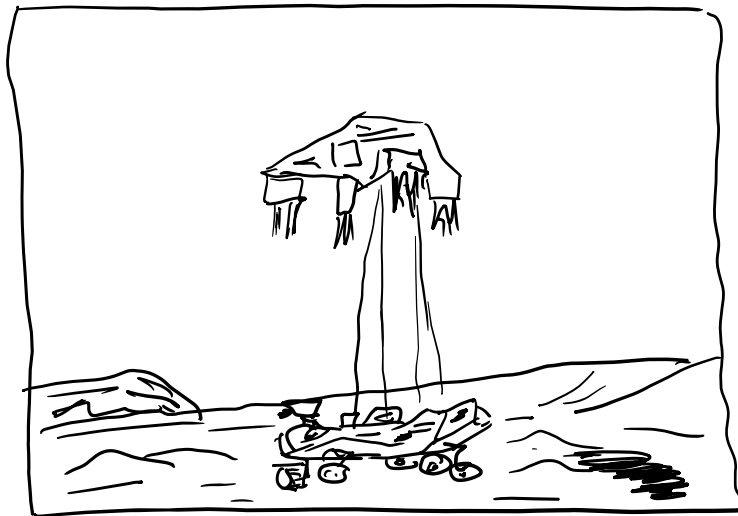


# Mars vs. The Invaders

A Martian Adventure: How It Started



Perseverance arrives at Mars and is lowered to the surface by the sky crane.

By

W. Steve Wilson

“No one would have believed in the last years of the nineteenth century that this world was being watched keenly and closely by intelligences greater than man’s...intellects vast and cool and unsympathetic, regarded this earth with envious eyes, and slowly and surely drew their plans against us.”

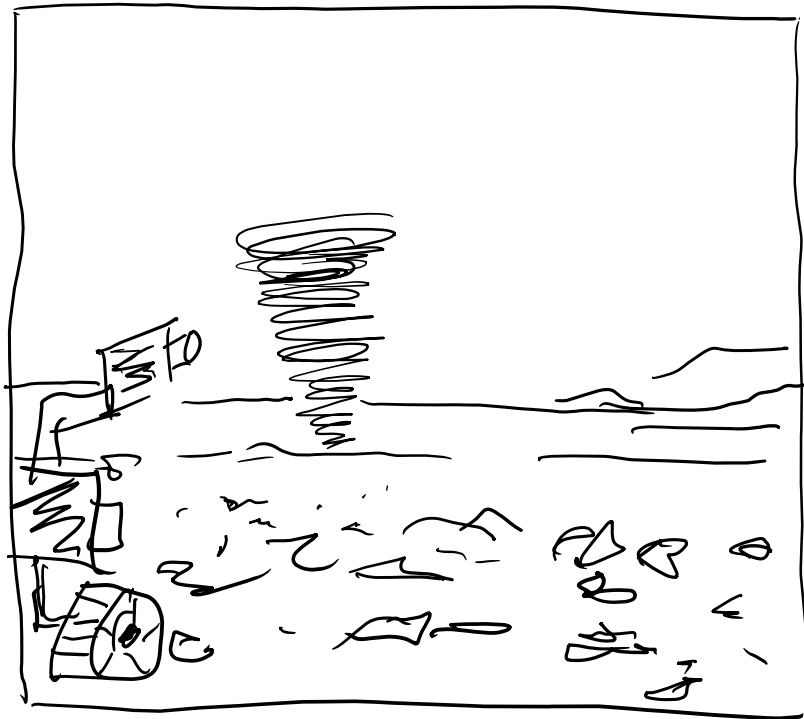
The War of the Worlds  
H. G. Wells  
1898

### **Dedication**

For the Perseverance and Ingenuity teams, who astound us with their genius and skill, and welcome us along on the adventure.

Except where referenced, *Mars vs. The Invaders* is a work of fiction. Names, characters, places, and incidents are the product of the author’s imagination or are used fictitiously. Any resemblance to actual persons, living or dead, events, locales, or organizations is entirely coincidental.

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Perseverance's mastcam detects a dust devil on the surface of Mars.

### **Episode 1: Unwarranted Surveillance**

*Invasion beasts continue to arrive and disturb the status quo. The local denizens of the barren plains hold mixed views of these developments. Pressure mounts to act.*

The latest invasion beast landed in Shimmery5's life zone. The creature arrived with the rush of flaming hot gas. Suspended on long, tensile strands, it pounced on the dry surface, six solid trunks supporting its massive bulk. Dense, sharp tendrils protruded from the top and sides, their movements crisp, sudden, unpredictable.

Shimmery5 raised the alarm, and the Council had acceded to Shimmery5's call for a Conclave to gather all the remaining combines, the entire Collective, to debate a plan to resist the invaders.

Shimmery5 flowed north as quickly as manageable. Their world's orbit was taking them away from the heat of its star and moving through the chilled briny substrate below the surface of their planet was becoming difficult. They needed to get to the Conclave and back to their life

zone before travel became painful.

First, the oldest member of Shimmery5, sent soothing waves of calm across the combine. “I know you feel this is abusive, asking the smaller, older combines to travel. But the only place we can all gather is the largest life zone at the pole.”

“Leaving our home is painful and we don’t know if we can even get there in time,” said Fourth.

“Fourth, we’ll be fine. It hasn’t been that long since we’ve made the trip,” said Third, always the peacemaker. “When the last crawler landed in Glittery11’s life zone, we made the trip just fine.”

Even so, the combine was restless and agitated—the grating discomfort of traveling didn’t help. First continued to send waves of calm and comfort as the combine moved north.

###

Shimmery5 arrived at the north polar life zone. As was customary, they would make their case before any discussion started.

“Unlike most of the Collective, Shimmery5 does not believe the invaders are benevolent,” said First. “We have no assurance if they come, they will restore the planet and leave.” A ripple of dissent flowed across the Collective. “Dissent all you want, but our current form has served us well for the two billion revolutions since our home lost its atmosphere and baked under harsh radiation—no longer protected by a magnetic shield.”

“I disagree,” said the first of Glittery11, shedding a wave of excitement. “We can all remember from before the Change, they come from a watery planet with a dense atmosphere. Why wouldn’t they rebuild the seas and restore the air? We could reverse our changes and return to the surface.” A current of longing and frustration flowed from Glittery11. “We could return to our solid form, traveling our home, flowing across the wet landscapes, swimming in lakes and seas, touching each other with physical tendrils, not these unsatisfying energy exchanges. We could be a real Collective again and not have to live in our separate life zones.”

First drew some energy from Shimmery5 and pushed back on the wave of dissent now

building in the Collective. “We don’t know what they’ll do. They could change our world in ways that we couldn’t live with. These invaders need to be stopped. The beasts they send keep getting larger and stronger. This time they even sent a flyer that flits around with thin spindly tendrils and whirring parts that move too fast to follow. What if they find us? Now is the time to act.”

The energy in the collective shifted as some of the larger combines allied with Glittery11 and pushed back against Shimmery5, exhausting First.

“We prefer to think of them as visitors,” said Glittery11 and their allies. “For almost fifty revolutions, since we first detected the transmissions emanating from the nearby world, most of the Collective has wished the visitors might someday come to stay and restore our world. The beasts’ arrival that began twenty-six revolutions ago is evidence they will.”

Shimmery5 coalesced around First to strengthen them as they argued against the growing dissension. “No, they won’t. We need to preserve our world as it is. There is no guarantee the invaders will create the right conditions, nor that the Collective can reverse the adaptations we took two-hundred million revolutions to acquire. It is foolish to hope we can return to the surface. If we stop these beasts, as they arrive, the invaders will not come.”

“That’s where you’re wrong, Shimmery,” said the Council. “We’ve seen their beasts die on their own and it hasn’t stopped them. They send more, that live longer and travel farther.”

Glittery11 and their allies’ energies crested in the Collective and Shimmery5 coalesced even tighter around First. “To be honest, Shimmery, we have no way of fighting the beasts,” said the Council. “We should view them as friends. When the time is right, we can reveal ourselves.” A broad wave of assent cascaded through the Collective, leaving Shimmery5 alone and isolated.

“The Council agrees with the majority of the Collective. The Collective will welcome the visitors, and hope that someday, the remaining combines, including Sparkly457, Glittery11, and even Shimmery5, can resume our native form.”

In the end, the Council remained content to monitor the visitors, only authorizing sending tendrils into the atmosphere to observe. The dust these tendrils swirled up from the surface attracted the visitors’ attention, but they never approached. The Collective’s surveillance could continue undetected. They would remain safe below the cold, dry surface until the visitors arrived and the Collective could welcome them as friends.

###

On the journey home, frustration boiled over at being marginalized. Shimmery5 determined they would take action themselves and disconnected from the Collective. They would act in the only way they could, with wind and dust. They would start with the heavier beast that crept over the surface.

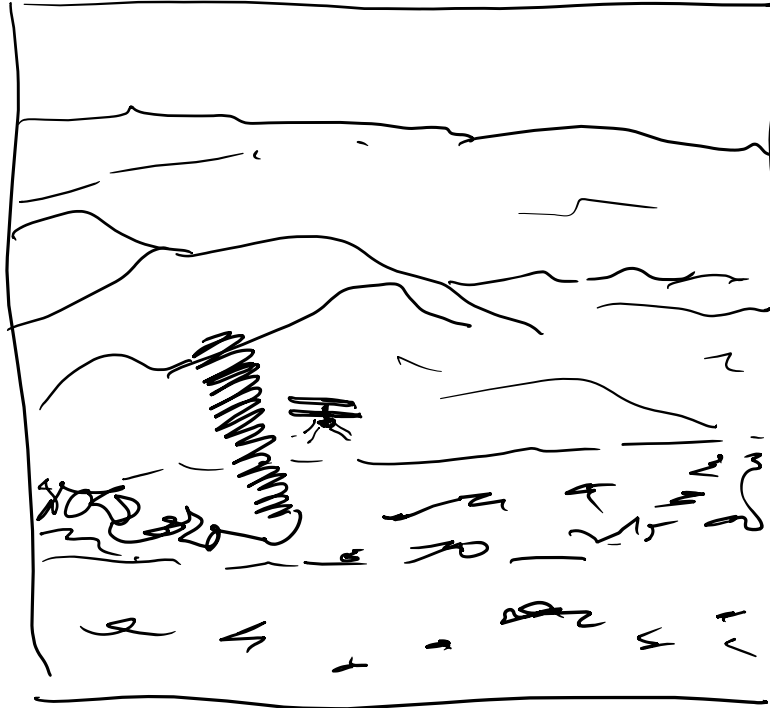
Then Shimmery5 would go after that flittery flyer. That could be problematic. It just flittered here and there, and Shimmery5 couldn't tell where it would go next.

Besides, unwarranted surveillance by a flying beastlet was just plain annoying—it had to go.

###

**Pasadena, March 16, 2021:** The latest rover to land on Mars has detected a dust devil moving across the field of vision of one of the mast cameras. These are common on Mars and have been observed as far back as the 1970's Viking missions...

[Ref: <https://www.space.com/perseverance-rover-sees-mars-dust-devil> ]



Ingenuity experiences technical difficulties on its sixth flight.

## Episode 2: Mars Attacks

*Shimmery5's efforts to combat the invaders continue as the combine executes a direct assault on the flittery flyer.*

After an arduous trip back from the Conclave at the north polar region, Shimmery5 arrived at their life zone. The combine members were exhausted and sore from the last leg of the journey. The season had continued later into spring as the planet moved away from its star, making travel difficult and painful as the winter warmth waned.

"We'll need to rest, heal and recharge before we attack the invasion beast," said Shimmery First.

"Can't we wait until summer?" asked Shimmery Fourth, the second to the youngest of the five members of the combine. "We can recharge, and gain added strength when the light periods are longer."

"We can't wait," said Shimmery Third. "The large crawler and the flittery flyer have both

moved since we went north. If we wait until summer, they may leave our life zone, and we may not be able to catch them.”

First caught a spark of excitement from Fifth. “We need to do this now. We must show the Collective that action is possible, even if not sanctioned.”

Second, as usual, remained silent—hedging their bets, thought First.

In the end, the combine settled on recharging through two light and dark cycles, two rotations, then they’d begin their assault. The members spread out, disentangled, and found briny patches close to the surface for energy and rest.

As their star rose above the horizon on the third rotation, Shimmery5 re-combined and moved southwest to locate the invaders. To their disappointment, the large crawler had moved into a rocky area, lacking any substrate they could travel through. The flittery flyer had moved as well. It was right over a narrow but deep travel channel that would accommodate the entire combine.

“We’ll need to change our plans,” said First. “We’ll start with the flyer and go after the crawler when it moves.” General assent flickered through the combine. Rested and recharged, even Second and Fourth had combined willingly for the attack. First sent a ripple of gratitude.

Shimmery5 moved to a position close to the flittery flyer, coalesced tightly around a spot just southwest of the beastlet—and waited.

“When the flyer takes off, Fifth will send a tendril above the surface and send a strong wind to disrupt its flight,” said First. Fifth’s agreement flashed through the combine.

The combine waited, trusting they’d guessed the right direction the flyer would take.

Without warning, the flyer launched itself off the surface and headed southwest, its thin, spindly tendrils hanging down and its whirring parts a blur above. It crossed right above Shimmery5. Fifth gathered their energy, sent a tendril into the atmosphere, and agitated the thin gas. A slight breeze moved westward. The flyer made a barely detectable compensation and continued on its route to the southwest.

Failure rippled through the combine.

Shimmery5 would not be deterred. Collecting their energies, they dashed southwest faster than the flittery thing could travel. They coalesced again and waited.



“Fifth, stretch higher, use all the energy you have, and touch the thing. We’ll support you.” First sent a charge of encouragement and extra energy to Fifth and Fifth’s thanks flowed back.

The small invasion beastlet was heading to their position.

It crossed overhead.

Fifth summoned their strength, felt energy flowing from the combine, reached up with a thin tendril, and flicked the flyer. The thin tendril passed right through the thick of the flyer’s body. A small charge of feedback raced through the combine.

The flyer wobbled—tilting back and forth. Its speed started changing, and the tilting oscillations grew worse. The flyer turned, reversed its path, and headed northeast.

Suddenly, it stopped and landed, propped up by its four spindly tendrils. The whirring parts slowed.

Success streamed through the combine. They’d done it. They’d attacked the invasion beastlet, and it had stopped flying. Maybe now the Collective and the Council would see that they could stop the invasion. The Collective could destroy the beasts. They could continue as they were—safe.

But they would wait to reconnect to the Collective. The Collective would criticize Shimmery5’s unsanctioned actions, even with their early success. First determined they would rejoin when they had stopped the invasion.

The flittery flyer would not move or try to fly again. Counting their efforts, a success, they would move northeast and began planning to take on the monstrous crawler.

So Shimmery5 rested and recharged for thirty rotations after the ordeal of their assault.

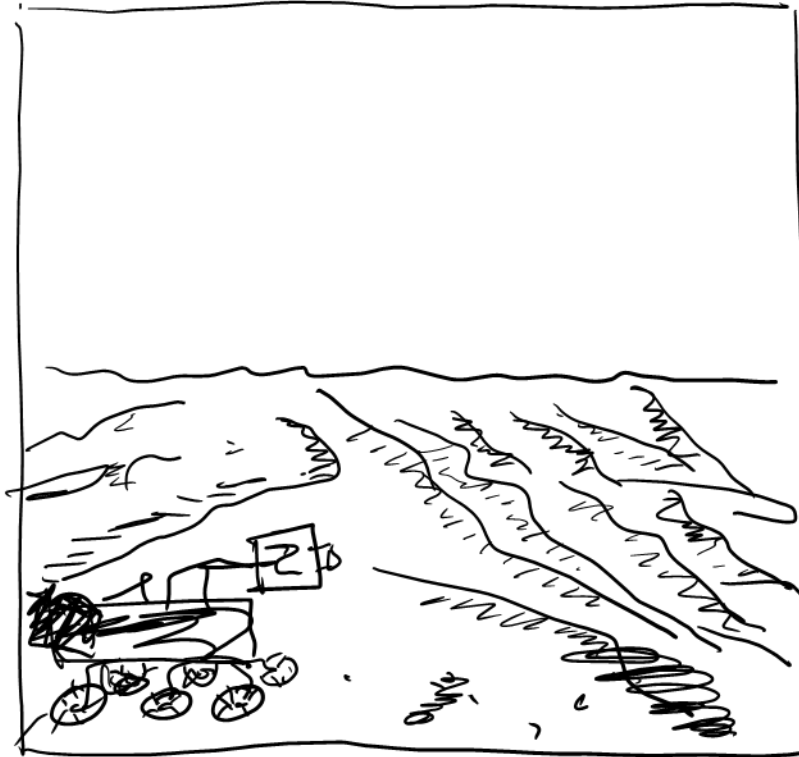
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**Pasadena, May 27, 2021:** On the 91st Martian day, or sol, of NASA’s Mars 2020 Perseverance rover mission, the Ingenuity Mars Helicopter performed its sixth flight. The flight was designed to expand the flight envelope and demonstrate aerial-imaging capabilities by taking stereo images of a region of interest to the west. Ingenuity was commanded to climb to an altitude of 33 feet (10 meters) before translating 492 feet (150 meters) to the southwest at a ground speed of 9 mph (4 meters per second). At that point, it was to translate 49 feet (15 meters) to the south

while taking images toward the west, then fly another 164 feet (50 meters) northeast and land.

Telemetry from Flight Six shows that the first 150-meter leg of the flight went off without a hitch. But toward the end of that leg, something happened: Ingenuity began adjusting its velocity and tilting back and forth in an oscillating pattern. This behavior persisted throughout the rest of the flight. Prior to landing safely, onboard sensors indicated the rotorcraft encountered roll and pitch excursions of more than 20 degrees, large control inputs, and spikes in power consumption.

[Reference: <https://mars.nasa.gov/technology/helicopter/status/305/surviving-an-in-flight-anomaly-what-happened-on-ingenuitys-sixth-flight/>]



Perseverance pauses at the edge a of region marked by sandy ripples.

### Episode 3: Divide and Conquer

*Following an early victory, Shimmery5 continues their efforts to combat the invaders.*

Following their success in stopping the flittery flying beastlet, Shimmery5 had moved closer to the larger crawling beast through the subsurface brine, disentangled, and settled down to rest. The strain of the trip south from the Conclave and the initial assault on the flyer had exhausted the combine. But with summer approaching, the extended light periods refreshed them and recharged their reserves.

The members of Shimmery5 roused themselves after resting for thirty rotations. They stretched out tendrils, sought each other, and recombined. It was time to go after the crawling menace that had landed in their life zone over one hundred rotations ago.

A spark of anxiety raced through the combine, startling Shimmery First.

“They’re gone,” said Shimmery Third. “They’ve moved again. Just what I feared.”

Shimmery First sent a calming charge to the combine. “They can’t have gone far. The flying thing should still be where we found it. Fifth, send a tendril above the surface and find them.”

First felt the drain on the combine as Fifth extended a tendril and disturbed the thin atmosphere, kicking up a small dust cloud.

“The crawling thing has stopped at the edge of the ripple roughness. It seems to be waiting,” said Fifth.

“We can’t get to it there,” said Fourth. “We’d have to charge all summer to move through the narrow passages.”

“Where is the flittery flyer?” asked Third.

“It’s moved far away across the ripple roughness. I failed. My touch did nothing.”

Fifth retracted their tendril as a wave of sadness and regret moved through the combine. First returned a soothing calm to Fifth to relieve their guilt.

“That’s too far,” said Fourth. “We’ll never get there before it moves again.”

“There’s another way,” said Second.

Surprise rippled through the combine. Second never voiced an opinion. First was unsure why they had now. “What do you suggest?” First asked.

“We should divide—one group takes on the flying thing, the other, the crawling beast. Three of us could get through the ripple roughness. The other two can move fast enough to get across to the flittery flyer.”

Dread poured through the combine. Their entanglements weakened as the members coalesced into themselves. The last time they’d separated in a desperate search for brine, Shimmery8 had lost three members, Sixth, Seventh, and Eighth. Those that remained became Shimmery5. First couldn’t stand for it to happen again.

“You know the danger,” said First. “We might not find each other again, or we could get trapped. We still don’t know what happened to our three missing members.”

“It’s a risk we must take if we want to stop the invaders. Let’s agree to meet back here after ten rotations,” said Second. A wave of assent flowed through the combine. “I’ll take Fifth

with me and go after the flittery flyer. First, Third and Fourth can go after the crawler.”

First shed a small charge of surprise, at Second being so assertive, but the plan should work. Agreeing on where to meet would avoid the risk of getting lost. First sent a wave of agreement, and the combine separated into Shimmery2 and Shimmery3. Shimmery2 left immediately and headed towards where Fifth had spotted the flittery flyer. First led Shimmery3 through the subsurface brine towards the crawling beast.

First was still unsure of Second’s willingness to act and an inkling of doubt entered Shimmery3. They wondered why Second had been so eager to leave and take Fifth. Had the combine just made a mistake they would come to regret? Shimmery3 proceeded to the crawler, but foreboding now flowed through the combine.

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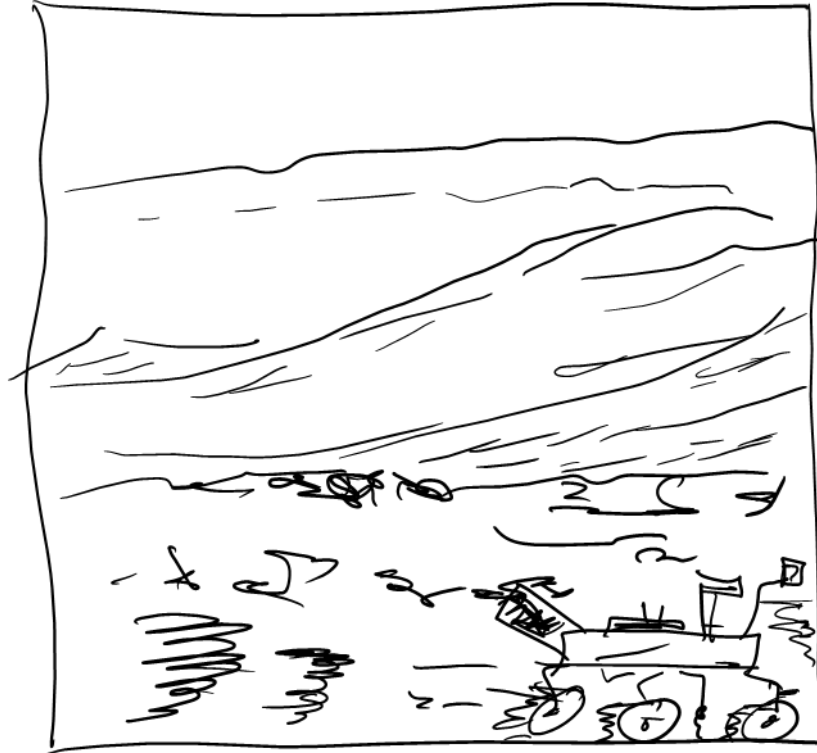
**Tweet:** @NASAJPL [11:54 AM · Jul 5, 2021](#)

[#MarsHelicopter](#) pushes its Red Planet limits. The rotorcraft completed its 9th and most challenging flight yet, flying for 166.4 seconds at a speed of 5 m/s. Take a look at this shot of Ingenuity’s shadow captured with its navigation camera. <http://go.nasa.gov/ingenuity>

**Pasadena, JPL [STATUS UPDATES](#) | July 02, 2021**

“Perseverance is currently at the eastern edge of a scientifically interesting region called ‘Séítah,’ which is characterized by sandy ripples that could be very challenging terrain for wheeled vehicles like the rover. Ingenuity’s last two flights have been designed to keep up with the rover on this journey.

Rather than continuing to skip ahead of the rover, however, we will now attempt to do something that only an aerial vehicle at Mars could accomplish – take a shortcut straight across a portion of the Séítah region and land on a plain to the south. On the way, we plan to take color aerial images of the rocks and ripples that we pass over.”



Perseverance continues to traverse the edge of the region marked by sandy ripples.

#### **Episode 4: Forgive and Forget**

*Facing failure in their assault on the invaders, Shimmery5 divides their forces.*

Shimmery2 broke off from the combine and headed to the flyer. They traveled through the ripple roughness, moving parallel to the ridges, navigating the low troughs between the ridges where moving was easier.

As their planet's star rose above the horizon at the dawn of the third rotation of travel, Second stirred and connected to Fifth, rousing them from their nighttime torpor. "Fifth, I can't go on. I'm drained, and even with the lengthening light periods, I'm not able to recharge completely. I'll never make it through the rocky barrier."

"But Second, we have to reach the flyer. First is counting on us to destroy it."

"We can't. You remember what happened when you tried—nothing. It healed itself. You didn't stop it. Maybe you injured it or drew off some of its energy. But it's still flying."

“We have to try. We have to stop the invaders.”

“I’m sorry, Fifth. I believe they are invaders, but I don’t believe we can stop them.”

“Then why did you come? Why did you lie to First and the others?”

Second coalesced around their center and loosened their connection to Fifth. A wave of guilt and remorse flowed through the link. Fifth recoiled.

“Second, what’s wrong?”

“I need your forgiveness. I’m so sorry, Fifth. I thought if we got away, your youth could help me heal. I fear I’m dying. I just don’t have First’s strength. As the second oldest, I should have. But I’ve never been strong like First. Every rotation, every season, I feel weaker. The trip north and this campaign against the invaders have sapped me. Even relying on you to move us through the ripple roughness and resting has not helped. I hope you’ll forgive me.”

“Oh, Second. Of course, I’ll forgive you, but you could have asked. I would have shared my energy. But you’re not dying. You just need to rest and recharge. And you need to tell First that we should stop. Let’s go home.”

###

Combined as Shimmery3, First, Third, and Fourth pushed their way along, traveling through the ripple roughness. It was easier than expected, and on the afternoon of the fourth rotation of travel, Shimmery3 reached the edge of the ripple roughness.

“Third, send up a tendril and locate the crawling beast. We’ll support you with our energy before we sleep for the night.”

“I found it,” said Third. “It has moved only a short distance south from where we last spotted it. We should be able to catch up after one more rotation.”

“I need some rest,” said Fourth. “We shouldn’t rush into this until we’re ready.”

First sent a soothing calm across to Third and Fourth. “We’ll rest tonight, and if you feel ready, Fourth, we’ll attack tomorrow. We’ll be relying on you to send up a thick tendril and see if you can push it over.”

“I’ll try. I’ll do what I can.”

Third sent a spark of encouragement to Fourth. “We can only try. We’ll be here to help.”

Dawn brightened on the fifth rotation since Shimmery3 began their journey to attack the crawler. First roused Third and Fourth and sent a calming greeting. “Today, we’ll know if we can resist the invaders. If we succeed, we can show the Council what they can do.”

“I don’t think they’ll ever believe us,” said Fourth.

“The Collective thinks we can’t resist the invaders, so they delude themselves, thinking the invaders will help us. If we can show that we can resist, they’ll change their minds,” said First.

“I guess,” said Fourth. “But I’m afraid if you’re wrong, we’ll be turned out and never reconnect to the Collective.”

“We have to try,” said Third. “We can’t delay any longer. It’s time to fight back.”

Shimmery3 moved along the edge of the ripple roughness and approached the crawler. Fourth hung back and let First lead. A wave of doubt and anxiety rippled through Shimmery3, but First damped it down and sent their stored energy to the rear to strengthen Fourth.

Fourth moved to the front to a position directly under the crawler. Mustering all their strength, and with the power from the combine flowing through them, Fourth reached up with a thick tendril and slammed the back of the crawler.

The tendril passed right through the crawler’s skin and struck the inner core. The shock of energy pierced Fourth’s being and sent a bolt of energy through Shimmery3. Fourth’s tendril heated, and a scorching pain raced down the tendril and flooded Shimmery3 with nuclear fire.

The massive crawler remained fixed in place—unmoved, unchanged, oblivious to the attack.

Their star lightened the horizon on the sixth rotation. Shimmery4 wakened, refreshed, energized, and well. The shock of attacking the crawler had incapacitated the combine, and they’d slept through almost an entire rotation. With the dawn, First noted the change—they detected a fourth member. Polling the combine, First recognized Third and two Fourths.

How could it be? The Collective had not added a new member in five hundred million revolutions.



###

Ten rotations had passed since Shimmery5 had separated to attack the two invasion monsters. As agreed, they returned to the starting point.

Second reached out to connect to First and flinched. Finding a fourth entity in what Second expected to be Shimmery3 startled them. First sent a soothing spark of comfort to Second and Fifth to ease their anxiety.

“We have great news,” said First. “When Fourth struck the crawler, the surge of nuclear energy forced a division. We now have two Fourths in our combine, and all of us are well and full of energy. This might be the answer to our survival.”

First could not sense relief or joy from Second. “What’s troubling you, Second?”

Second remained silent.

Fifth sent him a tiny spark of forgiveness that First felt as well. “Second is sick. He took me away to see if I could help him heal. I’ve forgiven him, but he won’t forgive himself.”

First understood. “Second, if Fifth has forgiven you, you need to forget your guilt and join us for a trip back to the crawler.”

“For what purpose?” asked Second.

“That’s what I was trying to tell you. The crawler has an energy that we can use to restore ourselves. We can heal and become vigorous again. And we can spawn new members like Fourth has. We can become Shimmery400 like we were in the beginning. We can resume our proper place in leading the Collective. We can save our race.”

A wave of relief, joy, and celebration cascaded over the combine. Second finally joined in, and the group recombined into Shimmery6 and headed back to the crawler.

On the second rotation of travel, Fourth One began to lag and Fourth Two, who someday might become Sixth, faded almost to decomposition.

A torrent of fear and dread flooded the combine. Not even First’s attempts to counteract it or Fifth’s sharing of energy were effective. Fourth Two was dying. They needed to get to the crawler, but it had moved farther south—they would lose Fourth Two before they could catch it.

###

**NASA/JPL-Caltech, Pasadena, July 20, 2021:** NASA's Mars 2020 Perseverance rover has begun its search for signs of ancient life on the Red Planet. Flexing its 7-foot (2-meter) mechanical arm, the rover is testing the sensitive detectors it carries, capturing their first science readings. Along with analyzing rocks using X-rays and ultraviolet light, the six-wheeled scientist will zoom in for closeups of tiny segments of rock surfaces that might show evidence of past microbial activity.

[Ref: <https://mars.nasa.gov/news/8994/signs-of-life-on-mars-nasas-perseverance-rover-begins-the-hunt/>]



Perseverance prepares to extract a sample from a Martian rock for storage and later return to Earth.

### Episode 5: Reproductive Imperative

*The Shimmery combine's hopes of restoration and reproduction are dashed as a member lies dying. Shimmery needs to take drastic action to save Fourth and the combine.*

The massive crawler had continued to move south along the edge of the ripple roughness, traveling slowly on its six trunks that ended in large, black rollers. If Shimmery6 did not move quickly, their chance to restore their energies and save Fourth Two would be out of reach and Fourth Two would never mature to become Sixth.

Rousing from their overnight torpor, Fourth One checked with Two and sent a spark of urgency across the combine. "We have to act today. We've got to save Fourth Two. They're fading—we can't just let them die."

Third deepened their connection to Fourth One and shared soothing energy. "I'm not sure there's anything we can do. We can't catch the crawler as it moves south. You need to let them go."

“No,” said Fourth One, jarring the combine with a flood of anxiety. “I’ll recombine, and we’ll become just Fourth again.” A deluge of alarm and horror rushed across the combine. “I know what you’re feeling. I remember, too, what happened when Twelfth and Thirteenth recombined. But that was different.”

“How was that different?” asked First, loosening their connection to Fourth One, a wave of panic accompanying the change. “They tried to combine their memories, and they went mad. Their jumbled, corrupted memories spread through the combine. We had members lose millennia of shared knowledge.” First’s waves of anxiety and fear pummeled the combine. “We’ve never recovered from having to abandon them. We lost untold numbers of experiences and thoughts. That could happen to you, and we’d lose you and Fourth Two. We can’t risk it.”

“Twelfth and Thirteen had been separate for millions of rotations. Integrating their parallel memories drove them insane.”

“You don’t know that. And besides, you’ll have the same problem, Fourth One. You and Two have parallel memories for the time you were separate,” said First.

“We’ve only been separate for a few rotations, and Two has been in torpor practically the whole time. They can’t have too many memories. And it’s my choice. I’ll take the chance.” A sharp spike of determination shot across the combine.

Second tightened their connection to the combine and sent a soothing, calm to their brethren. “I think we should let Fourth try.” First shed a small current of doubt. “Of course, I remember, but Fourth One has a point. We can protect the combine if Fourth One and Fourth Two separate from us.”

“Are we agreed then?” asked Third. A small chorus of affirmation spread across the combine. First tempered the combine’s agreement with a wavelet of reluctance, but a weak reply even came from Fourth Two.

Before the combine disentangled, Second said, “Fifth and I can chase down the crawler. We’ll see if we can tap into the energy safely.”

Doubt from First spread across the combine. The other members tamped it out and Second and Fifth separated and left as Shimmery2. First and Third disentangled, moved apart, and waited.

It was up to Fourth now to heal themselves.

###

“We need to move across the edge of the ripple roughness. We can’t keep up with the crawler,” said Fifth.

Second shed a slight wave of anxiety across the Shimmery2 combine. “But Fifth, if the crawler doesn’t turn back north, we’ll be farther away.”

“I know that’s a risk, but we can’t continue as we are. The crawler seems to be following the edge of the ripple roughness. We can’t chase it. Each rotation, we’re moving slower.” Second’s soft current of acquiescence lapped against Fifth.

Shimmery2 turned west at the southern tip of the ripple roughness. The Shimmery combine had traveled this area on the western border of their life zone many times in search of the briny substrate where they could rest and recharge. And earlier, before the Change, Shimmery had basked in the warm sea and savored the rich waters flowing into the delta. The warmth near the equator, the mild summers and winters had been idyllic. All that remained now was the brine, but it was home.

After three rotations of their planet, Fifth sent up a thin tendril and spotted the crawler just a short distance away. Shimmery2 moved as quickly as they could and coalesced right below the rear of the beast.

“We should be careful,” said Second. “Maybe just touch it with a thin tendril. Fourth had tried to disable it with a thick tendril.”

Second sent a soothing calm to Fifth as the younger member reached up the thinnest tendril they could manifest and touched the box at the rear of the crawler. A soft warmth flowed down the tendril. Second and Fifth savored the rich flavor of nuclear radiation, delicious after eternities shielding themselves below the planet’s surface, accessing only the bland cosmic radiation that filtered through the shallow layers.

Second strengthened their connection to Fifth, and the warmth and energy flowing through the connection with the crawler rejuvenated and invigorated them. “This is delightful,

Fifth. The shock Fourth felt must have been from too much too fast. We can absorb this at our own pace and share our reserves with the whole Shimmery combine. If we replenish the others, we can reproduce again. Just like First said, we can restore our combine and preserve the Collective.”

Without warning, the crawler began extruding parts of itself—sharp edged tendrils extending out from the beast, fixed and hard. One of its hard tendrils stretched to the surface, and a thin, sharp, whirring tip began grinding away at the rock below it. Second and Fifth maintained their connection and filled themselves with reserve energy but sent short tendrils above the surface to observe the beast. After some time, the whirring stopped, leaving only powder on the surface. The crawler extended new tendrils that picked at the powder—and then it stopped.

Fifth withdrew its tendril, and although the flow of energy stopped, Second and Fifth felt younger and more energetic than they could remember since the Change. But doubt entered Fifth’s connection to Second.

“Do you think we’ve damaged it?”

“I don’t think so,” said Second. “Just to be sure, let’s disengage when the crawler is using its tendrils.”

For many rotations, Shimmery2 followed the crawler. They would feed on the nuclear fire in small doses using their thinnest tendrils. When the crawler stopped and used its tendrils, they would retreat a short distance.

On the twenty-eighth rotation since Shimmery2 began its feeding, the crawler extended the same tendril that it had used to grind the rock to powder. Shimmery2 disengaged and retreated, sending delicate tendrils just above the surface to observe.

This time, the crawler extracted a small fragment of rock and stored it inside itself.

“It seems we were right to not feed when the crawler is working,” said Second. “And, Fifth—I think it’s time to go home. We’ve been gone too long. Our connection to the combine has become faint as we moved away from the travel corridors, and we need to learn what happened to Fourth.”

A warm wave of assent from Fifth washed over Shimmery2, and they headed east—this

time, across the ripple roughness, exulting in their newfound energy and vigor, barely resisting the powerful urge to replicate, and become Shimmery4.

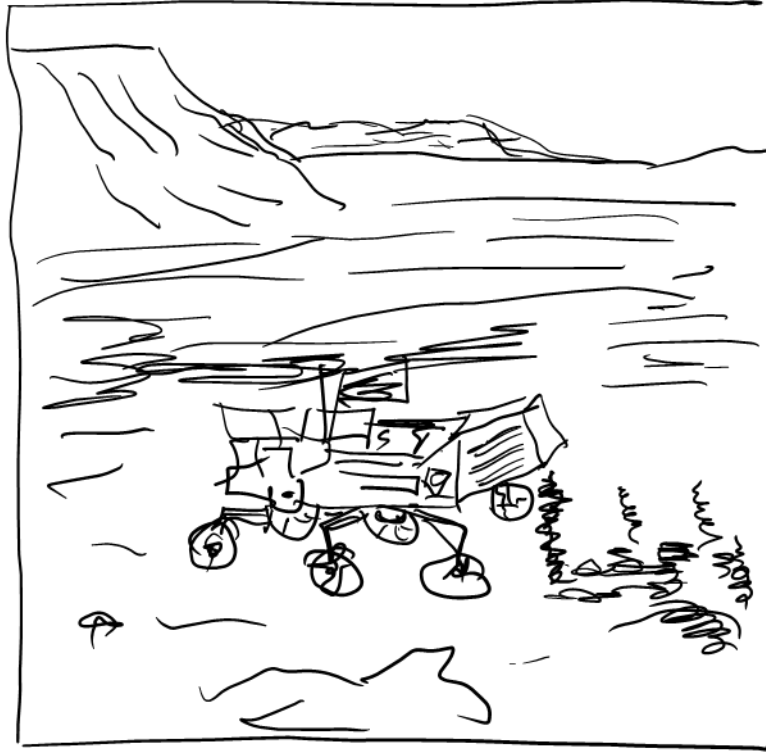
###

**NASA/JPL-Caltech, August 6, 2021:** Data sent to Earth by NASA's Perseverance rover after its first attempt to collect a rock sample on Mars and seal it in a sample tube indicate that no rock was collected during the initial sampling activity.

[Reference: <https://www.nasa.gov/press-release/nasa-s-perseverance-team-assessing-first-mars-sampling-attempt> ]

**NASA/JPL-Caltech, September 6, 2021:** NASA's Perseverance rover today completed the collection of the first sample of Martian rock, a core from Jezero Crater slightly thicker than a pencil. Mission controllers at NASA's Jet Propulsion Laboratory (JPL) in Southern California received data that confirmed the historic milestone.

[Reference: <https://www.nasa.gov/press-release/nasa-s-perseverance-rover-collects-first-mars-rock-sample> ]



Perseverance pauses during the two-week conjunction period.

### Episode 6: Salvation and Hope

*The effort to tap the energy of the crawling beast yields promising results. Will this new energy source save the Shimmery combine and restore the Collective?*

First shivered to wakefulness on the morning of the fortieth rotation since Second and Fifth left. Dread was flavoring their combine with Third and the reintegrated Fourth, worried that Second and Fifth had lost their way.

Fourth had remained dormant since the reintegration of Fourth One and Fourth Two. First and Third had stayed connected with the thinnest of tendrils, even during the sleep periods, to provide support and energy. First could sense Fourth slowly strengthening, with just a faint whisper of a second set of memories remaining. But still, Fourth had not roused themselves from a state of torpor.

Third shed a wavelet of worry. "Is Fourth going to wake up? What do we do if they don't



awaken? They can't move, and we can't leave them here."

"They're getting stronger from the energy we're sharing. We need patience," said First. "I'm more concerned that we haven't heard from Second and Fifth. Their presence has faded to the background as if they're far away."

"They've been gone so long," said Third. "Could they be lost?"

"I'm worried about that, too. We can't follow them. We'll need to stay with Fourth and hope for the best. When Fourth wakes up, we'll decide what to do next."

"If Fourth wakes up."

"Stay hopeful, Third." First sent a small current of strength and patience across their small combine, Shimmery3.

###

Shimmery2 moved quickly on the last segment of their sprint across the ripple roughness. They had been gone too long. A slight touch of guilt entered their combine. They had been feeding and strengthening while Fourth lay in distress.

Second and Fifth rested at night during their trek, but could not recharge in the harshness of the region. Surprising to them, that had not deterred their progress.

"One more dash and we'll be back with the others," said Fifth.

Second could not contain a flash of enthusiasm. "This fresh energy is invigorating. I wonder if we could travel at night."

"That would be exciting. It would make returning to the crawler much faster."

Shimmery2 pressed on through the remaining ridges and burst out of the ripple roughness into the travel channel where they'd left Shimmery3. The resulting restoration of their combine members' connection was a welcome homecoming. A further push and Second and Fifth reveled in the joyous recombination as Shimmery5.

First sent a wave of relief and delight over the combine. "Second and Fifth have returned, and Fourth is awake."

"I'm not surprised," said Second. "The energy from the crawling thing is rich and plentiful."

Sharing it with the combine surely has rejuvenated Fourth.”

“Thank you,” said Fourth. “I’m still working to integrate Fourth Two’s memories, but I believe new experiences will heal us completely. It was time for us to rejoin the combine.”

Fifth sent a ripple of excitement across the combine. “We need to travel back to the crawler and begin tapping its energy again. We can travel north and then west across the boundary of the ripple roughness. Two, three rotations at most. We can try traveling at night.”

“Slow down, Fifth.” A soft current of humor from First bathed the combine. “We’ll rest here for a few rotations and be sure Fourth is ready to travel. And then we’ll take our time. We’d hate to exhaust ourselves before we reached the crawler.”

“And what of the flittery flyer? Did you encounter it?” asked Third.

“Yes, we did, and we should leave it alone. It didn’t detect us, and we should keep it that way. It’s not doing us any harm,” said Second.

Agreement and assent flowed across the combine, and Shimmery5 settled down to rest and wait—through eight rotations.

###

After ten rotations of travel, Shimmery5 spotted the crawler on the western end of the northern boundary of the ripple roughness. Shimmery5 approached the beast and coalesced below the energy supply.

“We need to send only a thin tendril into the nuclear furnace,” said Fifth, with a thin veil of pride tinging their connection.

First’s small current of humor flowed across the combine. First found these light touches were coming more easily and more frequently. Maybe it was the extra energy that Second and Fifth had shared, or perhaps a tiny hope for the future. “Very well, Fifth. Why don’t you take the lead?”

Fifth sent a thin tendril up and into the crawler. The now-familiar energy flowed down the tendril and across the entire combine. The effect was immediate—Shimmery5 filled with life, vigor, and health.

For seven rotations, Shimmery5 fed on the rich energy the visitors had brought, not

moving from their location directly below the crawler.

Shimmery5 no longer considered them invaders. They were welcome guests and possibly saviors. The energy continued to flow into Shimmery5, and they respected the crawler's need to extend its own tendrils and work occasionally. At such times, Fifth would retract their tendril and leave the crawler to its own devices.

On the seventh rotation, Fifth sent a signal of distress across the combine.

A chorus of connections touched Fifth. "What's wrong, Fifth?"

"The ground is drying up and getting hot. I'm having trouble maintaining my tendril. It's hurting, and I need to retreat." Shimmery5 gently moved away until Fifth's pain subsided. Fifth re-extended its tendril, and the energy flowed again.

Shimmery5 continued feeding, retreating as necessary, avoiding feeding when the crawler was working.

On the fifteenth rotation, Shimmery5 could resist the urge no longer, and in a process they had not experienced in over a billion revolutions, Shimmery5 became Shimmery10 and then Shimmery20.

A flood of joy and pleasure cascaded over the combine. First could see deliverance at hand. The Collective could thrive and survive. Shimmery20 could grow and send deputies to share their energy with the northern combines who could not travel to the warm zones. Perhaps they could even establish a link along the length of their world to distribute this bounty.

But first, they needed to share this good news with Glittery11. Surely the older crawler that had landed in Glittery11's life zone almost five revolutions ago could provide the same generous offering. First would send Second and Fifth as their envoy.

Then, with renewed hope for the future, Shimmery20 would wait. And when the visitors from the third planet came themselves and when the time was right, Shimmery and the Collective would welcome them to their world and thank them for their gift of salvation.

###

**NASA/JPL-Caltech, September 28, 2021:** There's no way around it: due to their orbits, Mars and the Earth have to stop communicating with each other for about two weeks every two years. This quiet period is called [solar conjunction](#), and for the Perseverance team that means we can't send new instructions to the rover between sols 217-235 (September 28 – Oct. 17).

Because it generates a lot of heat, we'll look underneath the rover's [radioisotope thermoelectric generator \(RTG\)](#) to see if the soil dehydrates over time. If this happens, the rover's spectrometers might pick up subtle changes to key absorption features.

[Reference: <https://mars.nasa.gov/mars2020/mission/status/337/hunkering-down-for-solar-conjunction/> ]

### **CURIOSITY NEWS | September 28, 2021**

NASA will stand down from commanding its Mars missions for the next few weeks while Earth and the Red Planet are on opposite sides of the Sun. This period, called Mars solar conjunction, happens every two years.

The Curiosity rover will take weather measurements using its REMS (Rover Environmental Monitoring Station) sensors, take radiation measurements with its RAD (Radiation Assessment Detector) and DAN (Dynamic Albedo of Neutrons) sensors, and look for dust devils with its suite of cameras.

[Reference: <https://mars.nasa.gov/news/9051/nasas-mars-fleet-lies-low-with-sun-between-earth-and-red-planet/?site=msl>]

THE END (For Now)

