

# ***Into Great Science***

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The silence in the room was made eerie by the lack of light. Flight Control suites at Mission Control were often quiet. There were the long nights when a spacecraft was in the middle of some interminable inter-body transition, when only a skeleton staff remained to attend the screens that blinked new data and assured those who watched that all was well. That was stillness, but this was a different sort of silence, one that continued even when Bud listened closely, and then more closely still. No voices or announcements or pacing feet, obviously, but then beneath that no humming machines, no clicks, beeps or signals. And no light.

Two far-off skylights drew shapes out of the walled dusk. Night and day were absurd ideas in space, and each suite had been built in sympathy with the astronauts and satellites who knew such different cycles of the sun. So there were no windows in any of them; no natural light at all in some. In this room, this place some of them had called home since launch three years ago, there were no openings save for the two skylights, far above. Bud stared up into them, as if begging the grey-dark translucent panels to communicate some information from the heavens above, some signal that his astronaut was alright.

Two skylights, two scientists. One each. To his left, sat staring at the exact same spot, was Bud's fellow mission-leader. They both knew that, at that precise moment, Jack, somewhere far above them through those portals, was probably fine. But they surely both knew that over the next few hours those probabilities were going to change. That was all they could say: the balance of probabilities. Mathematical

models. Statistics. Numerical fictions that only suggested what the truth might be. A truth they simply could not now know.

‘Fuck,’ Neil said, leaning back in his cheap office chair.

‘How long’s it been?’ asked Bud, knowing that no reply was even needed. It had been around 2 hours. Watches had been fingered for this information over and over, and while the digital displays still worked Bud knew that they still had time before it hit, which gave Jack, so much further away, a few hours more.

‘Fuck,’ Neil said again. ‘How many years have we been on this project, and it all comes down to *this*.’

‘Guess it’s just bad luck,’ Bud replied after a moment’s more silence.

‘Bad luck? Fuck that, Bud,’ he snapped, and jumped out of his seat as if to begin some great activity. Bud watched as he slumped back down, paused and tapped impatiently on the grey expanse of a long, angled desk unit. ‘We’ve been putting things up there for years and years, and only now, only *now* right in the middle of our fucking watch...’ He faded out, but Bud knew anyway: only now, in the middle of their watch, had the biggest solar storm for well over a century blown up, leaving the whole of NASA running around turning off every piece of delicate electrical equipment to stop it getting fried. It was frustrating, he knew that.

Glancing over, it seemed Neil was waiting for some response from Bud, but he gave none. ‘Sorry, man,’ Neil continued. ‘I’m just worried about him. Sitting up there with no idea he’s about to be cooked.’

A moment passed. Jack wouldn’t have liked that. In all of the mission prep they’d done, in the hundreds of hours he and Neil had spent with this legendary astronaut going over the flight plans and protocols, Jack had never once expressed himself with anything other than scientific accuracy. ‘Come on Neil,’ Bud said quietly, ‘that’s not good science. We’ve got to stick to the science.’ Said like a true

believer. Not that Jack was just a narrow member of the faithful. Quite the opposite. Get him out of the building and into a diner in town and he was hollering with the best of them, howling at Neil's dirty jokes, pressing Bud for stories of his family and laughing about being stuck with the two of them as his primary source of human contact. *We've got to stick to the science.* They were at work now, at Mission Control. Jack would have dismissed Neil's description of his fate of 'cooking' as technically inaccurate. Acute Radiation Sickness would be more accurate, more scientific. Bud shook his head silently, disliking his own thoughts.

'FUCK!' Neil said, kicking an adjacent chair in the back, sending it spinning away on its coasters.

The word bounced in sharp angles off the dead monitors, the black screens, darkened control panels and motionless fans. A door opened and closed behind them. Another cross-check. Another suit making sure that expensive equipment was being protected. Another accountant, they both assumed, with no idea that a man who had been flying out of the solar system under their watch for just over three years was about to meet his maker. Probably.

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Looking out of the window was a hard habit to break. Too hard, it seemed, for he simply continued to break off whenever he passed the small screen of rivet-clenched glass and peer out. Out into the darkness, into the nothingness that he knew would be all his view for many months yet. Nothing to see except stars in the impossibly distant distance.

It had been 9 months since Uranus, whatever Uranus had been. More a ball of gas than a planet. Nothing solid. Nothing like Earth. As he'd passed it, the blue haze

of gas clearly visible from his window, he'd imagined the crude tabloid headlines: 'Space Monk Gets Close Look at Uranus.' Endless variations on a theme. Catholicism, probes, anuses. Who could blame them?

The media attention had been intense in the lead up to launch, and for the first few days it had been pure ecstasy to be rocketing away from all of the questioning and investigation and intrusion. He'd smiled to himself as the engines had fired and the ship had cleared the tower, knowing that the flashes of a thousand camera bulbs could not reach him now, could not penetrate the flaming, shuddering, jolting ball of flame that engulfed him.

Damned journalists. He'd always hated them, hated the way they had always circled the space programme, seeking heroes or villains rather than information. He hated them, but knew that he would give anything to have one sat, pad in one hand, pen in other, speaking to him now. Someone, *anyone* to speak to. Even a hack. Even a dog. He often dreamed of Laika, the Russian space-dog, a stray captured from the streets of Moscow and strapped into Sputnik 2. The first living creature to go into space. He was still in orbit, still circling the earth endlessly: the science hadn't been advanced enough to get him down as well as up. In his dreams he intercepted the ship and brought Laika aboard, and they journeyed like Tin-Tin and Snowy. In his nightmares he knew that Laika was dead, and that his death had been written into the mission from the beginning.

With a little push he rotated away from the window. May be this was part of his penance. May be he should have been better to them when he'd had the chance. They'd hounded him for a few weeks after he'd left NASA for the Church 10 years ago, tried bluffing their way into the cloister, pestered the other novices with letters offering money for the 'inside story.' It had been as bad as the worst moments in the frenzied press conferences after his safe and heroic return from the shuttle mission.

Finally, thankfully, the swarm had moved on, leaving him, the waters of monastic life closing over his head, settling into stillness, disappearing into the deep.

Had it really been 10 years? He'd thought it was going to be final: there was going to be no more science, no more rational examination, no more living by computer simulation or mathematical trajectory. In short, no more missions except the *missio dei*. Just rarified contemplation and transcendent thought. In the name of science he'd been fired off the face of the earth for 12 years, and had known that enough was enough; when he'd left he'd just wanted just one thing: to be sent into rapture by God. He had turned his mind to that. And the last thing he'd expected was to see his Abbott near-jogging up the hill, breathless and wheezing to his hermitage at 6am one morning, with rumours of an order. He'd not been told any details, but it seemed it was coming from so high up the Abbot had joked that 'it might as well have been God himself.' The rumours turned to letters, and the letters finally to an order. Father Juniper, the monk formerly known as astronaut-hero Jack Anders, was to be put back in space. The confluence of the global recession and the waning support for the Catholic church had sparked an idea in the new Pope's mind: the church needed profile, NASA needed money, and they had the perfect man for the mission.

Jack scoffed as he floated, ripping back and smoothing down straight a Velcro fastening on his sleeve, still looking through the portal out into the beyond. Ecstasy and agony. Rapture and submission. 7 years ago that order had come. It had been God's will. He'd had no option but to obey. The celebrity spaceman turned hermit would be fired off again 'Into Great Science,' as the *New York Times* had termed it. 'Perhaps you will finally get the quiet you have been seeking,' the Abbot had said, perhaps picking up the perplexed expression that passed across his face. He had answered no questions from the journalists back then and he had asked none of his superiors. But now the questions formed more frequently, whole belts of them that

he had to manoeuvre through each day, each night. What had that Abbot known? What, indeed had the Pope? There was no heresy in that doubt now, he'd already convinced himself of that. Infallible or not, what the hell could the Pope know about what he was going through? What did any of them know? What did any other human being know about what had undertaken, the far off places he had been, within and without?

Reflexively he bit his tongue. He had always had to bite these proud thoughts. Where other astronauts from his now infamous Shuttle mission let these self-aggrandisements freely orbit and worked tirelessly to promote their image of the super-human to any media that would have them, he kept trying to shoot them down. He'd kept strictly to the required text, which always pissed off the hacks: *he had only done what he had been trained to do*. Yes, he had manoeuvred the ship when the space-walk had gone wrong and 'caught' the free-floating crew. Yes, he had saved their lives, but the ship had been built to cope. And yes, he had navigated re-entry and landing almost manually when systems had subsequently failed, but no, he did not see himself as Buck Rogers. Fucking idiots. Still living their boyhood Sci-Fi fantasies. It was then, under the scorching artificial lights, that he'd known that he'd needed to escape. As the flashbulbs had strobed and the arrays of microphones and wires had grown like some many-tongued beast, he'd withdrawn to the bridge within himself and looked out of his ocular port-holes at the superstructure that was his body, afloat among other bodies, and made his decision. He wanted a change of direction. He wanted out.

He polished the inside of the glass with his sleeve. He'd gotten his change of direction, for sure. A more stubborn mark on the window drew a fingernail, then a moistened bit of cuff where it smeared. It had taken just two years since that visit by the Abbot. Two years from being sent by God to being sent 'to find God.' Something

seared and flashed past the window, or through his eyeball. Despite the relentless briefings to the contrary, the press had continued to write the finding God angle, and despite the shared conviction of everyone on the mission, that is what it felt like. The Commies had sent Gagarin up who'd come back saying he'd been to space and not seen God. And now the Catholics and the Yanks had to send him up to somehow confound the Russians. It was all bull-shit. Gagarin most likely hadn't said it anyway - he was an astronaut, a pilot-scientist, part of the international brotherhood, full of the *Right Stuff*. Fucking Khrushchev no doubt. Back then they could have said Gagarin had seen a hammer and sickle on the dark side of the moon and it would have been reported as gospel.

Politicians and the clerics. Authorities and officials. They could spin what they liked about him back on earth. They doubtless were. NASA raving about the successful science, and the Pope about the renewed interest in a technologically-savvy Catholicism. He didn't give a shit. They couldn't touch him here any more. Nothing could. Nobody could. He'd seen no other person for over 3 years. He was the hermit he'd wanted to be. Utterly free in mind and spirit. Utterly alone. Journeying deeper and deeper into the fabric of the universe; further than any man before him. *Destined to follow in the path of the Voyager probes, but with all the skill and flexibility of a manned mission.* This was the strap line that he repeated to himself. But still the thought troubled him, still this hard lump orbited him, threatening to puncture his thin shell: perhaps he was less than a hermit and even less an astronaut. Unable to steer. No plan to get him back home. Perhaps he was little more than Laika, with two legs and opposable thumbs.

He pushed away from the window, glided quietly to the control deck and checked readings of temperature and humidity in the biomodule. Pre-launched by some of the Shuttle crews he'd worked with, he'd picked it up from the moon's orbit

and docked it to his own craft before performing a sling-shot to begin the mission proper. With its huge arrays of solar panels it allowed him to grow small amounts of vegetation for respiration, and a little fresh food. 'It'll provide some aesthetic appeal too,' one of the designers had told him, but he generally avoided going in there unless he had to. Zero gravity meant stems needed no girth for strength, and their thin shafts gave him no solace. One of his old crew had left a Mars Bar planted in one of the hydroponic pods, with a cheeky note wishing him luck. The wrapper was stuck onto one of the chart boards, a weed in the sterile farm he carried with him. With this appendage to his spacecraft he was an ecosystem unto himself: his water cycling round and round from mouth to piss to plants to extractors to bottles and fuel cells and his mouth again. If only he could feel rain. Besides the slowly trickling flow of human conversation, this was the single thing he'd missed most: the freedom of being outside, the gentle movement of the wind in the trees, the rain falling from such great heights down through the atmosphere onto his face, to be licked, wiped and smelt. The micro-climate that he carried through empty space functioned in every way to keep him alive, but lacked one thing: far-reaching axes that would allow him to stretch and grow.

Floating down to the other end of the capsule he resolved to straighten some things up. Books were drifting in chaotic piles, his lectionary hung spinning in mid air above where he'd left it after his matins. He'd gotten half way through before releasing the knee-belt in frustration, kicking out angrily at his bookshelf at the absurdity of it all. What did the hours mean out here? What did it matter what he did and whether he remained faithful? What did the sacraments mean when they were pre-packed and freeze-dried and self-administered again and again and again? Who was he kidding with his genuflections? It was bullshit, all of it. He'd screamed and

reached for an autosyringe of sedative, slammed it into his thigh and drifted into sleep.

How many hours ago that had been he wasn't even sure. This was Space-Time, with no outside gauge to measure by. He sighed, began to gather the books and secured them again on the narrow oak shelves. He'd insisted on them, fought hard for the inclusion of some basic comforts and argued over and over for some aesthetic consideration to be given to his living quarters. They'd relented with wooden shelving, an antique reading lamp and the ancient and battered prie-dieu from his hermitage, which he'd adapted with a knee-strap to keep himself in place while praying.

He hadn't been so sure of the time, but did remember that he'd woken from his chemical sleep when he'd hit his head on the corner of a storage unit. He'd opened his eyes and stared at the ceiling a while. Floor, ceiling, walls... they were labels referenced purely by the way he'd oriented the shelves and kneeler. Up, down, sideways, it didn't matter which - he'd just stared a while and gathered himself once again, put on some Radiohead and worked out on the treadmill. He'd soon felt better. He had to do it to stop his bones dissolving.

The last book secured on the shelf, he thought about what he had to do. Some more measurements and readings with the light spectroscope, as well as some navigational checks and routine maintenance. Then he had to knuckle down at the terminal and write his reflections, bundle it up and open a packet communication with Mission Control, beaming them his latest data with a quick voice message. He'd been mulling over the setup for a joke they'd sent yesterday, but hadn't worked out which way it was going to go. He could look forward to that at least: they'd get back to him with a reply - a package of messages from the faithful, as well as any essential

mission information, some news, the punchline hopefully, and a few more crude jokes.

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Bud checked his watch. 20 minutes had passed. 'He'll have just sent the packet,' he said. There was no reply. He looked over. Neil lay back in his chair, feet on the desk, arms akimbo, eyes still fixed on the ceiling above. Bud left it. There was nothing either of them could tell the other about this mission. He and Neil had lived it, breathed it together since its inception. Ridiculed, cursed, and finally run with the Catholic partnership that had been the only way the project would see the light of day. Or the dark of space.

The packet Jack had sent would be wasted now. With no devices to pick it up the radio pulses would simply drift past the deaf receiving dishes out in the desert. It wouldn't be long before Jack realised something was wrong - with the neutered equipment around them they'd not sent their packet to him, and he'd soon be checking his receivers and requesting a re-send. Little did he know that a much more powerful wave of radiation was heading his way. One that was going to wipe out him, his ship, and the years of work they had done together.

A door opened behind them. They both swung their chairs round a little to see who it was.

'Just checking,' the man said.

'Again,' Neil said, turning back to his desk.

'Hey man, I'm as sorry as anyone here,' he replied, false hurt in his voice. He looked around for a moment, weighed up his options and opted to enter. 'You heard anything?' he asked. This was met with silence, and the twin rotation of both chairs.

Bud made to say something, but looked at Neil first, whose jaw was similarly locked half open between expletive and speechlessness. ‘No,’ the man continued, looking round at the banks of lifeless equipment, ‘no, I guess you wouldn’t have.’ No response again, and he turned to go. ‘Well,’ he said moving back toward the door, ‘I hope you manage to get something through and tell him...’

‘Tell him?!’ Neil turned again, and Bud followed, sensing his animation. The man recoiled, his hands rising, palms out, as if he might be able to stop Neil coming from out of his chair. ‘I just meant...’ he began, but was cut off, Neil about to climb out of his chair.

Neil crossed the room and stood directly in front of the guy, looking down at him from his 6 foot plus frame. ‘And how the fuck do you think we might do that?’ he spat, with no intention of waiting for a reply. He scanned the man’s jacket for some cypher by which he might understand his rank or position, but found none. Bud stood up too, caught Neil’s eye, and watched his posture calm slightly. ‘Who are you anyway?’ Neil continued, ‘And exactly what level of scientific background might you be bringing to this situation to even begin to make that a sensible statement?’

Bud had seen this before. Funding meetings, feasibility decisions - Neil was pure science, not wanting any alloy with politics, economics - let alone religion. He knew how much this mission had pained him. The wave of heat was over, and Neil turned and sat back down. ‘Fucking accountants.’ The three of them remained in silence for a moment. ‘Crammed full of them this place. Just fucking accountants.’

Whether or not the man was waiting for an apology or something else, he didn’t immediately move. ‘The speed at which any information would travel to him...’ Bud began to explain as he stood, but was cut off, the guy saying, ‘Yeah, I get it, I get it...’ but he continued anyway with a 30-second lecture on the relative speeds of solar radiation and radio waves. He fixed the man with his eye for a moment as he ended.

‘Even if we had sent out an emergency signal when we’d known what was going to happen, what would have been the point?’

There was no point. The man apologised, and hesitated before turning to leave, then turned back again. ‘I didn’t know,’ he said. Neither man moved to ask him to add detail to his ignorance, and Bud sensed Neil was deep in the same thoughts that he was about the decision he had highlighted. There was no point - that was the official mission line. That was what they had all agreed on as they’d sat round, going through the inevitable list of ‘what ifs.’ They’d only touched on this implicitly. It hardly needed saying in full: Jack knew a solar storm on the scale of the Carrington event of 1859 was right up there with the major unforeseeables that would cripple the mission at the very least, and end it - and him - at worst. He also knew that there would be little chance of them sending a warning communication to him, and that even if they could get one to him before everything was shut down there would be nothing he could do to respond to it. The aluminium ship would provide some protection against most background radiation, and all they’d said around the subject was that he couldn’t afford to drag complex radiation shields half way across the galaxy.

They all knew that, hadn’t thought it needed saying. So after hours one night in a meeting room at Mission Control, Neil and him on a cheeky beer and Jack the usual coffee, it had come as a surprise when Jack had a filled a pause between stories and come out with it: if a big storm broke, they should say nothing. They’d said little more about it then, but as he’d headed home across the city Bud had realised that for the first time since Jack had come back to NASA, back to the programme, he had spoken as someone more than an astronaut, from a place deeper than his rational, scientific mind. It had disturbed him. He loved Jack - knew he was 100% part of the brotherhood, a brilliant pilot who’d shown himself to be the very essence of what it

took to be an astronaut. Damn it, he was one of the few who had been called upon to actually *show* that he was: a superbly executed rescue operation, followed by seat-of-the-pants flying of a re-entry vehicle. The man was a god among pilots... But then he'd gone and risen above it, above all of them. Not content with space, he'd damned well tried to break through to heaven.

Of course, when the alert had come through he and Neil had looked at each other, neither saying anything, but both obviously trying to divine in the other whether they wanted to break with mission line. They had been the single point of human contact with Jack for over three years now, never taking holidays at the same time, one of them always there to send and receive information, give him updates on what was going on on earth, how his team were doing, and what the state of the Pope's health was. They'd always joked about that, and at some point someone had started the Pope Health Index, which quickly became a regular insert into the packets, simply as the variable  $\phi$ . Now the jokes were over. 'What's pink and wrinkly and hangs out your pyjamas?' Neil had beamed over yesterday, his laughter booming through the room as he shared the joke with everyone. 'Your mum!' he'd roared, already excited about putting the punchline into the next packet. It didn't seem so funny now, and even after he'd sent it Neil told Bud he was worried that he'd gone too far. He always had these crises, was always coming to Bud wondering if he'd pushed it too much. Even after all these years it seemed so hard to judge what someone who'd been alone for so long like that might take offense at. Jack had no siblings, his father had died some years before. Which just left his mother. Over the course of their meetings, dinners and small-talk, it became clear that it had been from her that he'd seemed to inherit, or become infected with, her devout Catholicism. When they'd been over the implications for family, Jack had admitted to Bud that she'd positively encouraged him to take the mission. In a care home in a

different State she can hardly have seen much of him when he'd been holed up in a hermitage. They'd joked about the Pope's health, but lied constantly about hers. Between him and Neil they had conspired to keep the truth of her illnesses from him. They'd talked about it, but concluded there was no point. Why trouble him with thoughts about her pain when he was so far removed from her? It only struck Bud now: he'd have wanted to know because he'd have wanted to pray for her. Physics had been his whole life; now times and distances were irrelevant to him.

He turned and looked over at Neil, still staring vacantly at the dead room spanning out in front of them. He knew it now: they should have broken with mission line and told him. He wanted to say something to Neil, but couldn't. In the heat of the moment they'd forgotten he was more than an astronaut. He was a friend. This was why he was feeling so shit. Bud looked again at Neil, who returned his gaze. They should have sent an emergency message before they'd shut everything down. Bud knew that God meant fuck all to both of them, but they should have given him a chance. A prayer was all he was going to have had. Who were they to take that chance from him?

His watch was now alternating between blank face and random flashes. The storm was beginning. Invisibly, undetectably it was passing by them, through them. High above, outside the earth's protective atmosphere, bands of radiation were washing past; tonight the sky would offer a show unlike anything for over 150 years. In 1859 apocalyptic blood-red auroras had danced in the heavens, compass needles spinning uncontrollably, machines bursting into flames and telegraph operators thrown across their offices. Some had whipped themselves into frenzies and gathered to lash themselves and pray forgiveness before God's second coming. It had passed within a few days and calm had returned, but despite 150 years of scientific progress there would doubtless be thousands outside preaching doom and destruction and

prostrating themselves. He allowed himself a wry smile. They didn't have it all wrong. The earth *had* been plunged into darkness. But only because the power stations had been shut down.

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He was at the window again. Unlike the Shuttle there was no forward-facing glass, the design constrained by the new frugality of budgetary constraints. Any front windscreen was technically difficult, and in this case, with no need to land the craft at any point, it had been deemed operationally unnecessary too. He knew that. He *knew* that, but there was something majestic about Captain Kirk stood on the bridge of the Enterprise, looking out through the huge expanse of glass into approaching space. It stood for forethought, for leadership, for a man in control. He was none of these things anymore. He couldn't see where he was going, nor where he had come from, at most an arc of perhaps 160 degrees if he craned his neck to look one way, then the other. Part of him knew he should be used to it: years of rail and air travel, unable to see the runway or the vector of the tracks. But if that was the case he was only a passenger here, not a pilot. Years of travel now, without respite. He wasn't going from one place to another. He had simply departed; the journey *was* the thing, and he would never complete it. Could this even *be* a hermitage without a front window? Even the caves of the desert fathers had had a front outlook. Even the most ascetic monks had been able to go outside be among the elements. He had no choice though; this was his life now. No open windows. No fresh air. No delays. No interchanges. No stopping. He paused and caught himself again. He was being absurd: *nothing* was stationary in space. Everyone on earth was hurtling at around 30km per second around the sun. Everything was relativity. He sat motionless by the window for a while, watching the instruments, the spectrometers and temperature

gauges and air monitoring systems bolted in their places, blipping and flashing. They moved together, relative to one another. His ship had become his planet, his heavenly body.

An alarm reminded him that the return packet was due. Pushing his way through to the control module, and strapping himself into a generous single seat, he ran through the usual checklist, making sure that receivers were active and aligned and that the computer was ready for the data-stream. Everything was as normal. He waited for a while, rubbed his eyes as four or five more streaks of light seared his vision, checked for the data and clicked onto a game of *Reversi* to pass the time. He hated the game by now, wished he had the guts to delete it from the system, but it seemed foolish to do that. Who knew if he might grow to love it again in a few years? He snapped the window shut after a few minutes and checked for the data. Still nothing, tapping his fingers nervously. He went through the checklist again, the alignment of the receivers, making sure they were active... Everything seemed set up correctly.

A fear surged through him and he quickly opened the previous packet, and the one before, checking for any suggestion as to why this one might not arrive. There was none. Surely Bud and Neil would have told him - they always did - if there was routine maintenance being done that might interrupt the normal pattern? He unstrapped himself and bumped over to the main control panel to do the checks manually. He gave the trackball a spin, but the pointer didn't move. He spun it again, but there was still no response. His eyes flitting back and forth across the banks of instruments and screens around him, his fingers unsteadily tracing them out one by one. None of them moved. All of them were frozen. Lights on, lights off - nothing changed. With a half-somersault he swung himself round and back into the seat with the laptop. He opened the lid to a blank screen. Flicking the machine over he

removed the battery, waited a few seconds, then reinserted it and hit the power button. No response.

Was this it? This had been one of his deepest fears, one that he had repeatedly raised over drinks with Bud and Neil, and then pursued to the highest level: if they were going to take on a life-long mission like this, he needed full assurances that support for the mission would continue, regardless of changes in political administration or NASA governance. Yes, they had said over and over. Definitively the warring leaders of both the Democratic and Republican parties had announced their support. It is simply not in our nature, the head of the Agency had told him over hotdogs at a fundraiser. But perhaps things had changed. Perhaps after three years priorities had shifted. Perhaps the Pope had been ousted. Perhaps Bud and Neil had been removed. Was it the jokes? Had he not sent back enough valid data? Perhaps this was it: they had remotely shut him down. Fuck, perhaps Bud and Neil hadn't been there for ages? Surely they would have let him know? Surely, somehow, after all the preparation they'd been through together - surely they'd have got a message through somehow?

A wave of nausea washed through him. Space didn't care if he kept his head up to avoid being sick, or kept it down to keep the blood flowing, so he curled up, mid air for a moment, long shards of light stabbing through his skull, beaming through his retinæ, the silence of the his neutered ship spinning in vacuous space overwhelming him. My God, he thought, have they just forsaken me?

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Bud sat in the Flight Control room, determined to keep a vigil of sorts. As his watch had, with deadly precision, marked the time of the radiation wave, Neil had

stormed out, leaving a trail of curses and slammed doors. Outside the sky would be lit up. With total darkness everywhere else, the effect would be stunning, Bud knew that. But Houston now had a problem. *Everywhere* had a problem. No street lighting, no traffic signals, no radio, television, refrigeration or internet, limited water supply. America was about to be reduced to bicycles and hand-whisks, gas-lamps and whispers. Who knew if civil unrest was raging? There was no media to report it. It would be three days, experts thought, until a mass switch-on was deemed safe. Three days thrown into a temporary dark age. At least, he thought gazing up at the black panel of skylight, they were thrown together. Under his breath, a short prayer formed, improperly addressed, he felt certain, but sent nonetheless.

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Kneeling at the prie-dieu, knee strapped tightly down, stomach wrenched over and head held tight, he sobbed precious tears in between the bouts of vomiting. All around him valuable moisture was condensing on the cooling surfaces. A vision of his mother came to him, and with it, a realisation of the absurdity of his journey, bound to this crude machine and pointed up from the earth away from her. Years away, hidden now and then behind other bodies and so much nearer to the warming comfort of the sun, earth was carrying on. It had rejected him. Ejected him. Sent him and his religion and his thoughts about God away. He opened his eyes and released his head and looked down at his wrists, tempted to pierce them and end it all, collapsing once and for all the question of faith and belief. Finally he would see what lay behind the curtain. He clenched his fists and repeated the mantra: suicide was the final expression of loss of faith. Faith in oneself. Faith in humanity. Faith in God. He dug his nails into his palms, drawing droplets of red that ached in rich colour

against the surrounding greys. This was no place for faith. There was no humanity here, and no God. Just him and a machine, and the machine had given up. He had cast his life on to these technologies, and now they would take his parasitic life with them as they went down. Perhaps suicide was the only self-determination he had left. Better that than leave himself in the hands of a machine.

His stomach heaved again, but there was nothing left to evacuate. Just as he scrunched his eyes shut, a cold shudder passed down from his neck through to the middle of his back, but was then sent racing back to his head as a thick wall of heat and light smashed its way through each cell of his being. He tried to scream, but no air would move in the dense chaos of particles, all jammed by this disturbance in their light-speed path that was him and his ship. For one long second every frequency and wavelength was overloaded; in the next second all relaxed. Silence. He opened his eyes, then opened them again and again and again but all light had joined the goldrush, leaving him in utter blackness, spinning, formless. Nothing to distinguish him from the infinity of other half-rocks lying splintered in belts far from life.

He was invisible now. He lifted his hands to his face, but could see nothing. Only his throat still existed, crying out with thirst. If he could find it, there would be water. But only once more. He would drink it and piss liquid into a sponge too bitter to taste again. The curtain was nearly rent; there was nothing beyond but emptiness. He could last days perhaps, but no more. It was finished. He braced himself, released the strap felt his way to the equipment locker. Fumbling, floating, he found the hammer, and headed for the window.

## ***Background***

The ‘Carrington Event’ of 1859 was the largest ‘Coronal Mass Ejection’ yet recorded, and caused the phenomena set out in the story: spontaneous combustion of the limited machinery that was around at the time and incredible auroras in the sky. A storm of the severity of the Carrington Event would now cause unprecedented disruption to infrastructure on earth – far far worse than any terrorist attack<sup>1</sup>. These storms have long been known to be one of the most dangerous aspects of space travel – outside of the protective atmosphere of the earth, radiation levels are far higher, and a CME of any magnitude would wreak havoc with delicate control systems and also cause illness or even death at high levels of exposure.<sup>2</sup> Radiation shields are available, but can be very cumbersome and complex. The budgetary constraints on this fictional mission are presumed to have made them unfeasible.

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<sup>1</sup> See ‘Material World’ episode at <http://www.bbc.co.uk/programmes/b00m721n>

<sup>2</sup> See New Scientist Article at

<http://www.newscientist.com/article/dn7142?haasFormId=46aa9eea-8158-4b87-8d70-3994c2a1bd64&haasPage=0>