

# THE BOOK THAT SIGHED

CLAUD  
REGNARD



WILLOW OAK

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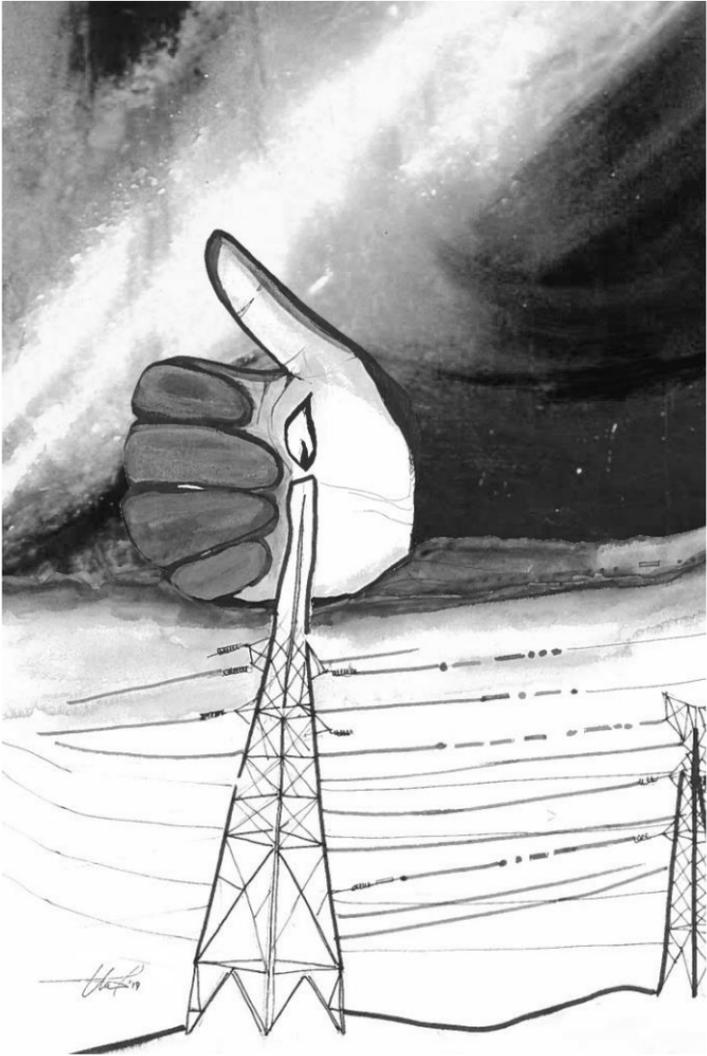
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## ON THE DOT

**I**t was wet enough to drown the sun. Roger dripped off the bus, tightened his raincoat and got out his umbrella. He was pleased he had dubbed his boots as he sloshed his way towards the entrance of RAF Elvington. He leant his sturdy broly into the slanting rain and headed for the control tower. In the small radio room below, Freddie and Alfie were huddled around three cups of hot chocolate. Together they sipped the sweet liquid in the vague hope it would warm their spirits. For a while they gazed with pride at the rows of vintage radio equipment they had restored. It had taken years to find all the parts, repair and rebuild each component. They remembered the first time they had powered up. Any satisfaction that nothing had fused or burnt out was nothing compared to the pride of getting a response to their first message. They had modern radio equipment, but it was the fading, flaking boxes they loved, with their valves smelling of ozone and dust.

Visitors would drift by, unsure if they were a maintenance crew, a sad re-enactment event or elderly

visitors sheltering from the weather. The few who came in were interested and listened to their tales of distant contacts. Some even noticed the Morse Code key on the desk, assuming it was a cosmetic addition to the ambiance. Most were surprised that it was still in regular use, but when one of the three tried explaining that it would be the only form of worldwide communication in the event of a solar storm, most visitors smiled weakly and left, suspecting the men's brain cells were as antique as their radios.

In reality, the men's neurons had assimilated and mulled over the facts. To the rare visitor intrigued by solar storms they were treated to a triple act. First Roger would reel off some facts:

'In 1770, nine days of red skies in Asia were thought to have been aurora caused by a huge solar storm.' He started to warm to the task, 'Then, in 1859 another storm caused aurora to be visible in Rome, bright enough to read at night and to cause telegraph operators to get electric *shocks*.' Roger liked to emphasise the last word to get the rare visitor's attention.

'One in 1940 damaged phone cables, while two storms in 2003 and 2005 disrupted satellites, power grids and global positioning systems. Did you know that solar

storms are classed as B, C, M and X, each being ten times more powerful than the previous?’

The rare visitor would shake their head.

‘The X category has an unlimited number of levels, each level indicating a strength ten times stronger than the one before. The storm in 2003 was a category X FORTY-FIVE level,’ he stated loudly, making sure the number had the necessary gravitas. ‘In 2012 a solar storm developed that was the same severity as the one in 1859 but just missed the earth. That’s a thought to keep you awake at night....’

By now any rare visitor was on the endangered species list. If they were still paying attention and, even better, nodding with interest, Alfie took over.

‘Damage to electricity transformers is the biggest problem, as ordering, manufacturing, and installing replacements can take 1 to 2 years. But that’s not the worst.’ He would pause here for effect.

‘Any damage to satellite communications and global positioning systems will cause extensive disruption.’

If the visitor made the mistake of asking when this might happen, Freddie was ready, waiting: ‘The next active cycle should peak in 2024 and be relatively weak. But a freak X9 storm in 2017 occurred during a supposed

quiet period, and that suggests that predictions can be wildly out. It could happen tomorrow.’

At this point the visitor would either be looking anxious and suffer insomnia for several nights or go into denial mode when their partner told them to stop being silly and find the toilets.

Roger, Freddie, and Alfie had a healthy distrust of governments, along with large energy firms who claimed that early warning from satellites and electricity grid protection made the UK ‘resilient’. Official reports were very fond of that word, using it like a spell to ward off evil. The three suspected that resilient meant ‘absorbent’ and they knew it was folks like them who would be doing the soaking up. They had plenty of experience during the Second World War of absorbing enemy attacks, and Roger’s grandfather knew exactly what it meant to go over the top in the First World War to soak up enemy gunfire. No doubt the generals of both wars were equally fond of the word ‘resilient’. In the cold radio room looking out on a soggy airfield, Roger, Freddie, and Alfie were not feeling very resilient.

Preparation helped. In his younger days, Alfie and his new family had seen the Cuban missile crisis and gone through the fear of nuclear war. With his wife he had prepared for the worst, pulling together a trunk full of

dried food ready to put in their car. They had worked out the best place to go – the north-west of Scotland was the least likely place to suffer from fallout. In their many trips to Gairloch and Ullapool they had even found a derelict Victorian hunting lodge that could be their temporary home. Whether they could have guessed when to evacuate with sufficient notice was a moot point, but they had felt they were doing something positive, the alternative being to pretend it would never happen. Denial had never seemed a reliable survival strategy, although it gave an excellent impression of resilience.

The fact that nuclear war never happened had not dented Alfie's survival instinct. He had long kept a store of food and wood, plus a 1960 BSA M21 motorcycle and sidecar that he had bought from the AA when they made the final switch to patrol cars in 1968. He had enjoyed restoring it to top condition. He kept a separate passenger side car and used to take his wife and daughter for short trips, in the days when health and safety were mere twinkles in an officious eye. Over the years he had made sure it was still running and securely locked in his garden shed.

At the airfield he insisted the antenna was disconnected and nothing was left switched on in the

radio room. He had tried to line the walls with plastic sheets and aluminium foil to protect against a magnetic solar storm. Alfie's daughter Chloe had wondered why she always ran out of kitchen foil after he visited. Freddie and Roger understood Alfie's need to prepare for the worst, but even they thought the kitchen foil made the radio room look like a nursery school production of *Star Trek*. Alfie had to suspend his redecorating when he realised he needed to cover the floor and door. Freddie was adamant that enough was enough. He had no intention of spending his last moments in what was starting to look like a tin-can coffin, no matter how sparkly and shiny. As a compromise, Alfie found an old metal cabinet which was large enough to provide a useful electrical cage to protect any vulnerable equipment, but too small to fit Freddie inside.

Roger woke to the early morning sunlight drawing dappled shadows on his window blind. He was in no rush to get up and rolled over for a snooze, but a glance at his clock halted any thoughts of sleep. It was 3.30am, long before the sunrise. He opened the blind and stared in awe. Across the sky, ribbons of glowing beads meandered below drapes of light. The beads swelled until the sky was enveloped in shifting curtains of translucent

waterfalls, changing from yellow to green, red, blue, and then purple and violet. The last colours made Roger stumble back. He knew that they occurred at much lower altitudes and suggested a powerful solar storm. He tried to contact Freddie and Alfie on their mobiles but there was just static. At least the lights were still on as Roger got dressed, climbed into his car, and drove to Freddie's house.

Freddie was standing at his front door, open mouthed. 'This is it, isn't it?'

Roger had his serious face on, 'Looks like it. We need to get over to Alfie's to decide what to do.'

At Alfie's house the three of them sat down to get more information. There was no TV signal, and the digital radio was silent. Alfie pulled down an old radio. Medium wave mainly hissed. Some sounds could be heard on long wave but were erratic and faint. He was just putting the radio back when the lights went out.

Alfie wished he had boiled the kettle earlier. 'I knew they wouldn't be ready.'

'Could just be a precautionary shutdown,' suggested Freddie.

'That implies they had a plan,' grumbled Roger.

'Which required them to invest time and money in prevention instead of lining the pockets of shareholders.'

Fat chance.’ Alfie humphed off to find wood for the stove.

Freddie was still struggling with the events, ‘I thought they had warning systems in place.’

‘Most solar storms take days to reach us. But some get here in hours,’ answered Roger. ‘I suspect they didn’t have too much warning. They’re going to need us.’

Alfie put logs onto the previous night’s embers. ‘Assuming they realise they need us.’

Alfie was not a pessimist but a realist, a pragmatic approach to life that he had honed to perfection since his wife had died of dementia several years earlier. The loss had not made him bitter, just wisely grumpy. ‘They probably won’t even know that Morse Code is still used,’ continued Alfie, warming to his apocalyptic role, ‘let alone know we exist.’

Roger and Freddie were quiet, partly because Alfie needed this outlet, but also because his grumpy realism often came true, even if he had been wrong about the nuclear winter.

The kettle took an age to boil on the stove but eventually they were warmed by some strong tea. Alfie stopped mid-sip.

‘Lads, can you wait a while? I need to pop round to my daughter Chloe down the road. She’ll be wondering

what's happened. She's on her own with 3-year-old Ellie and her heating will have gone off.'

Alfie walked as fast as his bunions would allow. He knocked at Chloe's front door.

'Dad! Glad you're here. The electric's gone off so we've no heating. Can you help? I was going to go to playgroup with Ella.' Chloe pointed to the sky, 'And what's going on up there?'

Others were in the street asking if their power had gone too and staring at the strange colours, now mixing with the early sunrise. Alfie went inside and sat Chloe down to explain what was happening.

Ella was playing with a large-piece puzzle, sometimes hammering the pieces together with her fist. Alfie envied Ella's belief that all problems could be solved with a thump here and a bang there.

Chloe was looking nervous. 'I thought you were making up those solar flame things to scare the visitors.'

'Solar flares,' corrected Alfie. 'They're fairly common and usually mild.'

'Well, whatever, it looks like you were right. When will the power come back on?'

Alfie took a deep breath. 'It depends on how bad it is and how prepared they were. The real problem is when the sun throws out a huge amount of magnetised plasma

– a coronal mass ejection – CME for short. That’s a solar storm.’

Chloe’s eyes widened, ‘A storm! That sounds much worse.’

‘It might last days and then they can get the power back on, but if lots of their transformers were fried it could take much longer.’

‘How much longer?’ asked Chloe.

‘Let’s not guess; just assume it’ll be a few days at worst. Look, bring Ella and your things round to mine. You can sleep in the spare room. I’ve food put away and the stove will keep you warm. I’ll put the fire guard around for Ella and I’ve plenty of wood in the yard.’

Chloe’s fear softened to a twinkle in her eye, ‘You’ve been preparing for this, haven’t you? It’s not just kitchen foil you’ve been hoarding, eh?’

‘Well you know I like to be prepared,’ admitted Alfie. ‘Like the scouts and guides, only without the toggles and badges. Although if they made an “Apocalypse Preparedness” badge, I’d have several by now.’ They both laughed.

He went back to get his motorbike; it could do with a good run. It started immediately and he rode it back to Chole’s house. He filled the side car with their

belongings while Chloe carried Ella and walked the short distance to his house. Safe inside Alfie's house, Ella finished hammering together another puzzle while Alfie put up the fireguard and helped Chloe settle. The men got into Roger's car. Chloe and Ella waved them off to drive the short distance to RAF Elvington.

It was still early so traffic was not too bad, despite the failed traffic lights, and they soon reached the country roads. They were the first to arrive and unlock the main gate. The radio room was a modest space without windows, the door being the only exit. Above the room the control tower was dark, the windows reflecting the coloured sky. Lighting the stove in the radio room was the priority, followed by checking the generator in the room next door. They made sure all the equipment was secure in the metal cabinet, each item wrapped in black bin bags for insulation. Alfie's remaining *Star Trek* foil reflected the light from the stove and in the comforting glow they sipped their hot chocolates. They were pondering their next move when there were sharp knocks on the door. Freddie opened it to a tall silhouette.

'Well done, lads. Keen to get started I see.'

'And who are you?' asked Roger.

'Apologies. Corporal Crombie, Foreman of Signals, Royal Signal Corps,' the stranger replied, accompanied

by a smart salute. Alfie unwisely whistled and got an uncomfortably long parade-ground stare in return: ‘We need you lads to get some messages out using Morse Code.’

‘Sorry, that isn’t going to happen,’ stated Roger.

The Corporal scowled a look that implied ‘traitor’. ‘And why not?’

Alfie wondered how many more disdainful looks Crombie had. He had been impressed that anyone had remembered them, let alone knew Morse Code could be useful in a solar storm. Now he was back into grumpy parent mode. ‘Because as long as this solar storm continues, there’s a radio blackout.’

The Corporal turned to someone outside the door. ‘I told you it was a waste of time coming here.’

Alfie shifted into annoyingly calm parent mode. ‘I didn’t say the blackout would continue. It may only last a few hours, and after sunset we may get some communications back. We’ll need a supply of fuel for the generator. And food. And drink. And beds to sleep on. We’ll dispense with the cabaret.’

The Corporal threw his head back and guffawed. ‘Done!’

By lunchtime there was no sign of the transmissions improving.

Crombie popped his head in. 'Any luck?'

Freddie shook his head, 'Nothing. This is not looking good.'

'Why not?'

'Most blackouts last a few hours at most. This has been going for almost five hours, with no sign of any let up. This could be a bad one.'

By teatime, the interference was still a problem and it continued past sunset. All Crombie could hear on the speakers was static, 'I thought it would all settle when the sun went down.'

Roger scratched his chin, 'Well, it should have if it was just a solar flare. But it seems that the solar wind is being highly active and pushing charged particles past the earth. That affects the night side as well. Hopefully, it will settle later.'

By late evening, a few snippets of transmissions were getting through but not enough to make sense. It was past midnight before they got a brief news report from western Russia which they could not understand but recorded anyway. Crombie was intrigued and went to find someone who could understand Russian. Alexi had lived all his life in England, but his Russian mother had

made sure he spoke, read, and wrote Russian. It had seemed second nature at first, but at school it became an embarrassment, and he was given the nickname 'Ruski Alexi'. However, when he joined the Signal Corps it became an advantage and he spent time in Poland listening in on Russian transmissions. Alexi explained that the short report had spoken of power cuts and rationing but little else.

Corporal Crombie was still looking puzzled. Army routine and discipline were his foundations, providing a high level of predictability. Field exercises brought some randomness, but essentially these were games in which routine and discipline were stalwart fellows. His wife, children and dog came next, but not always in that order.

Roger recognised that admitting ignorance was not one of Crombie's natural traits. 'You have a question, Corporal Crombie?'

'Yes. If radio transmissions are so screwed up, how come you think Morse Code will work?'

'Good question, sir.' Crombie beamed at the compliment. 'There are five levels of radio blackout, R1 to 5. Levels R4 and 5 will disrupt all signals. We didn't receive any understandable signals during the day so this must be at least an R4. As it becomes night, we face away from the sun and we're out of reach of any flares, but

we're still getting interference from the solar wind. However, Morse Code is less susceptible to static than voice and we're searching the amateur radio wavelengths where Morse Code is commonly used.'

As if on cue, the speaker chattered into life with Morse Code. Freddie grabbed a pencil and started jotting down the letters. 'They don't make sense.' He showed the paper to Roger and Alfie.

Roger had a hunch. 'Corporal Crombie, could you get your Russian speaker back in here?'

Alexi looked at the letters and realised they were the Latin alphabet equivalents of Russian Cyrillic letters. 'Russian radio hams convert their alphabet into the equivalent Latin script letters and that's what they transmit. Chinese is much more challenging – they have to use a codebook where their thousands of characters are converted into a number code corresponding to its position in the codebook, and that four-digit number is what is transmitted.'

'We'll stick to easier stuff for now, shall we? What does the Russian say?' asked Crombie.

Alexi looked at the two sentences. 'He's asking if anyone knows what's happening. And he's asking if there's a war.'

Alfie leaned back in his chair. ‘Perhaps he’s an amateur radio ham who’s getting nothing from local authorities and fears the worst. Like us, he probably went through the anxiety of nuclear war. I suspect he’d be pleased to get a reply explaining the situation. Can we send one?’

Alexi looked at Crombie who nodded permission. Freddie sent off the message and quickly got a reply which said, ‘Thank you.’

‘I suspect he’s very relieved,’ remarked Alfie.

Now Europe was fully on the night side they started to get some responses in Morse Code, but the news was not good. As Alfie had suspected, not all power grids had been switched off or protected and many transformers had effectively fried. Communication satellites had been badly hit. Undersea and buried cables had been protected and fibre-optic cables were not affected, but any exposed cables and power lines on electricity pylons had received enough energy to damage unprotected transformers and equipment. The UK mobile phone system was not dependent on satellite global positioning so was unaffected by satellite damage, but even without power cuts putting equipment offline, the background noise was making mobiles unusable. Power cuts made the internet

largely a dead net. With the lack of information, people were frightened, and with fear came trouble.

Much to their surprise the telephone rang.

As he was going out of the door Corporal Crombie explained over his shoulder, 'Forgot to mention. We've got the local exchange working on a generator. That'll allow local landlines to function.'

Freddie picked up the phone and turned to Alfie. 'It's Chloe. She sounds worried.'

'Dad! There are men in the street breaking down the doors of any house without a light. They're stealing anything they can get their hands on. I've put a candle in the window, and I think we're safe for now, but I don't know for how long.'

Alfie started to stand up, 'Chloe, stay where you are. I'll come and get you. Pack what you have and be ready.'

Outside, Alfie explained the situation to Corporal Crombie.

'No, we are not a refugee camp.'

'But it's just one person. Well, one and a bit if you count her daughter Ella,' pleaded Alfie.

'Listen,' explained Crombie. 'I'm sorry. I have family too. But I can't make the airfield a repository for displaced civilians. My section is only 12 men and we don't have the tents or equipment.' He did not tell Alfie

that his primary role was to protect communications, not people.

Alfie went back to the radio room to explain the impasse. Roger and Freddie returned with Alfie, each dressed in coats and gloves with umbrellas in tow.

As they walked towards Crombie, Roger casually mentioned, 'We'll be going then. Everything's switched on, just tap away and chat to whoever you want.'

'What?' shouted Crombie. 'What's the meaning of this?'

Freddie explained: 'As you can't help Alfie's daughter, we'll have to do it. Have fun. Remember to switch everything off before sunrise and put the equipment back in the cabinet, assuming you don't want fried electronics for breakfast.' They started to walk towards Roger's car.

'Wait!' said Crombie. Arrogance was a characteristic Crombie had tried to foster but he did not have the cold indifference that marked out true arrogance. He understood compromise. 'I can only spare one man and one Land Rover.'

Alexi stepped forward. 'Happy to volunteer, sir.'

'Right, Alfie you go with the Lance Corporal, on condition that the other two stay here. Agreed?'

They all nodded.

As they approached Alfie's street of terraced houses, noisy shapes ran into silent shadows, but by the time the Land Rover stopped it was eerily quiet. Alexi and Alfie jumped out as Chloe opened the door, Ella in her arms. They bundled the two in the back along with their belongings.

Alfie turned to Alexi. 'I need to get a case and something else. Drive round to the back alley. I'll meet you all there.'

Alfie went into the house, locking and bolting the front door behind him, wedging an old chair under the door handle for extra security. He damped down the stove and put a fresh candle in the window firmly anchored to a dinner plate. Hopefully the light and secure doors would discourage the moving shadows. From the cupboard under the stairs he pulled out an old trunk and dragged it through the kitchen into the back yard. He drew a grill across the back door and padlocked it, then closed and locked the door. In the shed was his trusty BSA motorcycle and sidecar which he rolled out next to the trunk. As an afterthought he went back into the shed and came out with an oil-covered cloth which he put into his coat. He opened the back gate and waited.

There were noises in a garden several doors down which he hoped was a cat. Silence returned as Alexi's headlights swung into the alley and stopped in front of Alfie.

‘Alexi, give me a hand with these.’

Chloe and Ella moved to the front seat. The two men heaved the trunk onto the floor of the Land Rover. The motorcycle was more of a challenge. Alfie had had no time to separate the sidecar and it took long minutes to shove, push, and jostle it on top of the trunk. Alfie took up a position sitting on the trunk next to his bike. As he sat looking out the back, the presumed cat leapt onto next door's wall. Glowing red in the brake lights was a scowling face and a large hand holding a baseball bat.

‘Alexi! Get out of here, now!’, shouted Alfie.

The Land Rover engine raced and jerked as Alexi threw it into gear. The man jumped onto the canvas roof and edged his way to the opening at the back. Alfie reached into the sidecar's toolbox and pulled out a large spanner which he connected firmly with the squirming man above. A groan was followed by a thud as he fell into the alley behind them, rolling against some bins to the tune of much swearing.

Chloe screamed as Alexi shouted, ‘Alfie, there's a bunch of them waiting at the end of the alley!’

‘Don’t stop!’ shouted Alfie. He reached into his coat pocket for the oily rags and pulled out an old army-issue revolver. He stood at the back and aimed. Two shots over their heads scattered them like rats. Alfie heard another thump on the roof and shot through the canvas, relieved to find a plank of wood falling off, rather than a body. Alexi screeched into the road and in seconds they were on their way back. The return was in silence.

At the airfield Alexi gently helped Chloe down. He offered to take Ella, but she had every intention of staying firmly attached to her mother until all this noise and fear had settled.

Alexi helped Alfie move the bike and trunk into the store next to the radio room. ‘What’s in the trunk?’

‘Provisions. I like to be prepared,’ responded Alfie, hoping Alexi would not notice the old CND stickers on the trunk.

‘Good to think ahead,’ said Alexi, hoping the provisions were not as old as the CND stickers.

Crombie marched up. ‘Welcome back. I won’t ask why there’s a bullet hole in the roof of my Land Rover Defender. I assume you had something to defend?’

Alexi saluted. ‘If it hadn’t been for Alfie, I’m not sure we’d have got back.’

‘Likewise, with Alexi. You’ve a good lad there,’ said Alfie.

‘When the mutual appreciation society has finished its annual awards ceremony, perhaps we could get on with the job at hand?’ Crombie said with a surprising smile

‘Yes sir,’ replied Alexi and Alfie together.

Alfie helped Chloe set up her sleeping quarters in the control tower above the radio room. Ella was tired but would only sleep next to Chloe. ‘Sorry about the accommodation, but you do have the best view in the house. At least you’re safe.’

‘Thanks Dad, so much. What you and Alexi did for us was wonderful.’

In the radio room they spent the rest of the night linking up to other Morse Code sites. Some were Army, but many were amateurs with generators who offered to act as go-betweens with local authorities and army units. By the end of the night they had nearly twenty UK sites and at least a dozen European ones. All through the night they could see the flickering lights in the sky, and they were not surprised when before sunrise communications stopped. They disconnected the aerial, shut down all the equipment, wrapping it up in plastic bags, and stored everything in the metal cabinet. The valve equipment was

less vulnerable, but they stored that away as a precaution, along with any spare valves.

Crombie popped his head through the door. ‘Well done, lads. Sterling job. Looks like you all need some sleep. We’ll keep an eye on everything.’

The sun was rising, and they were ready to head to their beds when they heard a crackling in the corner of the room. The disconnected aerial was sparking and smoking, blackening Alfie’s aluminium foil.

Crombie grabbed the fire extinguisher and was about to release it when the sparking stopped. ‘What the hell was that? Did you lads leave something switched on?’

Roger realised immediately. ‘Must be a second CME. This one’s been slower, less powerful, but you can see what it does to exposed cables like the antenna. Now you can imagine what the first powerful one did to transformers and power lines. Fortunately, we protected the equipment, otherwise everything could have fried.’

Alexi came in to say that some of the lads’ radios had stopped working.

Crombie slapped his hand on the desk. ‘I should have thought about that. Have you got room for the remaining radios in your cabinet?’

Roger nodded. ‘You may want to check your vehicles. They may be OK as they’re effectively in a metal cage,

but worth checking. We'll need to check the aerial as well.'

Apart from some odd errors on the dashboard all the vehicles started normally. Crombie turned to the three men. 'OK. We'll check the aerial up top. You've done more than enough. Off you go for a rest. Thank you.'

The three men nodded, exhausted, and went upstairs into an office where their beds had been set up. They were asleep in seconds.

The three were awoken by Ella jumping on each bed and shouting 'Wake up lazy bones!' at the top of her voice. Chloe ran in to pick her up, 'Sorry about that, gentlemen, she escaped. Food is ready in the mess tent outside.'

They got dressed, washed, and shaved in the bowls thoughtfully provided by Alexi. In the mess they met Crombie.

'Good to see you all. I hope you had some restful sleep because tonight is going to be busy. We're making Elvington a communications hub and we want all your UK links to be on the same frequency. We're going to have to work out how they reply – we can't have dozens of replies coming in at once. We also need the addresses of all the amateur radio hams so we can get fuel for their generators until power is restored.'

‘How long will that take?’ asked Chloe.

‘Not all the grids were shut down in time and some were unprotected.’

‘Told you,’ said Alfie, disappointed at being proved right.

‘They may be able to repair some, but others will take months or longer to replace. Locally it’s patchy. It may take a while. However, the UK power grid is organised like a lattice, which gives more scope for spreading the power around.’

Roger interrupted, ‘You do realise we can’t encode these messages. Anyone will be able to listen in, including our friend in Russia.’

‘We’ve considered that,’ replied Crombie, ‘but the priority is getting communications up and running over the next few days to get some semblance of order established. If the Russians want to copy our plans, they’re welcome.’

Alexi stroked his chin. ‘Actually, it will reassure them that we’re all in the same boat and it’s not some western plot.’

During the night, the luminous curtains in the sky continued, shifting in a dance of veils, and changing colour like the surface of a soap bubble. Voice

transmissions were patchy and distorted. Even the Morse Code messages had difficulty, but enough got through to make sense. They could send out instructions to everyone at the same time, but responses had to be organised on a 2-hourly rota. They allocated 4 minutes to each of the 20 sites for replies, using their individual call signs for identification. That left 10 minutes for outgoing messages and instructions and a further 30 minutes for messages to army and police on emergency frequencies. Alexi kept a log of the conversations, what information was required, and what needed to be transmitted. Alfie, Freddie, and Roger took 1-hour shifts as key operators. In between they rested, took refreshments, filed messages, or gave Alexi a break. If there was time they linked to some European sites, in a spirit of cooperation rather than necessity. By the morning they had helped allocate resources, passed on emergency messages, and arranged support for the amateur radio operators. They had also begun to hear stories of looting, with the police and army taking control of some areas.

‘We’re losing the thin veneer of society,’ commented Roger.

This prompted Alfie to restart his grumpy old man *persona*. ‘If we ever had a veneer – more like thin tissue paper at best. Just losing the mobile phone network will

have made some bereft. Hell, I've got so dependent on the damn thing I've even phoned Chloe to find out where she is in the supermarket, only to find she's two aisles down!'

'My 15-year-old nephew lives for his tablet. Obsessed with playing games with his friends,' observed Freddie. 'His mum had no idea what he was up to and asked me to look. I thought I was broadminded. What we didn't realise is that he was getting some bad messages from some so-called pals. Nasty stuff. I knew two of them and visited their parents, they were just as shocked. At least they can't get into trouble now.'

'They might have to bring back the small cinema,' mused Freddie, recalling sneaking into the old *Rialto* for the 'big picture'. He remembered sinking down low into seats covered in crushed velvet so worn it shone in the light of the flickering screen. Chewing a gobstopper was heaven, at least until the usherette caught him in her torchlight and woke Freddie from his reverie.

Freddie turned to Crombie, 'How bad is it?'

Crombie was unusually thoughtful. 'Some areas are in trouble, no doubt about that, but thanks to your hard work, troops and police are being mobilised. In fact, we should have some reinforcements here today.'

Chloe looked alarmed. 'Why here? Are we in danger?'

Crombie smiled. 'Not at all. Just a precaution.'

A shot rang out.

Crombie turned and ran outside, shouting orders. Soldiers sprinted into positions carrying weapons and ammunition. The few vehicles they had were moved in a circle around the control tower as the men took up positions.

Freddie stared out the door. 'It's like being in an old Western.'

'But perhaps without the genocide, eh?' pointed out Chloe, holding Ella close.

Alexi came to the door. 'Lock and barricade this door. Don't open it for anyone except me or Crombie. Understood?'

They all nodded. Freddie could see several dozen men walking through the gate carrying weapons from bats to shotguns to spades and lumps of wood. The mob was starting to approach the control tower when Freddie slammed the door shut. Roger jammed a table against the door, each of them holding their breaths.

They could hear Crombie's muffled voice shouting a warning, followed by hesitation. That changed into a yells and gunfire. Bullets pinged against the brickwork outside and several hit the heavy wooden door with a

thud. The windows upstairs shattered and there was more gunfire. Footsteps thumped up the stairs and shouting was followed by a thud on the floor. More footsteps wandered across the wooden floor. Perhaps they thought they could reach the radio room from upstairs, but it was only accessible from the outside. Feet ran back down the steps, followed by banging on their door.

‘Open this door!’ commanded an unfamiliar voice. The doorknob turned and rattled, then the door was kicked and shook against the table. After several more thuds it went quiet save for some indistinct shouting. The next thud had a sharpness to it that made the door shudder. At the third strike, the door splintered, and part of an axe could be seen. It was levered, squeaking its way out of the wood, and hammered back with more force. It did not take long for the lock to fail. A large hooded man entered the room. Alfie recognised him as the one who had jumped onto the Land Rover. The recognition was mutual.

‘You’re the one who hit me the other night. Trying to protect your old pals and pretty bit of fluff, were you?’

Alfie pushed to the front, but Roger held him back.

‘Come on,’ said the man in the doorway. ‘Try me. I’ve an axe waiting for your head.’

Behind him they could see the soldiers kneeling on the ground, guns pointed at their heads. One was hauled upright and pushed onto the radio room floor. It was Crombie, bleeding from a head wound. He was still breathing. Roger went to help him.

‘Leave him!’ said the hooded man. ‘He was prepared to shoot us. Us! The people.’

‘But he didn’t shoot you, did he?’ pointed out Roger, angrily quiet.

‘No! He knew when he was beat.’ The man took a breath ready to launch into a polemic.

Chloe interrupted him. ‘Why are you here?’

‘Trying to distract me dear, eh? I’m happy to be distracted later when we’re alone. But right now, I’m here to defend the common man from all this.’

‘What is it you need defending from?’ asked Chloe.

‘All this!’ he pointed to the equipment. ‘We don’t need this technology. It’s ruining our lives, giving our kids brain tumours. Just look at the sky! If the army are here this stuff’s got to be important. We’ve got to stop you destroying us. Cutting off our power to suppress us into submission. We’re not having it. You’ve done enough damage already with all these nightly light shows.’

So that was it, thought Roger. He thinks we created the aurora. ‘You’ve misunderstood. We haven’t caused this,

it's a solar storm, from the sun. We're trying to put people in touch using Morse Code.'

The hooded man started to raise his axe. 'Do you think I'm a fool? Morse Code? Nobody uses that anymore. Look at this room. While you're sabotaging our lives, you're nice and safe. Not anymore, you're not.'

Suddenly gunfire started by the main gate with the sound of vehicles, accompanied by shouting and the clanking of boots. The hooded man looked briefly behind him then turned back, the silver foil reflecting his raised axe, poised to strike. To the sound of a loud clicking buzz he froze then fell, the taser still sparking. Alexi switched off the taser and quickly bound the man's hands with plastic ties.

The reinforcements had arrived just in time. Their presence had made the attackers drop their guns and allowed Crombie's section to take back control. Alexi had taken a taser from a policeman and run to the radio room in time to see the hooded man raise his axe. Crombie was starting to sit up.

'Hell's teeth, I'm going to have a shiner in the morning. What's the damage, Lance Corporal?'

‘Their aim was a bit off, so only some windows upstairs. One lad knocked out upstairs, he’s being bandaged up, and you of course, sir,’ reported Alexi.

‘We were lucky,’ said Roger.

‘Partly,’ explained Crombie. ‘The timing of the reinforcements was lucky but the fact they got here at all was because you got the right messages through. No luck in that.’

Apart from the hooded man who was handed over to the police, the other attackers were released. Most had been frightened by events and followed the one person who had quite different thoughts in his head.

‘Any news on what’s happening?’ asked Roger.

Crombie explained, ‘There’s better news about the power. There are signs that the storm is easing and, once it settles, we’ll start powering up the transformers that are working. We may have enough running to cover at least half of the UK.’

‘Aren’t the power companies organising it all?’ asked Alfie.

‘All DNOs ...’ Alfie looked puzzled, ‘Distribution Network Operators are under our control. We’re making sure they tell us what is operational and the decision to switch will be a central one.’

Alfie was delighted, ‘Ha! You’ve nationalised them!’

‘Not quite,’ explained Crombie. ‘They still own the networks and will continue to run them after the crisis but, for now, yes. Some areas will need generators for a long time, but it’s looking positive.’

‘I do hope the DNOs will be required to answer some difficult questions,’ said Roger.

Alfie took Chloe’s hand. ‘You’re welcome to stay at mine for the moment.’

Chloe knelt next to Ella. ‘Do you want to stay at Grandpa’s for a little while?’

‘Yes,’ said Ella with a determined series of nods. ‘Can Uncle Alexi come and visit?’

Chloe flushed. ‘Perhaps, yes, maybe,’ she said to a smiling Alexi.

Alfie changed the subject. ‘I’ve checked the bike. It should have got fried but it seems to have been protected in the storeroom and it’s fine. It’ll get us around with little fuel.’

‘You’re going to tell me next that you’ve stockpiled some fuel in your shed.’ Chloe said with a smile.

‘Just don’t tell the neighbours,’ replied Alfie.

‘Alfie, any chance of a lift to see my nephew? He’s not too far,’ asked Freddie.

Alfie nodded and turned to Crombie. ‘Any plans?’

‘We’ve been tasked with staying here. It’ll be a while before all communications get back to normal, so we could be around for some weeks or longer. I assume that meets with your approval, Lance Corporal?’

‘Yes indeed, sir,’ replied Alexi, ignoring the sniggers of some of the other soldiers.

Roger had been quiet. ‘You do all know it’s going to take a long time to get back to normal? It could be years before everything is up and running.’ His despondence was tangible.

‘Well, we’ve been through worse in the war,’ replied Freddie. ‘Roger, didn’t you have an allotment in the past? Your pride and joy I seem to remember.’

‘Well, yes....’

‘Perhaps you could start an allotment here on the airfield and invite others to help. It might help focus people’s minds as well as providing food.’

Roger beamed, imagining rows of carrots, and pulling up large earthy potatoes. ‘And if there’s any trouble allocating peas or protecting my prize onions, perhaps Crombie’s stalwart men could help?’

Crombie raised an eyebrow and gave a wry smile. ‘Any trouble, we’ll be there. On the dot.’

*Notes: On the Dot*

- Solar flares are common and usually do not cause much, if any, disruption. Coronal mass ejections (CME) are less common and can be disruptive to all communications on earth and in space.

- Disruptive solar storms occurred in 2003 and 2005. Earth only escaped a very severe storm in 2012 because it just missed the planet.

- The sun activity fluctuates in 11-year cycles. The next active cycle will peak in 2024 and should be weaker than the previous cycle, but flares and storms can happen anytime.

- The UK's *Space Weather Preparedness Strategy v2.1* (London: Cabinet Office and Department for Business Innovation and Skills, 2015) uses the word 'resilience' 78 times.

- A Faraday cage will protect electronic equipment from magnetic storms such as CMEs. A simple metal cabinet is sufficient, but any equipment must be insulated from the metal exterior. Cars are effectively Faraday cages and insulated from the ground by the rubber tyres, but damage to electronics can still occur and occupants are only safe if they are not touching anything metal.

- The author was one of those Cold War children who prepared for a nuclear war in the 70s and 80s. With a trunk packed they were ready to take the family from Dundee to the north west of Scotland. It felt very real back then.