

Protocols

By Hannah Hoare

The pod was on fire. Keli watched her only home of two years burn and felt nothing.

Well, cold and a little sick, maybe. But then, the impact had been brutal. Perhaps, during one of the procedures, Doctor Cathy had removed panic from her. It was something Cathy would do, and Keli considered herself lucky to be part of the plan.

Still, she had to wonder. Even though there was a protocol for this, and even if it fit with Doctor Cathy's masterplan for two fourteen-year-olds to end their lives alone on this desolate planet: why was her only companion Casper? She grimaced. Here they were, she and Casper, the only living beings on this cold, grey wasteland of a moon. Yet still useful, Keli reminded herself. She petted the cigar-box shape beneath her suit. The data capsule's firmness felt more real than anything here. It grounded her.

Casper's voice crackled in her earpiece. "The other pods will be coming past soon."

In her headtorch's beam, Keli stole a quick glance at her teammate. Through the dark of his helmet, she saw Casper's rabbit-like, white face held its typical expression of wide-eyed bewilderment.

Suddenly - "There!" With a shaking finger, Casper pointed skyward.

The lights were everywhere, dancing over the moondust, and reflected, skimming lightning-quick over Casper's visor as he tilted his helmet to the sky. Overhead, an arch of glowing spheres against the cloudless black.

Keli remembered Doctor Cathy's earliest lessons. The pods were like cells, each containing DNA; cells which would split and multiply when they reached the New World, spreading knowledge from pole to pole. They were watching life itself arcing across the sky.

"Look. They're not on our flight path - they're flying in a curve, off-course," said Casper. "That's weird, right? Don't you think that's weird?"

"Don't, Casper. Stop messing with my mind." Unlike Casper, Keli's mind wasn't clouded by fear. The passengers must have seen Pod Twelve's crash-landing, and they wouldn't be making the same mistake by passing through its airspace. Keli forced a grin. Forty-nine pods still up there. Forty-nine to carry data to the New World, as Doctor Cathy had planned.

On a whim, she blinked her eye-cam into functionality. Even though her neurochip would decay far sooner than the data in its reinforced capsule, it might still be found intact. She wanted to give this memory a chance of surviving. Doctor Cathy would have been proud.

"Wait – are you *filming* this?"

"Urgh." Keli blinked the recording away. She turned to Casper. Reflected in his visor, her pupils shrank. "I was audio-recording too, jerk. You want those words preserved?"

"I don't care." Casper turned away, and his helmet tilted skywards again. "Do you think they'll worry about us?"

"Not if they responded to training." Keli watched the departing orbs. The sickness in her belly was rising, and Casper's agitation didn't help. She swallowed. Under her breath, she recited one of Doctor Cathy's lessons, hearing the comforting, rasping old voice. "The human body has thirty trillion cells. Eighty-four percent of those cells have no nucleus. This leaves just over four trillion, eight hundred billion cell nuclei to code with data equating to..."

“How do you know that?”

“Doctor Cathy taught it. Learn to listen!”

“Doesn’t strike you as weird? Why would Doctor Cathy have facts like that to hand when she only encoded mice?”

“Casper, I swear...” Casper was always doing this. Growing up on the Columbus, she had kept to the company of girls as Cathy encouraged. The boys had all seemed the same, uninteresting. But throughout their two-year cohabitation, Casper had been constantly trying to upset Keli’s faith in the mission. There was clearly something wrong with him.

Now he was looking at her in that weird way, like Doctor Cathy did she was waiting for an answer, as if his eyes could draw it out of her. He had no right. “Doctor Cathy’s a scientist! Why wouldn’t she know things like that?”

“How can you be so calm about this?”

“Because I learnt the protocols, Casper! I listened to Doctor Cathy. Even if this wasn’t part of the original plan, we know what happens next. Doctor Cathy had a plan for everything.”

“And why would she plan for *this*?”

Keli let her eyes alight on the burning ship. Nausea stirred again, and she looked away. “You know she planned for crashes. Accidents were expected.”

Under his breath, she thought she heard Casper say, “That was no accident.”

Keli suppressed a shiver. She counted herself lucky that, given the circumstances, they would never have to follow Protocol Four. Scenario: the pod overshoots the New World and hurtles on into deep space. Protocol: babies; a new generation to carry the cargo on to the

next habitable world. When the pods reached their intended destination, their inhabitants would be thirty years old. Keli doubted Casper would look any different at thirty than he did now. His melted-candle face seemed forever pre-pubescent.

Casper was staring at the sky. The pods had passed and were now disappearing into the enormity of space, like a tiny shoal of fish in a giant, uncaring ocean. They were alone again. The silence and the dark. Only the light from their headtorches and the flame licking weakly from the roof of the ship provided glow in which to view this silvery dust-planet. Keli dug her gloved hands into the ground, brought up handfuls of dust. Let it trickle through her fingers. No emotion still - and yet, tears stung.

They said the New World had grass.

“The flame will burn down soon,” she murmured. “Once it’s safe, we need to get back inside the pod and...”

Casper scrambled to his feet. “Do you ever stop? Do you ever stop to be *human*?”

“Casper, you’re a damned neurotic,” said Keli. “Some mechanic you were! You did nothing when we went down. Just fiddled about for a bit and then stood there and stared and waited to die.” Then, because she needed it, she added, “Like one of Doctor Cathy’s mice.”

She couldn’t see his face, but she knew she’d hurt him. She remembered Doctor Cathy showing them the mouse. “Casper...”

A gasp of darkness. The pod’s flame had burned out, leaving only their twin headtorches.

“Come on,” said Casper.

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The pod's door opened with a shove. Inside, their home had become a lightless, dead space.

Keli cast her torchlight left. The alcove which contained the miniature BioArchive now held shelves of smashed glass, the invisible contents of the vials dispersed into the fire or the alien night. She touched a finger to her chest, felt the capsule, and relaxed.

Casper in her earpiece: "Now aren't you glad I pulled you out?" She let her light fall on him. He was pointing at the BioArchive's remains. "You'd be nothing but ash if you'd gone in there."

She gritted her teeth. He was right. Saving the BioArchive would only have been useful if she and Casper had died childless, the capsule's contents unreadable. A backup, nothing more. "Situation: destruction of portable cargo and likely destruction of both human pilots. Protocol: seal off the BioArchive so it will endure in deep space," she recited.

"Yeah, well done. But we wouldn't have had time to seal it off."

"I could have tried, if you'd left me."

He shrugged and ducked under the archway, into the alcove.

Keli noticed her screen on the table – miraculously, unbroken. She snatched it up. "You pulled me away before I could even get my screen! Seriously, I bet Doctor Cathy didn't even bother to edit you. You're like the stupid crewspawn who used to come to the lab and gawk at us."

"Hey, you're the one who forgot the thing."

Casper was at the back of the BioArchive, reaching behind the damaged shelves, pushing buttons.

“What are you doing?”

“My job? Like you said – we’ve got to complete the stupid mission as written, whether it kills us or not, right? You’re the pilot, and we’re grounded, so you can take it easy from here to oblivion. I’m the mechanic, and I still have work to do.”

His dismissive tone made her tense. She edged closer and peered over his shoulder.

“Wait – there are controls behind the shelves? What do these do?”

“Back-up temperature controls.”

“After that impact? They’re not going to work.”

Casper froze. “Why don’t you go back to your screen?”

Keli grimaced. She would; she would let the screen take her under for a while. But not because Casper had told her to.

Sitting on the edge of her bunk, she stared at the screen and waited for her neurochip to make the connection. The screen glowed, and her vision whited out. Her body became calm and still.

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Doctor Cathy was walking through the Columbus’s brilliant-white laboratory. Completely empty, save for her and whoever was holding the camera.

Wasn’t it different, without the swarms of identical children and the busy technicians? Even in the evenings, when Keli and Casper had their procedures, there were always two or three of Cathy’s loyal assistants present, and often someone with a camera.

Doctor Cathy turned to face the camera, threw it a grin, and beckoned it on. Despite her age, she moved with the energy of a child Keli’s age.

Really, Cathy could have filmed all this with a neurochip. It would have been easier: a recording through her eyes, of everything she said and saw. But Cathy knew how important it was to have her face on camera for her children. Her reassuring, grandmotherly smile. Keli loved her for that.

Through the double-doors, and now they were in the Columbus's BioArchive. The camera panned up to show the majestic height of the ceiling-high wooden drawers – real wood, from Earth – lining both sides of the immense room. Each was sealed with a bronze dial.

Cathy spoke: "The contents of this BioArchive comprise the best of humanity's recorded knowledge. Literature. Computer code. Histories. Everything from Earth, and beyond..." Her voice took on a dreamy tone. "On Earth, there were protests about synthetic biology. What happens if a synthetic life form gains sentience? Does it deserve moral rights? Scientists fumbled, but writers have long known the answers to these questions. Read Do Androids Dream, derivative of RUR, derivative of Frankenstein. And all those missing links in between, which never made it to the BioArchive." The camera panned back down and zoomed in on Cathy. She was running a paper-skinned hand over the drawers. "Literature is so important, children."

Her hand fell upon one of the drawers, and her fingers twitched with excitement as she turned the dial. She pulled out the drawer – it extended beyond the camera's sight. Inside were dozens of tiny vials. She selected one at random, examined the label, and then held it out to the camera with a grin. "This one's brand new. Created just last week, here in the Columbus's laboratory. Now, a person cannot see it with their naked eye – not even you, children, with your sharp youthful vision and neuro-enhancements – but inside this vial is the journal of our captain, preserved in synthesized DNA."

“Run this DNA through a cipher and you can read the full text. These vials are the Columbus’s most important passengers. All this data...” She replaced the vial and waved an arm to indicate the whole BioArchive. “All this will inform a new civilisation on the New World. But data capsules have a habit of missing their targets when you shoot them into space at random. We’re going to be a little more direct with where we send ours.

“That’s what you exist for.

“The most important of this knowledge has been replicated, split among fifty pods, and placed in your care. All the medical procedures, all the training – perhaps you found it tough, and I understand, I do, but it was essential, to prepare you for this vital mission.”

Keli’s skin flushed and her heart beat faster. Doctor Cathy’s mission was sacred, and despite their situation, Keli was still a part of it.

The screen faded to white, and a new image appeared. Here was Cathy, sitting in a red satin armchair in some kind of living room.

Nothing like this existed on the Columbus – the room had been lifted from one of Cathy’s Earth-movies. These personalised messages weren’t imparted by Cathy herself, but written by her and spoken through a digital avatar. It was the sort of thing that would have bothered Casper – but Keli felt the love in Cathy’s words, regardless.

“Keli, dear. Out of my hundred children, you were always my favourite. With your intelligence, your energy, your drive to reach the New World no matter what - you were the most like me. That is why your job is to lead the pods into deep space. No doubt you’ll be confused about my decision to pair you with Casper. The most loyal with the least... well, you know what I mean. Casper says some strange things, doesn’t he? But you won’t listen to him. You trust me. You trust in the mission.”

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Casper lay on his bunk, staring up at the black ceiling. Polluting the night, the white-green ghost-glow of Keli's screen. She had been staring at the thing for hours, no doubt replaying Doctor Cathy's message.

A different video had been programmed into Casper's screen. After the first viewing, he had smashed the device, and pretended it was an accident.

He rolled over and tried to imagine himself back on the Columbus. His early years, before he knew better, when life had been simpler. He shut his eyes and conjured the image of Doctor Cathy standing before her desk in the lab. Tried to recall one of her early lessons. As much as he hated her, she was still his mother.

Only one lesson came to mind.

Pinioned under Doctor Cathy's hand was a mouse.

"CRISPR gene editing. This is how we add genes to a chromosome. Imagine unzipping a zipper, adding more teeth, and then sealing it up again. In less time than it takes to draft a novel, you've changed something vital within a creature's DNA."

One of the boys had asked, "Does it hurt the animal?" And Casper could have sworn a look of pain passed momentarily across Doctor Cathy's face, a vacant stare as if she was lost in memory, but she hadn't replied.

"If we multiply the number of cell nuclei by recording sites, each mouse could potentially yield over two terabytes of data. Not that much for this little one, though. Snowy here has just one file within him, waiting to be extracted..." More showmanship: she slit the mouse's throat with a scalpel and grinned as the children recoiled. "...for your viewing pleasure."

The DNA-encoded data had turned out to be a film. Cathy's children had all watched it on the projector at the back of the BioArchive. It was sci-fi, old; something about aliens coming to the Earth, humanity fighting back.

Sitting beside Casper, Doctor Cathy had murmured, "Imagine if that mouse had been found by an extraterrestrial civilisation. This film would be their first impression of humanity. That man there," she pointed to the hero on the screen, and giggled, "he'd be the most important human being who ever lived! They wouldn't know any different."

The image of the mouse, killed for nothing, on his mind, Casper had asked, "Would destroying an innocent animal be worth it, just to trick a bunch of aliens?"

Doctor Cathy had made a noise as if he had startled her from a dream. She gave him a look as if seeing him for the first time.

She had started treating him differently after that.

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A hand on Keli's shoulder broke her dream.

She gasped, shook her head; blinked the chip/screen connection away. Her vision cleared. There was the screen, laying on her pillow. Her senses started to return as the image died to grey. "Casper, get off!"

"I've got something to tell you. It's important."

"Wait a second, will you? I'm still hazy." Keli lay still, trying to focus her eyes in the dark. Something was wrong. Usually, you could feel the pod moving through space...

Oh. Looking around at the destroyed living space, she remembered. “Is it morning?” The time on the screen showed 12:03am. Ever the nostalgic, Doctor Cathy had set all their screens to something called Greenwich Mean Time.

In her earpiece she heard Casper groan.

“What’s the emergency, then?” She turned to him, and gasped.

Casper’s helmet was off. The black oxygen-mask attached to his nose and mouth made his eyes more prominent. She hadn’t seen his face so clearly, she realised, since they had left the Columbus. His eyes were blue: they shone in the screen’s low light. “Are you crazy, Casper? Who knows what our skin could get exposed to!”

“Doesn’t matter, does it? We’re goners, even if we follow protocol. Take yours off too.”

She shuddered at Casper’s order but couldn’t articulate why. “No. The - the air’s getting cooler.” His skin around the mask was tinged blue. “You didn’t manage to fix the temperature controls, then?”

“Look, just take your helmet off and put your mask on, will you?” Casper’s voice veered towards hysteria. It made her chest clench.

“Why?”

“Because otherwise, I’m supposed to kill you, and take it off by force. And I think we should talk first.”

Something in Casper had broken. His eyes were stern.

Keli removed her helmet and clamped the mask in place. The air bit her skin with chill. “It doesn’t matter if you kill me. It doesn’t even matter if you destroy the data. There are forty-nine pods left out there, and they’ll reach the New World-”

“They won’t.”

Who was this boy? Sickness stirred in her again, and this time she struggled to swallow it down. Was this the delayed panic surfacing at last? It mustn’t, not now. What was the protocol here? For the first time, the prospect of failure struck her. What if Casper had somehow sabotaged the whole mission? Their lives, the knowledge they carried, so much ash lost to space. “What... what did you do, Casper?”

“I did my job! Okay? The one Doctor Cathy assigned me. And the DNA won’t be destroyed. It’s going to stay right here, on this planet, where it’s meant to be.”

“You’re not making sense!”

“Maybe it’s better if I show you.” He reached into her pocket and brought out the capsule before she could stop him. His finger snapped the clasp open.

“No!”

Inside the capsule, instead of the DNA encased in its glass tube, was a reel of film. Trying to keep one eye on Casper, Keli looked down the sequence of images. Some sort of diagram... “Oh my god.” She recognised the images. Doctor Cathy had shown them how the DNA from the mouse was read.

“Those are instructions,” said Casper. “You weren’t supposed to see them – it’s for whoever, or whatever, finds us.” She glanced towards the arch. He added, “Same with the BioArchive. Not the one on the Columbus: that’s real. Ours was just empty glass. It concealed the dials.”

“The temperature dials? What’s going on, Casper?”

“Look, I’m not supposed to take you up top... but would you come with me for a moment? I’ve been thinking. I have to explain this to you, and I don’t want to do it anywhere that reminds me of Doctor Cathy.”

Was there a protocol for sabotage? Her mind froze. She tried to breathe herself calm. She had to believe the other pods would make it. “You go first.”

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As she sat down on the roof of the pod, the beam of Keli’s headtorch disappeared into the darkness. Above, a faint glimmer of stars. *All stars indicate potential New Worlds*, Cathy had said. Through Keli’s newfound fear, the sight still filled her with awe.

“The first thing I should tell you,” Casper said, “is that the New World will be reached, and a new civilisation will be set up using data from the BioArchive. It just won’t be by us. Or any of Cathy’s other kids. We were never part of the Columbus’s original mission.”

“How do you know?”

“Because in each of those pods,” he gestured in the direction in which the pods had disappeared, “is a boy, like me, who has been ordered to bring it down.”

“Well, they failed,” said Keli. “Only our ship went down.”

“Their navigation systems are sending them to other planets. Ours was the first to fall. Cathy wanted it this way. We were the weakest, apparently – she thought we would break soonest.”

“You’re wrong! Cathy loved us.”

“Yeah, I think she kind of did.” Casper paused. “She was proud of us, anyway – like her mice. That plan for us to have children was rubbish, by the way. We can’t even reproduce. She built that into us.”

“Why are we paired up boy-girl, then?”

“I don’t think we’re paired up boy-girl. We’re paired up *him*, and *her*.”

“What do you mean?”

“We’re the same people. Over and over. The crewspawn didn’t look the same; didn’t you notice? They looked like their parents. But you girls were all her. The boys... I don’t know who we are. But I think we balance each other out.”

“So, what was the point?”

“I wish I hadn’t broken my screen – you could have seen the video. How Cathy described it. The data isn’t in the capsules. It’s in *us*. Remember Cathy’s lesson about the mammoth - how long DNA can be preserved for, frozen?”

Keli glanced behind her at the pod’s hatch. It was starting to frost over. “Thousands of years, at least.”

“Imagine a hundred human libraries, preserved on fifty different planets and moons, throughout space.”

“Why?”

“I don’t know for certain, but... remember when she showed us that movie with the aliens? She was murmuring in the dark something about sharing data with other species. I think she wanted to make contact. I kept her secret, because I thought she knew what she was

doing. All the time we were together in the pod, I tried to make myself believe it. I was a dumb kid.”

Keli shuddered. “It must be for a good reason.”

“I thought so, too. But tonight, I really let myself think, and I realised... I think maybe Doctor Cathy’s data isn’t worth sharing. I think it might be... twisted, somehow. I think maybe *she* was... twisted.”

“It’s the only information we can pass on, though.”

“Is that your choice?”

“What choice?” Keli shook her head violently. Her body was shaking; the sickness was threatening to swallow her whole. Something was breaking in her. Something new was emerging: a white-hot feeling, and she couldn’t stop it. “Why? Why do I have to choose?”

“Because I think you need to experience what it is to make your own decision, for once in your life. If we die out here, our bodies will decay, never to be found again. If we go back inside the pod, our bodies will be preserved. But we get to decide what we pass on. And I think - sometimes it’s enough to live without passing anything on. We can choose to close Cathy’s book for good.”