endoscope.”

He sprayed the roller and then wiped the surface with the ragged-up spatula. He carefully withdrew the endoscope from its case, turned it on and started to programme the photo designations.

I watched like a little brother would an older sibling playing a video game. The camera on the end of the whip spun, articulating in response to Gary’s thumb movements on the joystick. The quality of image it was able to achieve in such a cramped space amazed me.

“Can I have a go?” I asked.

“Let me do this one first, I’ll show you, and then you can do the raceways after you’ve cleaned them.”

With one hand guiding the whip and the other piloting the joystick, poking his tongue out in concentration, Gary lined up to take the photograph.

“There you go, that’s a good photo. There’s no damage on this roller but I wouldn’t expect there to be at these top ones. The damage is most likely to be at the bottom where the load is. That’s next after you do the raceways. The good news is that the bottom ones are harder to get at and harder to clean. Grease is a slave to gravity, as we all are,” Gary said, reclining.

“Great.”

Moving lower around the bearing, I soldiered on and found that my technique in managing the grease improved. By working quickly in a localised area and taking the photos immediately, I was able to get some reasonable results. I became absorbed in the management of my liquid foe. Eventually, I threw the spatula down in triumph and positioned the endoscope to take the final photo of the outer raceway at the bottom.

“Gary, I think I’ve found something!”

There was no reply.

I leaned back and turned my head to see Gary asleep, propped up against the generator. His hands were folded over his paunch and his helmet had slipped over his eyes.

Henrik looked up from his book and moved to sit next to me.

“He’s old, let him sleep. What have you got?”

I pointed at the video display of an image I had taken.

“There’s a mark on the raceway there, look.”

“Yeah, there’s something. Pass me the brake cleaner and spatula.”

Spraying a clean rag, he sleeved the spatula with it and cleaned up the area.

“OK, go back in, let’s see what you’ve got.”

I reinserted the endoscope and located the damage site.

“Yeah, that’s good. Photograph that. Go in a bit, snap. Come back a bit for a wide shot. There you go! Get three or four photos of that because they don’t always come out well. Here, pass it.” Henrik pried the whip from me and inserted it back into the bearing.

“Let’s have a look at you. Oh yeah! You’re a dirty bearing, aren’t you? So dirty.”

Still facing the images on the endoscope, I watched Henrik’s face and his smutty smile through the corner of my eye. He was the most animated I had seen him, and I was witnessing something between childlike joy and perversion. I wished Gary was awake.

Henrik withdrew the whip, spat on the camera tip, wiped it with a cloth and shoved it back in.

“Better. Behave for me baby, don’t be shy. Look over your shoulder. Oh yeah! That’s the money shot!”

I caught the endoscope as he tossed it back to me and I looked up at him. I didn’t know whether to clap or offer him a cigarette. I flicked through the photos and they were much better than mine. I put it down to experience rather than his verbal instruction of subject.

“See that there? There’s a bit of pitting damage on the outer race, but nothing major. Nothing to worry about for at least a year.”

He turned back to the bearing. “Are you finished inspecting it?”

I turned to look at the bearing surfaces as they were slowly being re-enveloped by grease.

“I guess.”

“Good. Then you can re-grease it. Go in the bag and grab the big yellow bucket.”

I turned and started to rifle through the bag.

“This tub?” I said, holding it aloft.

“Yeah. That whole tub needs to go into the bearing.”

Henrik backed off and sat back down to his book.

I opened the lid to reveal 10kg of virgin grease. I stared at it in disdain.

“Can’t we use the grease guns on the side?”

“They add grease very slowly and only take the small cartridges. You need to add it manually, between the contact surfaces.”

I took a big scoop with the spatula and held it aloft, awaiting instruction.

“It’s better to use your hands. Just pretend you are applying sunscreen to your girlfriend.”

“I don’t have a girlfriend.”

“Your boyfriend then. I don’t judge.”

I laboured on. Slathering grease into the bearing with all the enthusiasm I could muster, I packed the grease anywhere I could get it, to empty the tub as quickly as possible. I was scraping the last of the tub when I noticed Henrik lingering.

“What?”

“Are you finished with that tub yet?”

“Yeah, I guess. Why?”

“I need it.”

Henrik snatched the greasy tub out of my hands, stowed

some blue roll under his arm, slid the hatch open and climbed down the ladder to the yaw deck.

“Where are you going?” I asked.

“Nature call.”

“What?”

“I need a shit.”

And he disappeared from view.

I stood there hands on hips looking at the mess around me. There was grease to be cleaned, mats to be cleared and bits of main bearing cover strewn about. There were very few places to stand.

“Where do I fucking start?”

I looked over at Gary who was still asleep. His mouth was open and, despite his awkward sitting position, he seemed comfortable. I rolled a piece of grease between my finger and thumb and then looked over at Gary. I paused, poised to flick it into his mouth, and thought better of it.

Stood there amongst the disorder, I yawned and then itched my cheek against my shoulder. My cheek was greasy and uncomfortable. I picked up a rag and cast it into a bin bag. Just below me, I could hear the jingling of belt buckles and shuffled clumsy movements of a man with his trousers around his ankles.

It fell quiet.

A sound cut through the silence. A sound like oil being drained from a twenty-year-old car. Intermittent solid, liquid and gas.

“The triple point of shit,” I thought to myself, proud I could remember at least some physics.

“Ahhh,” Henrik groaned.

The arriving smell quickly overcame the background smell

of oil that I had become accustomed to. Gary coughed, softly at first, still asleep. His cough became retching as he was jarred awake.

“Urghhh. What? What’s that smell?”

“It’s me! I’m having a shit!”

“For Christ’s sake, man!”

Gary stood up, rubbing his eyes, unsteady on his feet, and made his way over to me.

“You all right, chap?”

“Yeah. Is it normal for your eyes to sting?” I asked, adjusting my goggles with my wrists.

Gary muffled through his bent arm.

“With grease, no. With Danish shit, yes. Oh, you’ve re-greased the bearing,” he added sheepishly, looking around at the carnage. “Good work. Let’s get all this crap tidied away. I’ll hold the bag open, and you clean and sling the rags in.”

We quickly settled into a rhythm of teamwork.

“Can we open the roof to get rid of some of the smell?” I pleaded.

“Not until all of the loose bits of material are stowed, we can’t have them blowing away. Even though it smells like a cesspit in here.”

“I can see now why wind turbine fires are so dangerous,” I offered, glad to have someone to talk to again.

“The tower acts like a chimney, it draws the air up into the nacelle where most of the fires start. This place will burn until there is nothing left.”

“Physics stinks,” I said, coughing into my elbow.

“Yep. It’s also the reason we have a job. Henrik, are you almost finished?” Gary shouted down.

“Two minutes. I don’t want a’ itchy arsehole for the climb.”

“Lovely,” Gary said to himself. “For future reference, if you are unlucky enough to be in the nacelle when there is a fire, you are spoilt for choice in terms of emergency exits, in this machine at least. There are two out of the bottom of the floor at either end, and there’s one in the hub. Move quickly and calmly, but check your anchor points, emergency descent device and ropes. Get yourself out and trust that your colleagues will sort themselves out.”

A heavy silence fell between us as I mulled over the prospect of having to face the choice between burning alive or jumping, in the event that the rescue kit didn’t work.

“To be honest, fire seems like a better alternative than Henrik’s shit right now.”

A capped yellow grease tub appeared out of the yaw hatch and was slid onto the corrugated steel by a protruding hand. Henrik popped his head through the hatch.

“Everyone ok in here?”

“Yes, thanks. Did you wash your hands?” Gary joked.

Henrik pressed the full tub into my midriff.

“Feel the weight of that one,” he said.

“Urgh, it’s warm! Gross!”

“Now that you are finally finished, do you want to race to get the covers back on? Last one has to buy the drinks?”

“Yeah alright!” I said.



Washed and dressed, I slipped through the pub door. It was still early and the place was as vacant as a closed down fair. Henrik cut a lone figure at the bar, his greying hair was still

greasy, and he was texting and holding a beer. I pulled out one of two spare stools and sat beside him.

“One second, young man. I am just texting my wife.”

“No worries.”

I leaned over the bar in search of the bartender. Three dusty shelves of spirits sat in front of a large mirror and two taps. Bitter or lager. A chalkboard was mounted behind Henrik, enthusiastically announcing a quiz night on Tuesday and two for one pie night on Wednesday.

“Don’t order the pies, they are shit,” Henrik said, not looking up from his phone.

“I wouldn’t mind ordering a beer.”

“She’ll be back in a minute.”

I spun a beer mat with my hands. The bottle fridge gurgled and hummed in the background. I pulled my phone out to check the time. Henrik dropped a leg off the stool and slid his phone into his pocket.

“So why did you want to become a wind turbine engineer, Aaron?”

I ran my hands through the back of my hair and found some grease I had failed to wash, pulled my hand away and wiped it on the barstool next to me.

“Erm. I dunno really. I guess I always liked heights and the whole green thing kind’a appealed to me.”

“Is that right?”

“Yeah. Plus I always wanted to piss off the top of one.”

Henrik laughed, exposing a gold-capped tooth which I hadn’t noticed before. His laugh broke into a cough, and he stopped to take a sip of beer.

“I have a funny story about that.”

“Alright fellas, what are we having?”

I turned around to see Gary, who was turned out in an ironed plaid shirt and jeans. He had changed into a different pair of glasses, smart casual boots and had attempted to style his thinning hair. He patted me on the back as he pulled out a stool.

“Not a lot at the moment.”

“How long have you been waiting?”

“Five or ten minutes.”

Gary leant over the bar and checked that the coast was clear. He swiped some glasses and started to fill them with beer.

“You can guarantee she’ll turn up now. So what have I missed?”

“Henrik was about to tell us a story.”

Henrik cleared his throat.

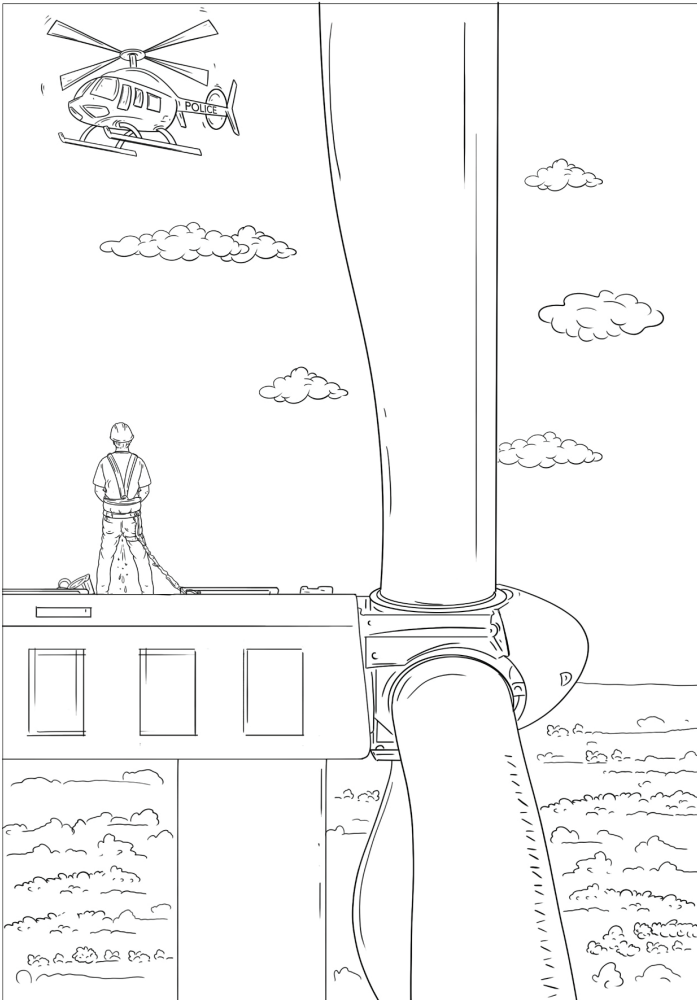
“So, I was on this job in England, right. I was standing on the roof of the turbine, and I get my dick out and I start to piss. It was a really long one and you know how it is, usually it is almost invisible before it hits the ground, but this piss was strong. It was like a yellow cable going all the way down to the ground below. All of a sudden...” he paused. “Wait: in English, is it ‘all of a sudden’ or ‘all of the sudden?’”

Gary and I looked at each other.

“No idea. Go on.”

“Anyway, I hear this helicopter flying overhead. I thought to myself ‘What the fuck are they doing here?’ So I’m watching this police helicopter and it turns overhead, right, and I am not joking but it stopped to hover right next to me.”

Gary slid the first pint to me, and I thanked him. Henrik slid off the stool and stood with his legs apart, miming taking a piss. He started to sway and shielded his face.



“This helicopter, the rotor is whipping up wind around me and my hair is blowing in my face and there is piss everywhere. It’s really windy and I think that this asshole pilot is going to blow me off!”

Gary started to chuckle and spilt some of the pint he was pouring onto the floor behind the bar.

“I’m starting to fall backwards, and I am waving to move him on. I’m yelling at him to fuck off. Fuck off, fuck off! The whole time my dick is still out, flapping in the air like a wind sock.”

Henrik mimed something between signalling a four at cricket and windscreen wipers.

“So, the pilot flies away to rejoin the car chase or whatever the fuck it is that police helicopters do. I’ve got urine all over my trousers and my dick has whiplash.”

“That’s bullshit. Your dick can’t get whiplash!” I said.

“I’m telling you, I haven’t been able to have a good piss since. My dick gets Vietnam flashbacks or something.”

The barmaid burst through the saloon door, and Henrik quickly fell quiet. I coughed nonchalantly and sat up straight. Gary readjusted his lean on the bar, shielding a half-poured pint.

“Evening Kelly. I hope you don’t mind, but not wanting to disturb you, we might have helped ourselves.”

“Just the one, was it? Don’t let me interrupt, gents, you carry on. I didn’t know the Danes were in Vietnam, Henrik?”

She turned, flipping a stumpy dyed blonde ponytail and added our drinks to the tab on the till.

“We had an errr... special unit,” Henrik said, grabbing his groin at me and returning to his stool.

“Hello there, young man. I’ve not seen you here before,” Kelly said, tucking her fringe behind her ear.

“Hi, I’m Aaron.”

She looked me up and down.

“I’m sorry, love. I’m gonna have to see some ID.”

I was flustered and dropped a leg off the stool to lever my wallet out of my black skinny jeans. I produced my licence and passed it to her.

She held it up to the light and stared at it intently.

“Oh. That’s a shame.”

“What’s that?”

She passed me back the licence and took my empty glass.

“Christmas Eve, shit time of year for a birthday.”

“Tell me about it!”