

# *Looking-Glass Milk*

by

*Kristin Janz*

LOOKING-GLASS MILK

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In the shuttle, Xichen was babbling.  
"Ramachandraiah and Muthusamy will never live this down, after I prove them wrong!"  
"If you prove them wrong," I said.

The inhabitants of the planet below had taken the nine members of our landing party hostage and were threatening to kill them. One was the only man I had ever loved. Xichen and I were flying down to the surface on a desperate rescue mission that might condemn us to the same fate. And all Xichen could talk about was the glory that would be his when he got to say "I told you so" to all the scientists who had disagreed with him.

"I know they're wrong. Polarized light from space! What theory they come up with next for causing chirality? Earth's magnetic field?" Xichen's accent re-asserted itself when he got excited.

Chirality is a property having to do with the arrangement of atoms in a molecule. If a molecule is chiral, then its mirror image is related to it in the way that your right hand is related to your left.

For no obvious reason, all chiral substances produced by living organisms on Earth exist in only one of the two possible mirror image forms. The origin of this "biological chirality" is one of the great mysteries of science. Theories run the gamut from polarized light of astronomical origin, to weird quantum-mechanical effects of a Bose condensed phase early in the solar system's history, to selective catalysis of amino acid and carbohydrate-forming reactions in asymmetric microcavities of rocks.

Xichen went on. "Why there has to be cause for biological chirality? Why it can't just happen? We believe Earth just happen. We believe solar system just happen. We believe entire universe with billions of galaxies just happen. Why can't we believe that biological chirality on Earth just happen? Maybe we should explore theory that God caused chirality!"

All of a sudden, he seemed to realize whom he was speaking to. He glanced at me, falling silent.

I really was going to kill André. As soon as we got him back safe and sound.

"I doubt that God has a preference for the L-form of amino acids, Xichen."

"No, no!" He coughed. "Of course not." He looked around for a way to change the subject. "What's this do?"

"Don't touch that!" I snapped.

His hand jerked away.

"You might be in charge of this mission, Xichen, but you've never landed a shuttle. As long as we're moving, I'm in charge. Don't touch anything."

His eyes were wide open. "Yes, ma'am!" he said at last.

Xichen was my boss, so I probably shouldn't have raised my voice. But I was a little edgy.

I scanned the engine diagnostics again and glanced over at the positional read-out. We were just about ready to push into our re-entry orbit.

I worried some more about André. He had been badly injured in the attack. And about five hours ago, their captors had disabled the communication capabilities of our shipmates' implants, so we could no longer monitor their vital signs.

*For all I knew, André was already dead.*

*Just then, Captain Jaiwook Lee's voice sounded over the speakers. "Tanais? We have a problem."*

*Another one?*

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*It was a diplomatic mess. Three of Earth's four space agencies had been in a race to send a crewed mission to Alpha Centauri, the only other star system known to host intelligent life. Humans and Centaurians had been talking to each other for over eighty years. The Centaurians didn't have space travel, but the large tribe that seemed the most technologically and culturally sophisticated had indicated that they would welcome a visit from their nearest galactic neighbors.*

*The Chinese vessel had arrived first. The Chinese on that ship weren't talking to us any more than the Centaurians were, but the one explanation we had received from the Centaurians indicated that they believed the Chinese landing party had caused the death of one of their leading citizens. They were holding all humans responsible for the incident, despite our insistence that the United Nations Space Agency was independent from the Chinese program. When our party of five diplomats, two linguists, and two security staff stepped out of the shuttle we sent down, they were met by over a hundred armed Centaurians.*

*Xichen Zhao (Chinese-born, but a citizen of Australia) believed that the poisoning had been a terrible accident. He had joined this mission, putting four light years and several years' time dilation between him and his wife and children, to investigate whether the biological chirality of natural molecules on the Alpha Centauri system's inhabited planet was the same as that on Earth, or opposite. He was hoping for opposite, because that would be the end of the astronomical polarized light theory beloved of Ramachandraiah and Muthusamy. Sol and Alpha Centauri were too close in space for polarized light from the Orion Nebula (the suggested culprit) to have opposite effects on both systems.*

*When we learned about the poisoning, Xichen was convinced that here was further evidence that the planet below had evolved chirality opposite to that on Earth. Most molecules that are mirror images of those we normally consume are passed along by our bodies unchanged. But some of the exceptions are profoundly toxic. Xichen's theory was that Earth food must contain small amounts of such materials and this was why one of the Centaurians had died from eating it. Thus, by sending him down to the planet and allowing him to carry out the experiments he had originally joined the mission to perform, he argued that he might also be able to prove to the Centaurians that the poisoning had been unintentional.*

*Of course, this still didn't explain why the Centaurians had been sampling unanalyzed food from an alien ecosystem. Or why the Chinese ambassadors had offered it.*

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*"You'll have to abort the landing," Jaiwook said. "The Centaurians finally answered our message informing them that you were coming down."*

*My heart leaped. "They're letting the hostages go?"*

*"No. They've threatened to blow up your shuttle as soon as you land."*

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*Xichen had applied for the UNSA interstellar mission because he wanted to gain new insights into the fundamentals of molecular evolution. I had applied because I had failed to execute a permanent break-up with André by any other means. I figured that four-plus light years' distance and thirteen years apart should do the trick.*

*What I didn't know was that he had applied too, for the same reason.*

Once we both realized what had happened, neither of us would back out. What if the one who followed through with the screening process got rejected, and we were both stuck on Earth together?

In hindsight, Earth is a lot bigger than an interstellar spaceship.

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I felt a dull sickness in the pit of my stomach. André was going to die. There was nothing I could do.

"Tanais? Are you there?" Jaiwook asked.

Xichen also looked horrified. My cynical side wondered if it was because nine people we had lived and worked with for over four years were about to die or because he wouldn't be able to do his experiment after all.

"Yes, I'm here."

I tried to think quickly. It wasn't one of my strengths. I was one of those cautious and careful scientists.

"Jaiwook," Xichen said. "The Centaurians have many countries, just like on Earth. Only one country holding our people hostage."

I caught my breath. I knew what he was going to suggest.

"Yes, Xichen," came the reply, "but we've tried to communicate with other major tribes since the incident, and none of them will talk to us either."

I started pulling up satellite maps of the three tribes sharing land boundaries with the one we had sent our ambassadors to.

"But none of them threaten to blow up our shuttle. Right?"

There was a long pause. I looked for reasonably-sized cities situated near appropriate terrain. My heart was pounding.

"None of them have landing strips," Jaiwook said. Some Centaurian tribes had pretty sophisticated computing, communications and weapons technology, but they didn't have air travel. The only landing strip on the planet was within the territory of the tribe that both we and the Chinese had planned to make first contact with, built specifically for human surface-to-orbit vessels.

I frowned. I had three possible sets of landing coordinates. But they were coming up fast. If we didn't start the re-entry procedure in the next few minutes, we would have to wait an additional two hours for our shuttle to make another revolution around the planet.

I didn't want to wait that long. Something in me didn't want to be cautious and careful, not this time.

"The shuttle doesn't need a landing strip," I said. "It's not like it has wheels." The compressed air bed would work almost as well on a field, as long as I didn't hit any trees.

Another pause. "Tanais, I know you received top scores in your shuttle training module. But you're not an experienced pilot."

The solutions to the landing calculations were flashing on my screen, telling me when to engage the engines if I wanted to reach each spot on the surface. The re-entry window for one came and went.

I sent Jaiwook a set of coordinates. "We're landing here." There was an open field near a major city in the territory due north of that belonging to the tribe holding our crewmembers. "Try to contact this group and tell them we're coming."

"How is that going to help?" Jaiwook demanded.

"I don't know," I said.

*There was no more time to wait. I engaged the engines. We dropped.*

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*André and I met briefly as teenagers, in court. We had both been raised in fundamentalist Christian enclaves in northern Québec and had been called, with several other children, to testify during a legal battle over our custody. Should our parents be allowed to raise us according to their own beliefs, or did the consequent deprivation of modern medical technology, lack of a proper scientific education and disconnection from the outside world constitute a form of abuse?*

*Our parents won; nevertheless, André and I both left our respective communities as soon as we were old enough. We reconnected in Vancouver and fell into a stormy relationship that neither of us ever really wanted. He followed me to Zurich for my post-doc and Paris for my first job, never admitting that he was doing it for me, but never letting me forget what it had cost him.*

*He was everything I wasn't: charming, impetuous, scornful of authority. He had made a clean break with the faith and community of his past, which I couldn't do. I still attended church sometimes, and dutifully trekked home for Christmas and Easter despite the disapproving looks I received from my parents' friends once they knew I had gotten ID implants. André hadn't gone home since leaving, and he wouldn't go to my home either. He wouldn't even meet my parents when they left the security of their enclave to visit me.*

*I guess a part of me envied him for his ability to leave everything behind. I couldn't leave it all behind until I had an interstellar mission to use as an excuse. I would have felt too guilty. And yet, paradoxically, I clung to André because he was also a connection to my past. It would have been awkward explaining my parents and their community to anyone else. The enclave was too weird.*

*And we had an agreement. André was the one who insisted on it. We didn't reveal one another's backgrounds to anyone else.*

*I should have known that, acting on a drunken whim, he would be the one to break that agreement.*

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*The shuttle doors couldn't be opened until the exterior had cooled to a safe temperature. Xichen, restless, started pacing. But the gravity wore him out, and he collapsed back into his seat. It was only two-thirds Earth-standard, but it felt about ten times stronger. Our year-long one gee deceleration had ended three months ago.*

*I pinged the ship again.*

*"Ghorbani here." I heard the calm, feminine voice of Jaiwook's second-in-command.*

*"Mirabel speaking," I said. "Any developments?" Jaiwook was negotiating on another channel with the new tribe of Centaurians.*

*"I do not yet know, Dr. Mirabel," Commander Ghorbani replied. "We will notify you as soon as any agreement is reached. How is the shuttle? Our diagnostics suggest that you did not incur damage."*

*"The shuttle seems fine," I told her.*

*Xichen broke in. "The field we landed in does not look very good. The heat of the shuttle set the grass on fire."*

*I scanned the area with the video and weather sensors. The billowing waves of grass I had caught a glimpse of during our landing were now a uniform charcoal black, and a ring of fire surrounded us. Downwind, a wall of flame was sweeping across the plain. "That and the plasma streams coming out of the landing jets."*

"I hope Captain is a good negotiator," Xichen said. "I think Centaurians aren't very happy we set field on fire."

About half an hour later, Xichen made me call again.

"Yes, Dr. Mirabel?" Commander Ghorbani again, her voice as patient as ever.

"Commander," Xichen said, before I had the chance to answer Commander Ghorbani, "there's large group of Centaurians coming this way."

Jaiwook answered instead of the commander. "This is Jaiwook. I have some good news. The governing council of the nearest city is willing to let you carry out your experiment. The Centaurians you see should be their delegation coming to escort you."

"That's a relief," I said.

"I also have some not-so-good news," Jaiwook said. "First of all, this Centaurian tribe and the one holding our landing party are apparently in the middle of a border dispute. And then there's the fire you started. No one was killed, but they haven't managed to put it out yet, and it ruined some good land."

"Which means?" I coaxed.

"Well, I got the impression that if Xichen can prove that the poisoning was an accident, then these Centaurians will be able to gloat on the international scene that their rivals to the south imprisoned innocent guests. That will make them look good in comparison, and they'll probably forgive you for the fire."

"And if Xichen can't prove it?"

I turned up the volume on the cabin speakers to drown out Xichen protesting how he was "one hundred percent sure" his theory was correct.

"I think a significant minority wants to trade you to the rival tribe as a bargaining chip in the territorial dispute. If Xichen's experiment does not prove that the Chinese poisoned their hosts accidentally, that faction may win."

"Our odds don't look very good," I said. "If Xichen's experiment explains why those other Centaurians got sick, these ones will probably let us live, so they can embarrass the ones who have our landing party. None of this speaks to actually getting our landing party back alive."

There was a long pause. I realized that it was Jaiwook trying not to say, "I told you so."

I promised myself not to make any more impetuous decisions.

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While waiting for the shuttle hull to cool, we watched the Centaurians through the front viewscreen. Even my grandparents had grown up seeing pictures of Centaurians on the net, so I already knew that they were six-limbed, scaled, egg-laying carnivores, about 150 to 200 centimeters long, and that their coloration patterns differed by region much as human skin color did. The ones outside our shuttle were predominantly reddish-brown with patches of teal. Except for a bit of jewelry, they tended not to wear much clothing, so it was difficult to look at them without imagining that you were seeing trained lizards driving land skimmers and carrying weapons. Lizards with eyestalks and too many legs. I had to remind myself that the reason they didn't carry many visible personal electronics was that they had developed direct neural interfaces with implanted devices to an extent that no one on Earth had ever managed.

We knew frustratingly little about Centaurian technology. Partly because all the interstellar communication beacons back home were controlled by Earth governments who filed away most of what they received as classified information. On the other hand, the Centaurians really hadn't shared all that

much about their knowledge of the natural world and how they could manipulate it. Probably because of how little our governments would tell them. As a result, although finding out which chirality biological molecules in the Alpha Centauri system had should have been a simple matter of sending a message and waiting nine years for a reply, it wasn't. Xichen had had a hard enough time getting enough scientific vocabulary declassified to allow our translator devices to be programmed with words like "amino acid" and "enantiomer".

Finally, the safety system released control of the shuttle doors. We didn't put on full protective gear before going out, but we did use our oxygen breathers. The air on the planet was human-breathable, but the oxygen was equivalent to what you would find on Earth 5000 meters above sea level.

"Ni hao!" Xichen called out brightly, as soon as his feet touched the ground. After a brief delay, the translator plug in my ear repeated what he had said in English: *Greetings!* Xichen spoke English onboard the ship, but translation software worked better if you spoke your native tongue.

"Greetings," one of the Centaurians said. I wished he would stop pointing his two weapons at us. "You will come with us to the city."

There were about fifty of them, all riding two or three to a small land skimmer. The skimmers didn't look anything like ours. The Centaurians had a completely different body shape.

"Okay!" Xichen agreed. "We'll get our land skimmers out of the hold. We need to get the equipment out too. For the experiments."

"That will not be possible," the Centaurian said. "You will come with us now."

Xichen stared at him. "You mean we should walk? How far is the city?"

"Five point three six kilometers." The translation software often gave more precision than was appropriate when translating units.

I thought of pinging Xichen with an "Urgent: Not Possible!" message, but he was right on it. "We can't walk five kilometers," he said. "We're not used to gravity right now. Besides, the purpose of our coming to the city is to carry out certain experiments using equipment that I have developed and brought along with me. If we go to the city without our equipment, we will have to come back to get it." The translator program spoke better English than Xichen, but its voice was bland and generic. I missed the energy and enthusiasm of Xichen's English.

For a few eerie moments, none of the Centaurians answered. They were all very still. Centaurians don't blink, so there was no way for us to know what they were thinking.

Finally, the one who had been speaking said, "We have conferred." They must have been using their neural connections to talk privately among themselves. "We will allow you to use your land skimmers and bring your equipment. But one of us will ride with each of you, to ensure that you do not use your skimmers as weapons. If you try to attack anyone in the city, we will shoot you."

I expected the Centaurian riding in my skimmer jump seat to feel cold and clammy, but when its skin briefly contacted mine, I was surprised by how warm it was.

It pulled away quickly and apologized for bumping me. It seemed smaller than the others. Fortunately, it did not point its weapon straight at me, which made me feel a lot less awkward. The one riding with Xichen kept the muzzle of its gun resting flush against his back.

Xichen hardly seemed to notice.

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The Centaurian city was like nothing I had ever seen. A wall of red stone, about five meters high, encircled it. Almost every square decimeter of the wall's surface had been engraved with either the local Centaurian script or illustrations of animal and plant life. Near the ground, it was honeycombed with gates and windows.

We entered through the nearest gate, an ornate archway with doors that looked like darkened cast bronze. Right after the archway, a narrow winding passage that had to be negotiated in single file ran between stone walls almost as high as those surrounding the city. The passage soon opened up onto a large plaza, ovoid in shape, paved in more of the red stone. A huge crowd of Centaurians had gathered, and all eyestalks were pointed in our direction as we came into view.

As soon as my skimmer stopped, my Centaurian guard hopped out over the edge. It raised itself onto its two rear legs, lowering its weapon, facing me. I had read that making oneself taller signified a lack of hostility among Centaurians, whereas crouching low to the ground implied the opposite.

It spoke, and a moment later I heard my translation software say, "Thank you for the ride!"

"You're welcome," I said.

"I've always wanted to meet a human," the Centaurian said. "When I was a hatchling I had a big collection of human trading discs. They have pictures of famous humans through history."

One of the other Centaurians called out a phrase that my translator couldn't handle, followed by a command to "Get over here now!"

The one talking to me pulled itself up to its full height, raising both forelimbs as high as possible into the air. "Bye!" it said.

"Good talking to you!" And it darted off to join the others. The one guarding Xichen followed.

I looked at the large crowd that had gathered to watch us. I waved. None waved back, except the small one that had been guarding me. From a short distance away, my translator device picked up its words: "human greeting!"

I joined Xichen at the equipment pallet. "Does everything look all right?" I asked.

"Yes, yes," he replied. "It's fine. We need to do some test injections to calibrate the system." He didn't even look up at me, preoccupied by connecting instruments to their power supplies and flipping switches. I felt like a third hand in an inconvenient spot.

I glanced up. There was some commotion going on among the Centaurians.

"Look over there," I said.

"In a minute," Xichen said absently. He tapped at a touchscreen.

I looked up again. Suddenly, I saw several flashes, one after the other, from the thickest part of the crowd, low to the ground.

"Xichen!" I practically shrieked his name.

"In a minute," he said again.

I edged around the apparatus, putting it between me and whatever was going on. I wished I had a weapon.

The Centaurians were all shouting at once. My translator couldn't make anything out of it.

There were two more flashes.

I glanced over my shoulder at the passageway that led back to the gate. No one was over there. I wondered what would happen if I jumped on my skimmer and powered away. But that wouldn't do much for André's chances.

I stepped out around the apparatus again. Xichen was still tinkering. He didn't seem to have noticed anything.

A knot of Centaurians detached themselves from the crowd and started loping towards us. My stomach flipped over. But then I noticed that they were all walking on only their rearmost legs, standing at almost their full height.

Two of them were carrying something between them. My stomach protested when I saw that it was a dead Centaurian. Its limbs were contorted and about a quarter of its body looked like it had been roasted over a slow fire.

I instantly thought of André. Was that the sort of weapon that had been used on him?

My legs felt weak. But I didn't want to sit down if Centaurians associated a lowered posture with hostility. I grabbed an edge of one of Xichen's separation devices.

"Don't touch that!" he exclaimed, trying to shoo me away with one hand.

"Xichen -"

"I mean it! You're in charge of the shuttle, but I'm in charge of the experimental apparatus. All those parts have to fit together just so --" He raised his head to better scold me, and finally seemed to notice all the Centaurians who had gathered around us. "Oh. Hello there."

"The disruption has been dealt with," one of the Centaurians said, "and the offenders are being apprehended."

Over in the crowd, several Centaurians were herding a larger group away. Many remained, but they seemed to be moving as far away as they could from where the flashing of weapons had occurred.

"What was the cause of the disruption?" I asked. I tried not to look at the dead Centaurian. Two others crouched over it, slicing it open and removing its entrails.

They all stared at me, again without any expression that I could discern. Finally, the one who had spoken said, "It is a Centaurian matter." He pointed to the dead Centaurian. "We were told that you required a sample of meat for your experiments. There it is."

I tried to quash my rising sense of racial superiority. I had known that the Centaurians practiced cannibalism. But I had not expected to be presented with such inescapable evidence.

"Thank you!" Xichen said. "Uh, would you like us to cut out our own sample?"

Us? I wasn't touching the corpse.

"No. We can do that." One of the two Centaurians crouching over the body extended a claw to Xichen. Two long, bloody strips of flesh hung from it. Centaurian blood looked indistinguishable from ours.

"Will this be enough?" the Centaurian asked.

"Um, um, yes!" Xichen looked wildly around, perhaps hoping to find someone else to take the offering. I took a few deliberate steps away. After a moment, Xichen dropped the flesh into one of the blenders.

"We will leave you to your work," said the Centaurian who had been speaking. It pointed to three others standing off to the side. "These are some of our own scientists. They will watch your procedure, to ensure that they can vouch for whatever conclusions you reach."

The scientists glided over with their long, graceful steps. One of them seemed to have had a small mirror surgically implanted into its belly, around the level of its middle pair of legs. I had no idea why. I didn't think it could stretch its neck far enough to see anything in the mirror.

"Hello," one of them said.

"Welcome to our planet," said another.

The other Centaurians who had come over started to walk away, followed by about half our escort from the shuttle. The other members of our escort remained, standing at regular intervals between us and the crowds with their two rear pairs of legs on the ground.

"Thank you!" said Xichen. "I am Dr. Xichen Zhao, and this is my colleague, Dr. Tanais Mirabel." He thrust a hand out towards the Centaurian scientists.

The three of them stared at his hand. Finally, one said, "That is a very nice hand. Did you grow it yourself, or was it grafted on?"

Xichen drew his hand back quickly. He glanced at it as if suddenly uncertain that it looked right.

"Um, I was born with this hand," he said.

"Oh," said a Centaurian. Another said, "It is very attractive."

I knew from my reading that Centaurians didn't shake hands. I supposed that Xichen had been too busy composing his Nobel acceptance speech to try and learn anything about the cultures we would be encountering. "We're very pleased to meet you," I said.

The Centaurians all looked at me.

"Did you want to show us one of your hands, too?" one asked.

"That's all right," I said. "Once you've seen one human hand, you've seen them all."

There was a brief pause. Then one of the Centaurians said, "I think that was a joke."

They all made a strange, grating noise, in unison. Laughter?

It was reassuring to see that they felt just as awkward as we did.

"It is unfortunate that those troublemakers came to the plaza," the Centaurian on the right said. This one was the tallest of the three, and its head was almost entirely teal-colored, except for a small star-shaped patch under its left eyestalk. "The police should have kept them away."

"They are religious fanatics," said the short one on the left, the one with the mirror. "They believe that humans are messengers of the Great Devourer, because you feed your young with milk and eat eggs."

I glanced at Xichen. I hoped he wouldn't say anything. Not long before we had left Earth, one of the fundamentalist Christian enclaves had made worldwide news with a short film that explained how Centaurians were servants of the devil, apparently because they were cannibals and bore a vague resemblance to reptiles. Ever since André said what he had said about my religious beliefs, everyone on the ship had been giving me a hard time about it, re-playing recordings of the film with images of me shopped in, making animated Centaurians with devil tails dance across my workscreen.

Fortunately, Xichen chose not to go there. "We eat other things too," he said. "Not just eggs."

"Including milk produced by parents of other species to feed their young," Starpatch said.

"Yes," I said. I was getting irritated. "Some of us do. But none of us eat other humans. That's against the law everywhere."

For a moment, I regretted having said that. The three Centaurians just stood there looking at me. It was creepy how they didn't show any familiar facial cues.

Suddenly Mirrorbelly made the laughing noise again. "As a scientist, I find it remarkable that life on your planet evolved so similarly to what we find here. And yet, as I continue to learn about humans, sometimes I feel that you are our exact opposite."

"Just like our molecular components," said Starpatch, "if Dr. Xichen Zhao's theory is correct."

\*\*\*

All three scientists were male. They were surprised to learn my gender, and Mirrorbelly asked who sat on my eggs while I was working, before Starpatch reminded him of the reproductive differences between our species.

This was one of the reasons we (and the Chinese, for that matter) had not intended to make a first contact with this tribe. The ones who were holding our first landing party had females involved in all walks of life, and seemed to have fewer reactionary religious elements.

On the other hand, the sexist tribe was not holding us responsible for what the Chinese group had done just because we shared their species.

I watched the crowds that still lingered on the plaza. Some were still standing around, watching us, but most had settled down in small groups. "It's a good day for a picnic," Starpatch told me. Indeed, when I squinted my eyes to look more closely, I saw that most of the groups had brought several dishes of food, and many were eating.

Our scientist friends had also brought snacks, which they crouched near the ground to enjoy. Fortunately, none showed any inclination to tuck into the dead Centaurian. I supposed

that they preferred their meat to undergo a bit more preparation. In fact, most of what they were eating looked and smelled extremely appetizing. I might have asked for a taste, if not for the fact that it probably would have poisoned me.

Xichen and I calibrated the system and prepared the samples. Then Xichen explained to the Centaurian scientists how the apparatus worked while I ran the control experiment on a sample of vat-grown chicken meat we had brought from the ship. The three Centaurians watched as the screen began to graph the mass spectrometer output for the chicken sample. Xichen zeroed in on the region where the individual amino acids showed up, and pointed out some of the most abundant: leucine and isoleucine, alanine, tryptophan. As his cursor paused over a particular peak, a small box showing a line drawing of the molecule's most likely structure would pop up.

"Do you recognize these from proteins on this planet?" Xichen asked.

After a moment, Starpatch said, "I cannot say. I do not understand the notation you humans use for displaying molecular structure. What do the lines represent?"

Xichen started trying to explain our organic chemistry drawing conventions. After about five minutes, with the Centaurians even more confused than they had been before he started, I had had enough.

"Xichen! Can we please just run the Centaurian sample? We don't have all week!"

"Okay, okay!" he said. He handed me the blender of nasty-looking Centaurian soup. "Would you like to do the honors?"

To my surprise, I found that my hands were shaking as I dropped the end of the inlet tube into the blender and switched on the pump. This was it. This was the first time anyone from our planet had ever carried out a scientific investigation on a biological sample from another solar system. We were making history.

It took about fifteen minutes for liquid to start eluting from the protease array chips into the second collection flask, and ten more minutes for the amino acid region to come up on the output screen. It seemed like much longer. With this method, we would not be able to determine the prevailing chirality of the planet's biological molecules unless some of the same amino acids we had on Earth had evolved independently here in the Alpha Centauri system, so we were both impatient. Xichen kept tapping the frame of the screen with a stylus. I tried not to grind my teeth.

As soon as the amino acids were out on the screen, Xichen attacked it with the stylus, expanding the region so we could see the individual peaks.

"Seventy-five point zero three!" he cried out, loudly enough that several of the guards looked in our direction. "Glycine!"

"Glycine won't prove anything," I reminded him. Glycine was the only nonchiral amino acid. Its mirror image was exactly the same. As if you had a thumb in place of your little finger, so that you could wear a left-handed glove equally well on either hand.

"There's alanine, too. Eighty-nine point zero five."

"Pardon me," said Mirrorbelly, "but isn't your computer telling us that our amino acids have the same configuration as yours? The drawing that appears when you point to a peak looks the same as it did with the sample from your planet."

"No, no!" Xichen said. "That's only the computer's suggestion. This is nothing but mass spectrometer output. The real data is the lines you see on the screen, and for each line --" he pointed with his stylus, "-- this number here, and this molecular formula. The number tells us the mass of each molecule. Based on the mass, the computer can calculate how many atoms of carbon, hydrogen and nitrogen the molecule contains. The picture is just a suggestion. I told the computer I was looking for amino acids, so if a molecular formula matches an amino

acid known on Earth, it shows the picture. Look." He highlighted the peak at one hundred thirty-one point zero nine atomic mass units. "This shows two structures. Earth proteins contain two amino acids having this molecular mass, leucine and isoleucine. But the fact that we see two structures doesn't mean that your sample also has both those amino acids. It just means that the computer can't tell us, based on the information this output provides, which is present."

"What next?" Mirrorbelly asked.

"Next we run each solution through the separator array chips. We choose an amino acid present in both kinds of protein. I say we choose alanine. It's small. Some of the larger amino acids have more possibilities for their structure, but if something has the molecular formula of alanine, and it comes out in the amino acid region of the separation graph, there's nothing else it could be.

"We separate out the pure alanine from each mixture, then run each alanine sample through the polarimeter. Alanine from Earth rotates polarized light to the right." He gestured with the hand holding the stylus. "If your alanine has the opposite configuration, as we expect, it will cause a beam of polarized light to rotate to the left."

The Centaurians said nothing. I wondered if their translator devices knew the names of the amino acids.

I felt suddenly uncomfortable. These Centaurians were scientists, with a good knowledge of chemistry. Surely they knew which was the smallest of the chiral amino acids, even if they didn't know what we called it or recognize our notation. And at least one of them should know whether their alanine rotated polarized light to the right or to the left. Their scientific knowledge should have been sufficient to answer Xichen's question, without our having to carry out the final phase of the experiment.

So why didn't they say anything?

Xichen didn't seem uncomfortable, as he set up the separation chips and ran the Earth sample of hydrolyzed amino acids and other organic molecules through the second array. When he had a pure sample, he transferred the solution into the polarimeter cell.

We all watched as he set the filled cell into the polarimeter and closed the top. Our eyes and eyestalks zeroed in on the small display screen as the numbers stabilized.

The sign of rotation was positive, just as we had known it would be.

"That symbol means that the sample is rotating light to the right." Again, Xichen used his hand to indicate the directionality. "The symbol that shows rotation in the opposite direction is this." He used the stylus to draw a minus sign. "That's what we expect to see for your sample. That will show that Earth foods are poisonous to Centaurians because of their opposite chirality."

We all watched in silence as Xichen ran the Centaurian sample through the separation array. A couple of guards, perhaps sensing our excitement, came over and stood near us.

I held my breath as Xichen placed the polarimeter cell holding the purified Centaurian alanine into the holder. He closed the cover.

I stared, not believing my eyes. The sign of rotation for Centaurian alanine was also positive.

"No," Xichen whispered. "No. That can't be." He started looking around frantically. "I must have contaminated it with the Earth sample. We must start again." He moved around the equipment to the receptacle holding the waste solvent from each sample. "We'll concentrate this down and re-inject it. We'll look for a different amino acid. Leucine has a higher sign of rotation. That will give a better result."

"I do not understand," said Mirrorbelly. "If you have contaminated our sample with Earth proteins, won't the solvent waste also be contaminated?"

Xichen blinked several times. He seemed to recognize that this was true. "We need a fresh sample of Centaurian food!" he said. "We will repeat the entire experiment. I will wear gloves this time, to prevent contamination."

"Xichen!" I said. It was clear to me, as it must have been clear to all the other scientists, that that wasn't going to help. Xichen had tested his theory. It had been proven wrong.

"We are sorry," said Starpatch. "We had looked forward to many fruitful scientific discussions with our colleagues from Earth. And I personally do not believe that those humans intended to poison our neighbors to the south. But unfortunately, we live in a time when political maneuvering too often trumps scientific research."

The two guards standing nearby began to move closer, and several of the guards positioned farther away also began to walk in our direction.

Xichen just stood there, holding the jug of solvent waste. It was obvious that he had not thought beyond this moment.

I had. I ran for it. Not away from the crowds. Towards them.

The babble of Centaurian vocalizing rose all around me. Weapons were pointed. But no one fired.

A big Centaurian lunged at me, claws outstretched.

With a cry, the small Centaurian who collected human trading discs hooked a claw around one of the other's hind legs. Both thudded to the ground.

I kept running, straight at the picnicking Centaurian families. I didn't think I would make it. Gravity was my enemy, holding

onto my feet like I was in one of those dreams where you're running and your legs don't work.

Several individuals darted away, large adults herding small juveniles. But most stood their ground, lowering into a defensive posture.

I paused, then veered towards the group with the most food. Before anyone could stop me, I dropped to my knees, ripped away my oxygen breather, and started stuffing food into my mouth.

I had never eaten so quickly. But I needed to make sure I ate enough, of food that clearly was not toxic to Centaurians, to make me sick.

Xichen had been wrong. Food from Earth did not contain molecules with the opposite chirality to those on this planet. But the ecosystems on the two planets had still evolved in complete isolation from one another. Why should we expect all our biochemical pathways to be compatible? There was plenty of room for toxicity to arise from other causes.

I looked up. Three guards had arrived, but none moved to arrest me. They were all just staring at me, like the group of picnickers I had interrupted.

One of the picnicking Centaurians handed me a jug. It was half full of some liquid. I took a long drink. It tasted like water.

I started to laugh. I couldn't help it.

A few of the Centaurians joined in. I recognized their laughter now, even if my translator didn't.

"That will be enough now," one of the guards said. He was not laughing.

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Xichen came to see me six days later, once I had stopped vomiting blood.

"This is Centaurian hospital?" he asked, looking around. The room was open to the sky. Centaurian buildings did not have ceilings.

"Yeah." I sat up. I had been too sick to be moved back to the ship, so a team of Centaurian doctors had worked tirelessly to stabilize my condition. Since then, Doctors Ferreira and Ghosh had come down to lend their expertise on human physiology, but it was the Centaurians who had saved my life.

"Thanks for coming back to visit me," I said. I was scheduled to return to the ship in four days' time, and I knew that the shuttle taking me was supposed to have landed that afternoon. But I also knew that the shuttle would have touched down on the landing strip, in "hostile" territory several hundred miles away, so I hadn't expected anyone to travel all this way just to see me.

And yet, perhaps things were changing between the two Centaurian tribes. Footage of my mad dash for the picnic food and my ensuing illness had been carried by Centaurian news services worldwide. The fact that a supposedly less tolerant tribe of Centaurians had expended such great effort to save the life of their courageous human visitor, and the corresponding fact that a tribe priding itself on its progressive values had wrongfully imprisoned members of an alien diplomatic mission, had caused considerable embarrassment to the councilors of the tribe holding our landing party. Especially when it came out that the poisoned Centaurian politico had foolishly insisted on sampling food the Chinese had brought for their own use, despite discouragement from both the Chinese ambassadors and his own scientists. The need to save face had compelled that tribe to announce the immediate release of their human hostages, and to eagerly offer the tribe treating me whatever assistance they could render ... I supposed that, while biochemistry might have evolved differently, politics were universal.

"I'm glad to come," Xichen said mournfully. He was speaking English instead of using his translator.

"You don't sound glad," I said. He shrugged.

"Have you talked with Kiara and Vinit?" I asked, naming the two biochemists who had come down to the planet's surface. They were working with Starpatch, Mirrorbelly and Tonguetied to compare and contrast the basic biochemical mechanisms at work in living things on our two planets.

Xichen sighed. His face became even more downcast. "I don't see them yet. But they talk to ship. They tell me what they find."

I waited for him to continue. Kiara and Vinit seemed to think I was too sick to talk science. Or else they believed the half-truths André had spread about my religious beliefs. I had been excluded from a lot of scientific discussions since his outburst.

He sighed again. "Amino acids and sugars have same chirality as on Earth. Everything else is different. No sulfur in Centaurian biological systems. So no methionine, no acetyl Co-A ... their equivalent of citric acid cycle, glycolysis, all those other pathways, it's all different. They use six-carbon sugars in genetic material, instead of ribose and deoxyribose." Finally, he said what I had been waiting to hear. "They don't know exact mechanisms of toxicity, but so much biochemistry is different, it would be more surprising if human food weren't toxic to Centaurians." He glanced at me. "And Centaurian food to humans."

I felt badly for him. That experiment had been the culmination of his life's work, and he believed it had failed. And yet, it hadn't failed. If all the technical details went smoothly, it was impossible for a scientific experiment to fail. It just might not give you the answers you wanted.

I wondered if he regretted having lost so many years with his family, to carry out the one experiment that had turned out not to answer his one urgent question after all.

He wasn't looking at me at all now. "When we left Earth, there was talk of a mission to Eta Cassiopeiae. I see about that when we get back to Earth. Just one planet in this region of the galaxy with opposite chirality molecules to those on Earth, and I can disprove astronomical theory. Just one will be enough."

I didn't say anything about that. Xichen wasn't going to live long enough to join a mission to Eta Cassiopeiae, unless the next twenty years saw some remarkable developments in anti-aging treatment.

"It is exciting though, isn't it?" I ventured. "That the biochemistry on this planet is so different, and yet so many of the superficial features of life evolved the same way? Egg-laying vertebrates, trees, grasses...."

"Yes," Xichen said dully. "It is exciting."

Had I envied him once? He and I had been the first human scientists to examine the molecular basis of life on a planet outside our solar system, and all he could think about was the fact that he had not been able to find conclusive proof for his pet theory.

"It is exciting," said a new voice, from the doorway. "I am sorry that I am not a scientist, to share in all the fun."

I caught my breath. It wasn't fair. How could his voice still do this to me, after all he had put me through?

"Hi André," I said, speaking English. André and I spoke French when we were alone, but Xichen didn't understand it and wasn't wearing his translator.

André walked over to my bedside. He was limping, and his bandaged left arm was held in a sling across his chest.

He kissed each of my closed eyes in turn, his lips barely touching my skin. I shivered, trying to remind myself how angry I still was. He had trashed my credibility as a scientist among our crewmembers. And that was only his most recent failing.

"Merci," he said. "I hear you saved our lives."

Xichen seemed to have discovered something blocking his throat. "I leave now," he announced. "I see you both later."

Somehow things were even more uncomfortable after Xichen left. André moved away from the edge of my bed. He didn't seem to know what to do with his free hand.

"Ça va?" he asked, switching into French. *How are you doing?*

I pulled myself up into a sitting position. My stomach protested, and I glanced down to reassure myself that the basin I still occasionally threw up into was ready and waiting.

"Don't think you're not still in trouble just because we both almost died," I said, also in French.

His face took on that hunted look that appeared whenever I tried to discuss our relationship.

"Tanais, maybe this isn't the right time for us to talk about this."

"It's never the right time, is it? Well, we need to talk about it now, because there might not be another chance. I'm asking to stay here when the ship leaves for Earth."

It was enormously gratifying whenever I took him completely by surprise. Perhaps because it happened so rarely. He was the impetuous one.

He had been the impetuous one. Running away from armed guards so I could gulp down a bunch of food that I believed would make me deathly ill, without knowing whether it would achieve my objective, had been a bit out of character for me.

So was deciding that I wanted to join the permanent diplomatic mission to the Centaurians.

After a minute, André said, "You'll miss your family."

Not as much as I would miss him. "They'll miss me too. But I've already been away from them for four years -- six for them -- and it would be that long again before I got back to Earth." I paused, then looked him straight in the eyes. "It feels right. It feels more right than most things I've done since I left home." Including getting together with you, I didn't say. But I'm sure he heard it.

He scratched his head. "I don't know what to say." I was silent, letting the awkwardness of the moment stretch itself out between us. "I shouldn't have said what I did. During the poker game."

"No, you shouldn't have." He hated that he couldn't tell when I was bluffing. He hated that every hand he held was written on his face. So he brought up the one thing that could still make me lose my composure. My past.

"You're the one who always wants to talk about it."

"With you. In private. André, I'm a scientist. It would be bad enough if you just told them I believed that evolution had been orchestrated and directed by God. At least that's true. But you outright lied, to make me lose as much credibility as possible. You know I don't believe the universe was created in six days."

"You used to."

"When I was fourteen! And so did you. You're the one who wouldn't get an ID implant until just before we left Earth. Why, did you still think it was the Mark of the Beast?"

He had his arms crossed now. Any moment, he was going to walk out. His rebuttal to any argument he couldn't win.

"Besides," I said, "we had an agreement. We didn't tell anyone where we came from. You were the one who insisted on that. And you were still the one to break it. Why? Because I was winning too many of your entertainment credits in a poker game."

*I glared at him. He was pretending not to care what I said.*

*"Plus," I said, "you slept with Rosa."*

*That did appear to wound him. I felt guilty for bringing it up again. But he had slept with her, and not during one of the many periods when we were officially broken up. I had my suspicions about him and the Italian ambassador too, but I'd never given voice to those.*

*I felt sad, suddenly, remembering that André was the only person within four light years who even understood the fundamentalist paranoia about implants.*

*"I wasn't planning to fight with you when I saw you next," I said. "I was worried about you. I didn't know whether you were alive or dead."*

*"And you were concerned about the state of my soul," he said. But he was smiling as he said it. It was hard to stay angry with André when he smiled.*

*After he had gone, I used the control panel on my bed to move it out into the center of the room so I could see the stars. Both suns had set, and neither moon had risen above the level of the walls. And this Centaurian tribe kept their cities darker at night than most human nations did.*

*With another button, I turned off all the lights in my room.*

*The constellations here were so similar. Not quite a mirror of Earth's night sky. A copy, perhaps, that someone had tweaked, making subtle changes here and there. Orion was different. But the frosted belt of the Milky Way spanned the sky, and the familiar V of Taurus, Pleiades marking his shoulder, stood directly overhead. Cassiopeia was just out of sight, beyond the wall. I knew that when it rose high enough, I would see a fourth bend, and that the bright star at its tip would be the one that I had called home.*

*I closed my eyes. I would miss it. But I already felt the excitement of the future, the chance to learn about new cultures, to study the chemistry of a new ecosystem, to meet new people who would never judge me based on which human sub-sub-culture I came from.*

*For the first time in longer than I could remember, I felt that I was in the right place.*

END