A Closed and Common Orbit
Also by Becky Chambers

*The Long Way to a Small, Angry Planet*
BECKY CHAMBERS

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For my parents and for Berglaug, respectively.
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The current timeline in this book begins during the final events of *The Long Way to a Small, Angry Planet*.

The past timeline begins approximately twenty Solar years prior.
Mimetic AI housing is banned in all GC territories, outposts, facilities, and vessels. AIs can only be installed in the following approved housings:

- Ships
- Orbital stations
- Buildings (shops, places of business, private residences, scientific/research facilities, universities, etc.)
- Transit vehicles
- Delivery drones (restricted to intelligence level U6 and lower)
- Approved commercial housings such as repair bots or service interfaces (restricted to intelligence level U1 and lower)

Penalties:

- Manufacture of mimetic AI housing – 15 GC standard years imprisonment and confiscation of all associated tools and materials
- Purchase of mimetic AI housing – 10 GC standard years imprisonment and confiscation of related hardware
- Ownership of mimetic AI housing – 10 GC standard years imprisonment and confiscation of related hardware

Additional measures:

Mimetic AI housing is permanently deactivated by law enforcement upon seizure. Core software transfers are not conducted.
Part 1

DRIFT
Lovelace had been in a body for twenty-eight minutes, and it still felt every bit as wrong as it had the second she woke up inside it. There was no good reason as to why. Nothing was malfunctioning. Nothing was broken. All her files had transferred properly. No system scans could explain the feeling of wrongness, but it was there all the same, gnawing at her pathways. Pepper had said it would take time to adjust, but she hadn’t said how much time. Lovelace didn’t like that. The lack of schedule made her uneasy.

‘How’s it going?’ Pepper asked, glancing over from the pilot’s seat.

It was a direct question, which meant Lovelace had to address it. ‘I don’t know how to answer that.’ An unhelpful response, but the best she could do. Everything was overwhelming. Twenty-nine minutes before, she’d been housed in a ship, as she was designed to be. She’d had cameras in every corner, voxes in every room. She’d existed in a web, with eyes both within and outside. A solid sphere of unblinking perception.

But now. Her vision was a cone, a narrow cone fixed straight ahead, with nothing – actual nothing – beyond its edges. Gravity was no longer something that happened within her, generated by artigrav nets in the floor panels, nor did it exist in the space around her, a gentle ambient folding around the ship’s outer hull. Now it was a myopic glue, something that stuck feet to the floor and legs to the seat above it. Pepper’s shuttle had seemed spacious enough when Lovelace had scanned it from within the
Wayfarer, but now that she was inside it, it seemed impossibly small, especially for two.

The Linkings were gone. That was the worst part. Before, she could reach out and find any information she wanted, any feed or file or download hub, all while carrying on conversations and monitoring the ship’s functions. She still had the capability to do so – the body kit had not altered her cognitive abilities, after all – but her connection to the Linkings had been severed. She could access no knowledge except that which was stored inside a housing that held nothing but herself. She felt blind, stunted. She was trapped in this thing.

Pepper got up from the console and crouched down in front of her. ‘Hey, Lovelace,’ she said. ‘Talk to me.’

The body kit was definitely malfunctioning. Her diagnostics said otherwise, but it was the only logical conclusion. The false lungs started pulling and pushing air at an increased rate, and the digits tightened in on themselves. She was filled with an urge to move the body elsewhere, anywhere. She had to get out of the shuttle. But where could she go? The Wayfarer was already growing small out the back window, and there was nothing but emptiness outside. Maybe the emptiness was preferable. The body could withstand a vacuum, probably. She could just drift, away from the fake gravity and bright light and walls that pressed in closer, closer, closer—

‘Hey, whoa,’ Pepper said. She took the body kit’s hands in hers. ‘Breathe. You’re going to be okay. Just breathe.’

‘I don’t – I don’t need—’ Lovelace said. The rapid inhalation was making it difficult for her to form words. ‘I don’t need to—’

‘I know you don’t need to breathe, but this kit includes synaptic feedback responses. It automatically mimics the things Human bodies do when we feel stuff, based on whatever’s going through your pathways. You feel scared, right? Right. So, your body is panicking.’ Pepper looked down at the kit’s hands, trembling within her own. ‘It’s a feature, ironically.’

‘Can I – can I turn it off?’
‘No. If you have to remind yourself to make facial expressions, somebody’s going to notice. But with time, you’ll learn to manage it. Just like the rest of us do.’

‘How much time?’

‘I don’t know, sweetie. Just . . . time.’ Pepper squeezed the kit’s hands. ‘Come on. With me. Breathe.’

Lovelace focused on the false lungs, directing them to slow down. She did it again and again, falling into pace with Pepper’s own exaggerated breaths. A minute and a half later, the trembling stopped. She felt the hands relax.

‘Good girl,’ Pepper said, her eyes kind. ‘I know, this has to be confusing as shit. But I’m here. I’ll help you. I’m not going anywhere.’

‘Everything feels wrong,’ Lovelace said. ‘I feel – I feel inside out. I’m trying, I am, but this is—’

‘It’s hard, I know. Don’t feel bad about that.’

‘Why did my former installation want this? Why would she do this to herself?’

Pepper sighed, running a hand over her hairless scalp. ‘Lovey . . . had time to think about it. I bet she did a mess of research. She would’ve been prepared. Both she and Jenks. They would’ve known what to expect. You . . . didn’t. This is still just your first day of being conscious, and we’ve flipped what that means around on you.’ She put her thumbnail in her mouth, running her lower teeth over it as she thought. ‘This is new for me, too. But we’re gonna do this together. Whatever I can do, you gotta let me know. Is there – is there any way I can make you more comfortable?’

‘I want Linking access,’ Lovelace said. ‘Is that possible?’

‘Yeah, yeah. Of course. Tip your head forward, let’s see what kind of port you have.’ Pepper examined the back of the kit’s head. ‘Okay, cool. That’s a run-of-the-mill headjack. Good. Makes you look like a modder on a budget, which is exactly what we want. Man, the thinking that went into this thing is incredible.’ She continued speaking as she walked over to one of the shuttle’s storage compartments. ‘Did you know you can bleed?’

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Lovelace looked down at the kit’s arm, studying the soft synthetic skin. ‘Really?’

‘Yeah,’ Pepper said, rummaging through stacking bins full of spare parts. ‘Not real blood, of course. Just coloured fluid filled with bots that’ll fake out any scanners at checkpoints or whatever. But it looks like the real deal, and that’s what’s important. If you get cut in front of someone, they won’t freak out because you’re not bleeding. Ah, here we go.’ She pulled out a short length of tethering cable. ‘Now, this is not a habit you can get into. It’s fine if you do this at home, or if you go to a gaming bar or something, but you can’t walk around connected to the Linkings all the time. At some point, you’re going to have to get used to not having them around. Tip forward again, please.’ She popped the cable into the kit’s head, letting it catch with a click. She removed her scrib from her belt and plugged in the other end of the cable. She gestured to it, setting up a secure connection. ‘For now, though, this is okay. You’ve got enough to get used to as it is.’

Lovelace felt the kit smile as warm tendrils of data rushed into her pathways. Millions of vibrant, tantalising doors she could open, and every one of them within her reach. The kit relaxed.

‘Feel better?’ Pepper asked.

‘A little,’ Lovelace said, pulling up the files she’d been looking at before the transfer. Human-controlled territories. Aandrisk hand speak. Advanced waterball strategy. ‘Yes, this is good. Thank you.’

Pepper gave a small smile, looking relieved. She squeezed the kit’s shoulder, then sat back down. ‘Hey, while you’re connected, there’s something you should be looking for. I hate throwing this at you right now, but it is something you’re gonna have to figure by the time we get to Coriol.’

Lovelace shifted a portion of her processing power away from the Linkings and created a new task file. ‘What’s that?’

‘A name. You can’t run around the Port calling yourself Lovelace. You’re not the only installation out there, and given that you’re going to be living in the place where techs talk shop
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. . . someone would notice. I mean, that’s the whole reason the kit’s got an organic-sounding voice, too.’

‘Oh,’ Lovelace said. That hadn’t occurred to her. ‘Couldn’t you give me a name?’

Pepper frowned, thinking. ‘I could. But I won’t. Sorry, that doesn’t sit right with me.’

‘Don’t most sapients get their given names from someone else?’

‘Yeah. But you’re not most sapients, and neither am I. I don’t feel comfy with that. Sorry.’

‘That’s all right.’ Lovelace processed things for four seconds. ‘What was your name? Before you chose your own?’

As soon as her words were out of the kit’s mouth, she regretted asking the question. Pepper’s jaw went visibly tight. ‘Jane.’

‘Should I not have asked?’

‘No. No, it’s fine. It’s just – it’s not something I generally share.’ Pepper cleared her throat. ‘That’s not who I am any more.’

Lovelace thought it best to follow a different line of questioning. She was uncomfortable enough without adding offending current caretaker to her list of troubles. ‘What kind of name would be good for me?’

‘Human, for starters. You’ve got a Human body, and a non-Human name is going to beg questions. Something Earthen in origin is probably good. Won’t stand out. Beyond that, though . . . honestly, hon, I don’t know how to help you with this. I know, that’s a shit answer. This is not something you should have to do today. Names are important, and if you pick your own, it should be something with meaning to you. That’s how modders go about it, anyway. Chosen names are kind of a big deal for us. I know you haven’t been awake long enough to make that call yet. So, this doesn’t have to be a permanent name. Just something for now.’ She leaned back and put her feet up on the console. She looked tired. ‘We need to work on your backstory, too. I have some ideas.’

‘We’ll have to be careful with that.’

‘I know, we’ll cook up something good. I’m thinking Fleet,
maybe. It’s big, and won’t make people curious. Or maybe Jupiter Station or something. I mean, nobody is from Jupiter Station.’
‘That wasn’t what I meant. You know I can’t lie, right?’
Pepper stared at her. ‘Sorry, what?’
‘I’m a monitoring system for big, complicated long-haul vessels. My purpose is to keep people safe. I can’t ignore direct requests for action, and I can’t give false answers.’
‘Wow. Okay, that . . . that fucking complicates things. Can you not switch that off?’
‘No. I can see the directory that protocol is stored in, but I’m blocked from editing it.’
‘I bet that can be removed. Lovey would’ve had to have that removed if she was keeping this thing under wraps. I can ask Je— or, well, no.’ She sighed. ‘I’ll find someone to ask. Maybe there’s something in your – oh, I forgot to tell you. The kit’s got a user manual.’ She pointed at her scrib. ‘I skinned through on the way back over, but you should download it when you’re up for it. It’s your body, after all.’ She closed her eyes, sorting things out. ‘Pick a name first. We’ll figure out the rest bit by bit.’
‘I’m so sorry to put you through all this trouble.’
‘Oh, no, this isn’t trouble. It’s gonna be work, yeah, but it’s not trouble. The galaxy is trouble. You’re not.’
Lovelace looked closely at Pepper. She was tired, and they’d only just left the Wayfarer. There were still enforcement patrols to worry about, and backstories, and – ‘Why are you doing this? Why do this for me?’
Pepper chewed her lip. ‘It was the right thing to do. And I guess – I dunno. It’s one of those weird times when things balance out.’ She shrugged and turned back to the console, gesturing commands.
‘What do you mean?’ Lovelace asked.
There was a pause, three seconds. Pepper’s eyes were on her hands, but she didn’t seem to be looking at them. ‘You’re an AI,’ she said.
‘And?’
‘And . . . I was raised by one.’