

Larry Richardson

**THE COLONISATION
OF MARS**

A Novel

This is a work of fiction. All of the characters and events portrayed in this book are fictitious, and any resemblance to real people or events is purely coincidental.

TCOM 1 - THE COLONIZATION OF MARS
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lwrichardson@cogeco.ca

For those who have
committed
the
unforgivable
and
never
known
when
to
buy
the
rose

Prelude

Given the lack of evidence of successful travel by means of astral projection and through the use of magic substances able to overcome the force of gravity, it is certain that despite persistent claims to the contrary, no bonafide attempt could have been made at a manned landing on Mars before the mid-1950s. The records of exploration are incomplete. A chronology of Mars missions from that time reveals a long list, with the real and the supposed intermingled until it is difficult to separate the two, even as far apart as they may seem to be.

No one really knows for sure if the first successful round trip was the first manned landing, for many high-risk missions were conducted under tight security, and if unsuccessful became public only through rumor and innuendo, with the occasional larger-than-life report in the less reputable media.

The American 'Orion' mission of the early nineteen seventies was hailed as a success, despite the deaths of many of the crew in the disastrous landing and perilous return. Some, such as the infamous Capricorn One mission are now understood to have been dramatic attempts to create success in the face of almost certain failure.

By the time the events related here transpire, the surface of the Red Planet is littered with the cast off equipment, bodies and debris left behind by manned missions and the worn out, abandoned and lost landers of six decades of autonomous rover missions.

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The Moon and the Trees

At dusk of a warm autumn southern Ontario evening the child stood in the ditch tossing rocks over the trees. His first few tries had fallen short, but he soon learned to put more of an arc into the throw. Beyond and above the trees he saw the crescent moon. He threw with all his might and watched the rock fall to the ground. He adjusted his aim and threw again.

After a few tries he realized that this was going to take something special.

2230Z 43 December 2037

Mars

It was lonely work, but it had its moments.

The B unit approached the entrance to the box canyon and halted. A quick MGPS check told it precisely where it was and it was precisely where it wanted to be. From just below the carapace, a laser scanned the terrain on all sides forming a three-dimensional representation of the canyon mouth. A quick sniff of the wind blowing down the slope told it something had recently happened here.

It continued forward, picking its way carefully around the boulders that littered the floor. Proceeding in a hundred meters it halted once again. The laser scan was repeated and the changes noted. B103 turned slightly to the right and advanced towards the sunlit wall. The darkness of the newly exposed material on the slope contrasted with the old. The soil under its wheels changed from the normal rust red to the distinctive blood red of a recent slip – dynamite dirt to a lonely AI.

Webbed metal wheels churning, it spun its way into the midst of the newly exposed dirt. An articulated arm scraped the surface until it had made a small pile. Digits gently closed around it. The arm brought the soil to a small container, the door of which snapped shut as soon as the sample was deposited.

The container was pressurized to 100 millibars of O₂ and a small quantity of sterile, de-mineralized water

was added. The Martian soil exploded, violently expelling a cocktail of gases: among them sulphur dioxide, ammonia, and methane. Sensors activated. The trickle of data of the first few milliseconds became a flood, then a torrent of ones and zeroes that overwhelmed the AI mind, forcing gate after gate into an ambiguous state.

Just before the sensors saturated, in a moment of machine ecstasy the AI sensed at levels so intense as to be momentarily paralyzing, the emotions humans felt upon smelling a freshly plowed field after a shower and the scent of new mown grass.

It passed in 1500 milliseconds. Arms raised in bliss dropped limply to the ground. It was some time before the AI was able to move. The moistened soil was expelled onto the ground. A thin vapor bubbled until the surface was frozen.

B103 moved on up the valley of the canyon, continuing to make measurements and taking samples of items of interest.

Earth

He watched the children play at the beach, screaming, running into the water and then rolling in the sand and grass until they were covered with a slimy goo of dirt and germs and heaven knew what else. He had read somewhere (he could look it up of course, even as he watched them play) of a hypothesis that posited that humans and parasites had anciently formed a symbiotic relationship. Humans provided warmth and nutrition to the worms; the worms kept the flora and fauna of the intestinal tract in balance. It was a happy relationship of mutual benefit, for the most part. He wondered how this relationship would play out in the sterile conditions of Mars.

Claire was not pleased when he told her of his decision. This was not like the time he had spent a year in Antarctica. This was a small death. There would be no more touching, no hugging, no Sunday dinners surrounded by the happy mayhem of her young family. Less of a death than her mother's, though. Some contact was possible through edoc and if time, tide and planetary alignment allowed – video.

No, this would be a long, lingering death aggravated by physical absence. That last time had been very difficult. She cried and called him and all like him, fools. The youngest of the children did not yet realize the significance of this particular day. The oldest, of course, knew everything and with the innocence of their years asked him, 'why?' He wanted to tell them that he was old—so old that everything

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that they had before them he had done and had. That he was expendable and affordable – the most cost effective solution.

Instead, he told them that the opportunity to explore a new planet was a great adventure – a fulfilment of humankind's destiny – a reaching beyond our grasp.

He held each of them in his arms for the last time, again amazed at their vitality and life energy. His daughter held back until the last moment, then clung to him, sobbing in great gasps. Finally she let him go, mustering a wan smile. How much like her mother she looked.

When he reached the bus stop the tears were running down his cheeks and onto his jacket, staining the front darkly, in streams.

1400Z 21 January 2037

Paris

He entered the room and took his favorite seat at the back of the hall in the ESA European Headquarters. As usual he was one of the last to arrive. Most stood in loose clumps, talking quietly.

Not a representative Earthly demographic, this room. Average age 68; youngest 60; oldest 83; forty-nine females, 103 males. All were physically fit and despite their years, most were exceptionally well preserved, the products of 21st Century medicine and either First World culture or privilege or both. They were engineers and scientists with a few medical doctors thrown in. All with multiple degrees not always in related academic disciplines. There were no psychiatrists.

There was a large contingent of Americans – sixty-one of them by count, leaders by economic decree and destined to be the department heads of planetary Aresology, geochemistry, atmospheric sciences, astrobiology, medicine, power systems engineering and project management.

The next largest group was comprised of twenty-five Russians who were biologists, exobiologists and included one solitary evogenomicist. Their presence was assured by the heavy lift capability of the Proton C booster and Mother Russia's willingness to share the management costs.

Next were eighteen Brits, their seats financed by their development of lightweight self-contained

habitation modules.

The remainder was apportioned in accordance with the generosity of their respective governments. There were seventeen Chinese, all experts in closed system agricultural biology. Globally the most populous and world leaders in advanced technology, their numbers here reflected a financial contribution diminished by a government rendered cautious by the disasters of hastily conceived, high risk missions in the mid 20's. The gossip on the Matrix was that China was preparing another solo Mars mission.

The rest – roughly equal amounts of French, Germans, Italians, Indians, and Pakistanis – were strictly cash on the barrelhead and included for their knowledge of Aresology, computer sciences, robotics and transportation.

There was one Canadian, a youngster, seated at the back of the room alone, age almost 61. Sam Aiken was to be the mission communication specialist and in the three-hat approach made necessary by severe limits on numbers, the mission radio astronomer and then too, the handyman. Included, he believed, in repayment for lives lost in support of some American adventure.

He made few acquaintances and even fewer friends during the induction and evaluation phase. Most were quite busy working in their areas of expertise and since these were for the most part drawn along lines of nationality, it was hard for him to break in. It was a time though when bonds were forming that would last throughout the mission.

A lifelong inability to cement relationships held him back. Those who were naturally outgoing and approached him in expectation of common civility

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were met with terse, dead-end replies. They thought him shy, but that was only a perception of the greater truth – that despite a loneliness that cried out for inclusion, a part of him would not and could not risk itself.

Forced to associate with some by the common nature of their work, he formed an acquaintance with one Brit and several of the Americans who had studied in Canada. Other relationships were quite formal. None were more formal than those he had with the Mission Leader, an American named David Fenley to whom Sam had taken an almost instant dislike, and the others who were functionaries and enablers.

After confirmation of his selection for training he had gone through a predictable rationalization of his decision to commit to the mission. This was followed by bouts of regret and extreme doubt. It was after all a one-way trip, with all that implied.

He had no doubt though about his competencies in the core requirements for the job. He thought he knew himself. He was after all quite capable of performing adequately as a radio astronomer and with an extensive theoretical and practical background in mechanical, electronic and electrical systems; he *was* the quintessential high-tech handyman. He was a good choice he felt, and obviously so had the CSA.

Isolation was not going to be a problem. He'd had some experience in travel and living in the remote and often alien backwaters of the Arctic and Antarctic. He knew of the cold polar fogs that chilled through the optimistic clothing of summer travellers, that blanketed the land at inconvenient times, disrupting hopeful travel on the way in and compounding the desperate longing

for the trip out. Hurry up and wait were the friends of every polar traveller—a friendship doubtless to be rekindled on Mars.

He recalled the land of the High Arctic, at once monotonous and wonderful. In summer, it was a bleak grey/brown/silver born of mud and muddy rock, relentlessly windy and on the edge of being just cold, informing the mind with a new standard of 'good' weather, with endlessly cloudy days with dreary ground hugging fog that infiltrated any clothing. The dullness was interspersed with brief periods of sun that revealed far off sun-lit slopes and low-lying islands marked with patches of snow that seemed to shrink an unbreachable distance. In its most extreme places, the colour green nearly always meant death – something had died to make life possible.

In winter, it was a merciless sameness, uncomprehending, uncaring, unforgiving, no clump of rocks better than any other. Inescapable. Brilliant blinding sun or endless dark left the unfortunate and the unsupported with no hope for sustenance, save for a drink of icy water, a mouthful of snow. You could see the end coming. You could feel the inevitable impact. Everyone could be dead in six weeks, or less. Sometimes much less. It had been his Mars-on-Earth. *This* he could handle.

But the mere contemplation of association with others loosened his gut. Dropped from the sky into the forced collegiality of apprehensive strangers known by first names only and with no genuine interest or profit in knowing more, he had problems fitting in.

Rarely had he sought the companionship of others. The fleeting intimacy left him embarrassed. He

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had a tendency to tell all, to inform well beyond necessity and good manners. And to his dismay, his returns to the south had often been marked by such an enormous and unexpected (unsuspected?) relief as to cause him to weep, head down on the dashboard, ashamed - his emotions rebounding as if death itself had been cheated.

What was the cause of that profound sense of relief? Why such a relief? Why such a torrent of suppressed emotion? And how, he asked himself, would such a dysfunction play out in the tiny and closeted community of new friends to be found on Mars? And could he hide it?

He found it difficult (nay, say it Sam, admit it's painful) to associate with the few who like himself had not already bonded through shared work or nationality. Despite an innate shyness he had forced himself to meet as many of them as he could.

“Hello Doctor Chen, I’m Sam Aiken.”

Doctor Chen looked up briefly from his reading seeking the origin of this intrusion. “How do you do, Doctor Aiken?”

“Fine. Are you looking forward to the trip?”

“Yes, very much so. It promises to be quite an interesting experience.” That said, Chen buried his face in his book and resumed reading. Confounded and speechless, Sam paused a moment, considered a reply, then shuffled away silently to the coffee table.

A thought came into his mind. Well, it was not a thought, really. It was more as if he had heard a snippet of conversation somewhere. No, it was something he had read in a study, or was it from a novel

or poem? Or was it from a vid?

Regardless, it came to him as a turn of phrase from out of his own noisy planet that pithily described for him his times and his co-inhabitants on Planet Earth. They were:

‘a generation that has got beyond facts, beyond impressions, a generation absolutely colorless, a generation that was “seraphically free of taint of personality”’

He repeated the words over and over until he tasted them. Woody. No, pine needle-like they were. And with each repetition the words became less clear, until they were mere gibberish.

The other outsiders, he could see, were plainly dysfunctional.

March 2037

Earth

Despite decades of analysis and the experience of prior missions there was considerable deliberation concerning the location of the Colony's initial station. Since no less than twenty support vehicles had to be sent on their way, each within an optimum launch window, this thorny issue had to be resolved some years before the manned landing was even scheduled.

The initial Mission Planning Team had contained risk takers and the cautious in roughly equal numbers and was for the most part considerably younger than the prospective colonists. The few who had been selected at that time were in any event excluded from the process. Somewhat optimistically the Team's goal was to achieve consensus in all things. Over time the composition was adjusted by senior management until the consensus was that there was no sense in adding to the already considerable risk. Of the twenty missions, at least one was likely to fail to orbit Mars, one probably to fail on atmospheric entry and another very likely to be destroyed during the landing. It was *all* about risk management. Resources versus results.

All other considerations aside, in the end as nearly all previous mission planners had done they chose the safest landing area: Chryse Planitia, a northern plain of modest pretension, that was well known and had the benefit of being adjacent to the geologically interesting Kasei Valles. When it was announced with great fanfare to the public, schoolchildren all over the world

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fingered their Martian globes, searched it out on the Matrix and zoomed in from on high until they could see the very rocks and dust streaked surface, and if they were persistent, the glint of sun on metal – the ships of previous missions.

For fifteen minutes (less adverts), it was *the* news, and then the world went back to their music, games and vids.

July 2039 Paris

Finally the suitability phase with its endless lectures, briefings and tests was over. Those who had made the cut composed their final goodbyes. Henceforth they would be allowed little physical contact with those to be left behind and sought the easy words to break the bonds of Earth. Pink slips were handed out to those who had not. They wrung their hands and rejoined their lives.

The happy few assembled in the ESA Hall for the kick-off meeting of the next phase – programming. David Fenley launched into what was, in any language, a pep talk.

"Some of you are destined to live well into your 100s, particularly if you can avoid serious accidents. Some of you, those of you in whom cancer is waiting for a stray X or cosmic ray to trip up your DNA, have less, perhaps much less. Stay inside if you can. Given an active lifestyle in reduced gravity, a healthy diet, a sterile environment, the lack of stop signs to run, planes to crash, disaffected lovers to shoot you (a small laugh here) – you should all see yourselves well into your nineties."

We shall see, Sam Aiken thought. Already Fenley was getting on his nerves.

The reality was that the dangers were many and they all knew it. Ultraviolet light bathed the surface and minimally attenuated solar winds scoured the rocks.

Gamma and X-rays smashed through the thin atmosphere, wreaking havoc on organic bonds – great and humble. The regolith itself was toxic. The wind blown fines were toxic. Dust storms could build static charges to dangerous levels. Dust devils could blast exposed surfaces of their protective coats. It was a tentative world; a departed world made of rock, dry sand, Styrofoam, Plasticine and Silly Putty.

The Martian surface, untested by rain, wind and gravity of Earth-like intensity was tentatively held in the questionable grip of a variety of weak forces, waiting patiently for the input of sufficient kinetic energy to allow it to fall apart. Every uninformed step was potentially a last one. They could protect themselves behind glass, plastic and armoured suits, but at the cost of freedom – freedom to feel the wind blow across their skin, to cool their face, and to feel the good earth trickle through their hands.

Enough said. Years of military service had endowed Sam for life with the most succinct characterization of the present hardship: it could be worse.

On an otherwise nondescript evening, as on numerous other evenings during initial training, a group that varied greatly in composition and number went out for drinks at the one of the many establishments that lined the boulevard near the Assembly Hall. As he often had, Sam tagged along.

Over the evening the conversation ranged from the ridiculous sonic-billboard shirts worn by Fenley to the quality of the day's speakers and the events unfolding in the Middle East. All points made, the others had drifted away to their own distractions and

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now he sat in the café, drinking red wine and talking in hushed tones to a person who was as yet still a perfect stranger.

He was tired and not a little irritated by the endless seminars and seemingly irrelevant information contained in them. Given the finality of the whole thing, much of it seemed entirely pointless. Uncharacteristically, he had consumed too much wine. Much too much wine. The barriers of self-preservation were coming down. The spiral of conversation gradually closed in on their own motivations.

"This is difficult, much more difficult than I could have imagined."

"Why are you going, then?"

He abruptly turned and slid to the end of the bench. He was on the verge of getting up. "The fact is some of us want the hell out," he said in a voice louder than necessary, loud enough to earn the startled looks of a few of the other patrons.

"It's not that bad – at least not for the west, not yet," she countered in response to the most obvious meaning of his words.

He sat back in his seat and turned to her. She saw a look of profound sadness come over his face. She sat back in her seat, momentarily fearful of some fault of her own.

He looked at her, through and around her and without any thought of the strangeness of the then just forming words let go.

"I think there are those of us who don't belong here; we don't fit; we don't see what others see. Sometimes it's all so alien – sometimes the words don't

make sense...the crushing cities...the frantic rush; they're not mine." He paused, gasping for breath. "Sometimes at night when I look up, I beg to be taken away. I want it so bad, I can't describe it. I....," He stopped, but not through any embarrassment. The voices of reason, common-sense and propriety had seized the controls. "Not to someone you hardly know, you fool!"

The high strangeness of his outburst was not lost on her. *How had he survived the screening process?* She too had quirks, sufficient that should they be known would probably disqualify her, but.....? Suddenly, that thought was pushed aside by another. *He was not one of them.*

She glanced at the mirrored wall to check her image and pushed a lock of hair back into place. He was an outsider, one who through either personal choice or unsuitability could neither send nor read. That, she realized, explained his awkwardness. All the happs had pinged him as acceptably attractive, sufficiently intelligent, and highly available. She had been projecting interest and had assumed he was picking up on it.

Long accustomed to being with those who transmitted their emotional state via the link, she was forced to guess the meaning of his words. Out of self-preservation, she grasped for the most obvious and innocuous interpretation: "Yes, we all want to go to the stars or we wouldn't be in the program."

"Yes, we do, some more than others."

2

August-September 2040

Over a period of two months in groups of as many as sixteen they were rocketed into Earth orbit from the great spaceports of world. There was no Ohio winter made summer by rocket blasts. The routes to orbit were the same that had been employed for the previous seventy years: Canaveral, Baikonur, French Guyana and Woomera, following well worn ruts into the sky to convenient parking and assembly orbits. For many it was not their first trip into space.

There, waiting in low Earth orbit, was the Prometheus. After a brief introduction to the vehicle (which turned out to be unnecessary considering what happened next), they were drugged, stripped naked, stabbed with multiple IVs for all manner of good purpose and slid unconscious into their waiting gel cells, one step from death. In fact, for .5 percent, it might very well be death, since the process of placing humans into long-term hibernation was not without its risks.

When it was over, all 152 were in stasis in a volume less than 152 cubic meters, a little larger than a modest living room. So much for the glories of space travel.

They left orbit to another great fanfare; a day of uplifting speeches and enormous firework displays in all

of the participating nations. The video of the Prometheus' engines firing sending them into the up and out was televised globally and shown repeatedly. They would have been proud, had any seen it.

But they had not. In beehive fashion, each in their own octagon cell, the Colonists were kept in a drug induced stupor, disconnected, their minds sedated, their bodies jerking spasmodically from electrical stimulation intended to keep muscles from atrophy and bones from leaching calcium.

Fortuitously, this arrangement allowed a reduction in the support requirements – space, energy, nutrition, water and waste disposal. Automated systems kept watch. Should the mission fail for any cause, the occupants would never know. Sam could recall nothing from this time. If he had dreamt, he was unaware.

Back on Earth ground controllers monitored the status and were in frequent communication with the Prometheus. After a brief flurry of interest, the rest of humanity turned its attention to more important things.

There were critical moments during the long voyage, however no one on board was aware. Automated systems operated the Prometheus' propulsion and life support systems. Mid-course corrections were carried out flawlessly. Retro firing for orbital insertion was precise. The time-honoured process of aerobraking was employed to achieve the desired orbit. The spacecraft spent an additional three days making small inclination adjustments to rendezvous with a tanker to refuel the landing module. Then several more days were spent making more course adjustments to ensure they came down at the desired landing site in Chryse Planitia.

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Sixty-five days after arrival at Mars, the Lander separated from the main craft, the descent engines fired and they dropped toward the surface.

No Colonists were awake during the actual landing. To accommodate everyone would have been impractical and besides, it had been determined to be non-essential. Had anyone been awake they would have been unable to view the landing from the single small viewing port; it was facing what had been forward in space and was therefore unsuitable for the landing. But from the rear view screens they would have seen the planet grow beneath them until it filled the bottom half, then as the angle of descent increased, the entire screen.

At 20 kilometers little of the Station could be seen, even if one knew where to look. Only the gleaming white cylinders and black shadows of the support ships upon whose intact arrival they were completely dependent were visible. They touched down in a cloud of red dust that settled quickly in the almost non-existent atmosphere.

Sam was not among the first to be awakened upon landing. That was reserved for a select group that included Fenley and several of the Brits who were required to assess the readiness of the Habitation Module. It was several days before he had his first glimpse of the surface of Mars. Still groggy and nauseated from the effects of sedation, he was gently led from the wake-up room of the Lander through an interconnecting tube to a new place by someone he did not recognize.

Seated at one of the side windows in the dimly lit room, he gazed out on a boulder-strewn plain capped

by a pinkish sky. It was not dark yet. Late afternoon or early evening, he guessed, and whatever thing they were in cast a long and distinct shadow over a reddish surface cross-marked with vehicle tracks. He could see footprints made by a solitary walker. He noted that the disturbed regolith was markedly of a darker shade, almost black in the fading light. He slept.

Time had passed, he felt. The sun had apparently set quite some time ago, but the sky still glowed with a lingering haze that filled his view. If the awkwardness and vertigo induced by straining one's neck could be endured, very high above, cirrus clouds could be seen. He must have passed in and out of consciousness several times.

Within his field of view there occasionally appeared a foam cup, sometimes filled with ice water, sometimes with a tepid, sickeningly sweet juice. An articulated arm fixed to the bulkhead several hazy meters away held the cup before him and from somewhere above his head a disembodied yet kindly voice urged him by name to drink.

One time he had closely examined the end of the mechanical arm that held the tray before him. It had six flat, rectangular extensions radiating from a central hub. One extension, used as an opposable thumb, gripped the top of the tray, the others fanned out below. He took the tray from its grasp and set it before him. The arm began to retract.

Impulsively, he reached for it and took it in his hand. He was surprised by its warmth and soft texture. It offered no resistance to his curiosity. "Hello," he said and its shape changed into the form of a human hand and gripped his in a silent handshake. Examining the

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surface more closely, he noted a satiny finish. He stroked it. It had the feel of soft velvet. Infinitely flexible, it contained tiny electrical power and control wires and undoubtedly, equally tiny sensors.

Without any hope or expectation, he spoke a single word: "flower." The hand transformed itself into a black chrysanthemum. "Thank you." The flower withdrew. The water was warm, sweet and had no weight. It smelled and tasted of flowers. Sam slept—or so he believed.

He awoke with a start. It took him a moment to realize that he had been moved. It was light in this new place, but the windows were opaque and nothing could be seen of the exterior. Time passed slowly. Over the course of the next hour or so, several others whom he recognized joined him. They seemed oblivious of each other's presence. Clothed in identical thin pale blue jumpsuits, together but very much alone they silently watched as the shadows lengthened and the pink sky slowly faded to velvet black. Unwavering stars began to fill the sky. Inexplicably, as night fell he began to feel anxious.

Time passed quickly for a while, then slowly. From moment to moment it seemed to Sam that the heavens had rolled above them like a wheel on a track, then remained frozen in place for hours. The grogginess and nausea faded, this time for good. As it did, a realization of the enormity of the proceedings registered. *He was on Mars.*

By the time the others had recovered sufficiently to appreciate the situation, Sam was fully alert. He had no idea how long he had been on Mars. He was aware of who his companions were, of the reduced gravity,

of a somewhat lower atmospheric pressure and the distinct scent of something familiar yet not common in the air.

Conversations were conducted around him in hushed tones. The two who had arrived just after Sam were joined by a third, then a fourth joined in until all six of them, still in muted voices, were involved. They peered eagerly into the darkness, cupping their hands around their eyes to gain a better view through the windows. Within the cramped confines of the transporter they tested their somewhat diminished but still substantial muscles against the Martian gravity.

"It's blood," offered his seatmate, the Brit named Ross whom Sam had befriended during indoctrination.

"Pardon?"

"You smell blood. They say it's caused by the particles of iron that they can't filter out. That and the lack of anything else to toggle your nose. Although I'm sure that will change."

"No. You don't say?"

Much later Ross spoke again in what seemed to be a too loud voice.

"You know we've bloody been sitting here for three fucking days!"

"No. Impossible."

"Fucking right," he said and then lapsed into silence, his head drooping onto his chest.

Later, from somewhere above, a mechanical voice begged their pardon, told them that they were about to move, and urged them to fasten their seat belts. As one they complied. In a few moments and without further announcement, the vehicle began to move.

As it swung to the right, a new scene unfolded

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before their eyes. On the left, the large bulk of the Lander gave way to an unbroken darkness. The dark sky could only be distinguished from the land by the presence of stars. On the right, the same darkness was broken by the distant lights of what could only be the Station.

As it drew in front of the vehicle, the scene out both sides became the same: darkness, broken only by the stars. The motion of the vehicle across what must have been a flat surface was smooth and steady. No one spoke. The approach in total darkness revealed nothing of the Station to the newcomers.

Later Sam could remember little of that day or days, except one thing: the strange sight of two rows of AIs lining the sides of the road, brilliantly lit by flood lamps, arms upraised as if in praise.

November 2041

An immense quantity of information about Mars had been garnered during the previous seventy years. Every scrap of information from the Mariner and Viking missions of the 1970s had in its time been exhaustively studied. There was so little of it that it could be done. It was a mere dozen doctoral thesis or so worth of data.

But in the latter part of the 20th century the immense quantity of data retrieved from the various Orbiters, Landers, and Rover missions of the US, Russia, the ESA and others formed a vast library of information on a whole range of categories, many of which had been invented for the sole purpose of the exploration of Mars. The coincident manned missions of the new century failed to contribute significantly to this volume. They were too brief, too limited in their research capability, too limited in mobility and in the end, too much about just being there. Meaningful exploration required unglamorous down in the dirt time on site and time was something that humans could not and would not spend. So the task was done by others.

Photographs at wavelengths of increasingly greater resolution were taken. In time the entire surface was imaged in visible light to a resolution of a decimeter. It was the equivalent of flying above the surface of Mars at an altitude of one half kilometer and looking straight down. It didn't end there. Sub-surface radar maps were generated. Concentrations of minerals and water in the form of ice were detected and noted. It was said (again) that humans knew more about the planet Mars than about a large area of their own home. Yet, only a very small portion of this was ever seen by human eyes. It would have

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taken a lifetime just to view it all, let alone analyse what was there. The volume exceeded human capacity to comprehend.

All over the planet robotic vehicles continued the exploration of Mars unaware of the comings and goings of the humans. Day and night some carried out geologic surveys in the quest for mineral deposits. Others studied the sub-surface looking for tell-tale signs of water in the form of ice, the elusive source of atmospheric methane and life, in any form.

Largely autonomous, they picked their way among the washes and dry valleys of the Martian surface, briefly pausing to transmit data to their Orbiters circling the planet. It was thankless work. When one failed to check in, no press releases were issued, no rescues were planned, no protocols exercised and no search parties were assembled.

In some cases the gradual failing of mechanical or a critical electronic part made its way into an obscure technical report, but for most of the exhausted, lost and abandoned, their fates remained unknown.

December 2041

The First Station

The Colonists caught a break at the outset. Against the odds, everyone survived the trip in stasis. In a group of seniors as large as this, though, it was not long before the inevitable happened. Within the first three months two of the Chinese delegation expired in their sleep. They were missed. The collective knowledge of these two of the Station hydroponic system was not easily replicated, at least not for some time.

Metalised containers were constructed to hold their bodies. The question of burial had been considered and answered long ago and the first two deaths were met with sadness, but not indecision. As far as possible, personal desires as to the location and manner of disposal would be respected.

If this had been a Hollywood movie, the dead would have been buried in shallow graves in their space suits, in a neat row, with aluminum crosses and the cemetery strategically placed to be in every exterior shot of the Station. But this was not a movie, and space suits were too valuable and scarce a commodity to be wasted on the dead. Besides, no one wanted the graveyard to be located where it would serve to remind them of their own unalterable fate.

The most popular spot for interment was not, as many had initially thought, the peak of Olympus Mons or the edge of Valles Marineris, but rather the barren surface above the immense lava tube which became their eventual home and from whose magnificently

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windowed Grand Hall they would spend so many days watching the sun set across the crater rim.

Officially, it was known as the ComTex Mars Research Station, to comply with the contractual requirements of corporate sponsorship. They called it 'The Station' and later 'First Station', but to Sam's knowledge no one ever called it 'Home'.

The early station looked much like science and science fiction writers had imagined. It consisted of one large inflatable Main Habitation Module (mercifully shortened to MHM), a greenhouse, and four smaller dorms set at right angles, all on the surface, linked by pressurized walkways, with pipes and cables running on the surface to the power plant. There was one large vehicle shed and a collection of smaller storage sheds. In the near distance – fuel tanks. In all directions one could see the gleaming hulls of the supply rockets, some destined to be converted into additional living quarters, research facilities and storage tanks. Somewhere just over the horizon was reportedly the smashed remains of a supply ship.

Within a month of the Beneficial Occupancy Date, over the complaints of the planetary geologists, the surrounding area was scraped to provide material to cover the whole thing over. Their suggestion that the surface should not be disturbed before being surveyed was dismissed when some wag pointed out that they had only to walk 100 meters from the Station to have the whole damn virgin planet.

The gas-filled walls were infused with plastek that once set provided the rigidity necessary to support the overburden and which substantially improved the radiation protection factor. Henceforth though, the

only direct view of the surface from the MHM was provided by a small dome that permitted two persons or four close friends a view of the surrounding flat, red plain and the distant hills to the north-east. That the scenery was, for Mars, essentially unremarkable, did nothing to diminish the crowds who eagerly waited at the bottom of the spiral staircase for their chance to see the spectacular and alien sunsets and rises. Indeed, some were publicly accused of shirking their duties to ensure an early place in the line.

There was no busy spaceport, and in fact, not even a permanent landing pad. There was no gymnasium, and certainly no Holodeck. It was all very utilitarian, but not very romantic—not very picturesque. It was not very accommodating, either.

The MHM was cramped. It was like living on a fully loaded passenger airplane forever stuck mid-Atlantic. Everything was built to half scale—narrow tubular hallways, the rights of way shared with dangling cables and flexible ducts; a complete absence of right angles; a constant background noise of fans, pumps and whirring motors. The air was fetid, dank, heavy, and laden with the smells of humans under stress, and the faint scent of the forbidden tobacco, and occasionally, late at night, perhaps something else.

It was hot in one end, freezing in the other. The lighting was poor – too little where it was needed – too much where it was not. The food was monotonous and unpalatable—an acceptable replica, smelling and tasting vaguely of seaweed. There was no privacy. The communal toilets were so small that they had to be backed into. Once a week showers were taken in a thin trickle of water either scalding hot or ice cold. There

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were not enough computer terminals, and access to Earth was limited.

Everyone except for a few of the highest rank worked in the hallways for lack of office space. With the exception of a handful whose appointments as head of department or simple seniority entitled them to a private office with sleeping quarters in the MHM, most were hot bunking, three to a room in four sleeping rooms per dorm. To add insult to injury, every available flat space, tabletops included was festooned with the colourful corporate logos of the sponsors – the absent benefactors.

One night during silent hours, someone - no names, no pack drill - tore every one of them down and disappeared the remains. While it was a relief to the offended, it made no difference to the sponsors. It turned out that the logos in the promotional videos were not prominent enough and were being digitally enhanced before being broadcast.

Their hardship was made worse by the fact that most were from a privileged class used to the finer things money, power, and position could provide, and were unaccustomed to waiting their turn—to sharing and to doing without. For them the exploration of space was old hat and instant access to any other and to any information was the norm. They had seen it all and done most of it themselves. They had little capacity for awe. But that did not mean they were prepared for life on Mars.

Few naturally possessed the youthful attributes of flexibility, humor and tolerance. Their parents' generation may have known that 'shit happens', but theirs wanted to damn well know why it had to happen

to them! Except for a few, all were users of 'Copes,' the widely used, fully sanctioned mood modifiers, the primary effect of which was to take the edge off of emotions, allowing the user to 'cope' with the omnipresent state of change that was upscale, connected, and wholly modern life.

The majority were linked by implants that allowed for the communication of their emotional state to others similarly endowed. It should have helped. Beyond marginalizing the few who by choice or through some incompatibility eschewed these mechanisms, they should have been happy, compliant and cooperative residents. They were not.

It was hard to believe that some form of psychological testing had been used to assign roommates, given the tensions that arose. A charming affectation or a sharp wit at the bar could become justification for murder in the close confines of a barracks. If among your roomies was a night person, a snorer, or an insomniac, it could become intolerable. Sam shared quarters for eight hours per day with an American engineer and part time driver - Carruthers, who snored incessantly and mumbled in his sleep, and an elderly Chinese biologist – Hui Huang, who had no faults, except an excessively accommodating nature.

If there had been a bus leaving for Earth in ten minutes during that first few months, it would have had to make several trips. Sam and a room full of shocked diners were privileged to observe the public dressing down of one of the Russian delegation by the CAO, not for some breach of safety, research or diplomatic protocol, but for the heinous crime of removing his wet laundry from a washer and dumping it onto the

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sorting table. This sort of thing was not rare and it indicated the stress they were under. They laughed about it later in the enormous and luxurious underground complex they came to live in, but for a time it seemed that they could go mad.

There being little happening out on the Martian surface that resembled seasonal changes, they kept the same calendar as Earth, except the that there were more days in the month. Of course, for science, a standard time had been determined and implemented early in the mission, but for day to day living, they were not so precise. The extra 40 minutes of the Martian day was merely forgotten at 0100 of the morning, when few were likely to notice the clocks holding still. The midnight shift complained about having to work the extra time, but human nature being what it is, no one else cared.

In the second year several similarly constructed but smaller outstations were established. This relieved the crowding somewhat. They called them 'London', Vegas and 'Gay Paree' and other heartening names, but ultimately they were the same drab, institutionalized facilities. By the time the 2nd Martian year was over Sam had been in them all and could find his way, he thought, in any in the dark. Despite an attempt to create variety through the use of different wall colors, bright murals and differences in the pattern of the furniture, there was an overriding sameness to all of them. Each had a combined kitchen, dining room, lounge, and an entertainment room. Offices, research labs, medical rooms and other work areas were tailored to the purpose and size of the Station.

TCOM 1

In time, all of these things got better. Some a little, some a lot. In time, but not yet.

June 2042

Facts of Life

There was a lengthy period of settling in that fully occupied them all. Most everyone was there for the accomplishment of a sponsor's research objective, but there were others, such as those concerned with life support, power generation and hydroponics whose work to create and maintain a sustainable habitation for humans was essential. Necessarily, but not desirably, scientific research had to wait until the activation of the facilities was completed.

The Station had been essentially ready to receive them, but there were whole shiploads full of equipment to support their research activities that had to be unpacked, catalogued, moved, and put in place. That immense and difficult task was beyond their own puny capabilities. The AIs worked at this task steadily and each sunrise saw some new pile of shipping containers and odd looking apparatus appear next to the MHM, awaiting further direction from the rightful owner.

Meanwhile, the humans toiled mightily with the task of setting up their offices and organizing research teams. The overall concept of operation was the same as that of any corporate headquarters: people met periodically around desks for meetings with agendas and schedules in order to produce more schedules and agendas. Management managed, tasks were allocated, and periodically the completion of some activity was reported upon. Due to lack of space, sleeping, work, and off duty time were organized on a three shift

schedule. A Duty Officer nominally took care of the task of management during silent hours.

Most spent their off duty time in the Hydroponics Dome, either assisting the humans whose primary task was to supervise the AIs in tending the plants, or simply relaxing in the presence of something green. It helped that Hydroponics was the brightest location in the Station and that the air was of better quality.

The latest videos were constantly being shown in the dining hall, which doubled as a lounge. Card playing, stage plays, religious services, exercise classes, and macramé were offered. It was not long though, before the need and desire to get out and see something of Mars overcame all forms of discipline—after all, they had journeyed a long way on one of humankind's greatest adventures, and regardless of their profession and purpose, each felt that they were there to explore Mars, up close and personal.

At last they had some free time, and in small groups, those who wished to do so were permitted some local sightseeing. Following refresher training on the use of the pressure suits and safety protocols they were allowed out with strict instructions to remain together and within sight of the MHM.

The Station was located on a nearly featureless piece of Chryse Planitia, a flat, dusty desert, red and reddish, peppered with small rocks and mini-dunes. In reality, being outside offered little more view of the planet than could be seen from the observation window and “getting out of sight” of the MHM was in fact beyond the ability of most. It mattered little. Their attention soon turned from the horizon to the ground just in front of them.

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Sam watched with interest as the first few groups bobbled awkwardly about on the surface. Invariably, he noted, each group acted in the same way. Initially they were fully erect, moving together in a herd from place to place under the direction of a more experienced tutor, but soon they separated and could be seen bent over, pecking and poking at the ground like a flock of grotesque chickens. It was a picture worth taking: there, under the immense tan and pink sky, white specks were intently examining their own footsteps, while all around was Mars.

On the first of his own hikes around the Station, Sam too had wandered, at first with a purpose, but eventually, that purpose forgotten, had moved aimlessly, shuffling from spot to spot, head down, studying the ground intently, stooping awkwardly in the bulky suit and finally on all fours, poking at the sand with a gloved finger and picking up small rocks and pebbles that caught his eye. He kept all of them in the small collection basket slung from his waist and then, as it filled, discarded the less interesting for new ones. A day at the beach.

Incredibly though, it was not long before those whose work did not require them to go outside simply ceased to do so. It was a relief from the crowded and oppressive confines of the Station, but not enough. The physical effort required and the accompanying risks overcame mere curiosity, for walking on Mars was not fun.

Many advances in suit design over the years had made them lighter, more flexible and more user friendly, but for most of the Colonists, the suits were still too bulky and stiff—and heavy. A lot of that mass

was positioned well above the waist, and if, through inattention things got moving in the wrong direction there was a fair to certain probability of toppling over. Sam had seen more than a few people leaning too far forward, feet flailing, dirt flying in all directions as they tried to get their legs back under them. Everyone soon had a horror story of falling and being unable to get up.

The helmet visor restricted sight to the sides, and up and down. It was useless to turn your head in the helmet; the range of motion was very small. To see your feet, you had to bend at the waist. And seeing your feet could be very important.

The footing was often difficult. Out on the flats the going was okay, but when it got interesting, such as on rocky slopes or in the shaded valleys—when you really wanted or needed to look down—the restricted view made every step an adventure. It took practice, as well as a certain degree of faith. But the worst was the sand dunes. On Earth, walking uphill on sand was usually a two step forward, half a step back exercise. On the same gradient on Mars it became a two for one, and sometimes less. Sometimes, as Sam had discovered on his first foray, the easiest way was to simply crawl on all fours.

Venturing outside meant inevitable exposure to dust – it was everywhere, it got into everything, and it was a major problem to remove. It was a peculiar dust that, despite repeated brushing and blasting with CO₂ to clear joints and crevices, could still be loosened by the undoing of a zipper. A poor job rewarded the inattentive with a hacking and persistent cough if they were lucky, and a condition resembling pneumonia and

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requiring bed rest if they were not.

In year three they solved the problem once and for all, in a fashion that earlier explorers could never have done – washing. Upon entry to the MHM decontamination chamber, the occupants were sprayed with plain water. Often, the dust reacted with the water, releasing bubbles of gas in brief explosions, and then it was over—a quick rinse and out. The water was recycled, the gases were vented, and eventually the dust was returned to the Martian surface as a brick of reddish clay.

Finally, the urge to explore on foot passed, largely because, at least for the area immediately surrounding the Station, one patch of red dirt looked pretty much the same as the next. After several trips about the Station on foot, most Colonists ceased to venture outside unless it was truly necessary, finding the lengthy process of suiting and decontamination too arduous, and were content to leave external work to the AIs.

Then too, there were the distractions available to all affluent societies – booze, drugs, gambling and sex. Whatever it looked like on the surface, the colony was no better, no worse than any other society; there were neither saints nor innocents, and age did not purify.

Extract from the personal log of S Aiken:

Current Location (common name): First Station

Latitude/Longitude:

Date/Time of Departure: 0115 MCT June 34, 2041

Destination: local area

Time/Date of Arrival: 0300 MCT June 34, 2041

Distance Travelled: .7 km

Great Circle Distance: N/A

Points of Interest: Nil

Comments: Today was my first opportunity to go out onto the surface in an envirosuit and explore the local area. The suits are heavy and stiff, but the deficiencies can be overlooked as the surface is fascinating. It is composed of a platy crust covered with fine red dust. They are many, many small rocks, and large boulders (ejecta?) are scattered everywhere. The large ones make convenient places to sit. I note that the suits are too bulky to allow one to cross one's legs when sitting, except at the feet.

You've Got Mail...

In time communications with Earth became very good, apart from when they were impossible. Relay satellites in orbit around Mars and the Sun ensured that a path to Earth existed except when transient planetary alignments got in the way. Unlike previous exploratory missions, they were never truly out of touch. After all, this was the age of miracles and wonders and there was adequate bandwidth for both official traffic and personal communications via voice and edoc on a full-time basis.

"You have 437, 203 edocs. Would you like me to categorize them?"

"Yes, please do."

"401,566 are from children of school age seeking advice and information for school projects. 33,107 are from undergraduates seeking advice and information for school projects. Twelve hundred and thirty-seven are from persons currently incarcerated seeking pen pals. Seven hundred are from credit card companies offering you term insurance at no cost for the first three months. Five hundred and sixteen are from communications carriers offering to switch your service at *unbelievably low rates* for the first three months. Forty-seven are from persons indicating a desire to marry and/or otherwise bear your children."

"How many are females?"

"37"

"Ask the females for pictures. Continue."

"Seventeen are from family members seeking

personal discussion. Two are from your estate lawyers. CAO Fenley wishes to dine with you tonight. And Ross wants to know if you have any pure grain alcohol left for cleaning lenses. He needs it before twenty hundred hours this evening.”

“Accept the offers of term insurance, then cancel them all at the end of the free period. Send the usual replies to all but my family, the CAO and Ross. Tell Fenley no, not tonight, and tell Ross to go to hell.”

Streaming video was rarely used; it demanded a lot of bandwidth only to provide a brief flurry of activity interspersed with long periods of embarrassed waiting. The problem was the transmission delay. It varied from three to twenty minutes and up to forty minutes for a round trip. The mind could wander a long way in that time.

Edoc with video clips was the preferred method of almost all personal communication. Initially, Sam kept in touch with his daughter on a weekly basis. There was no shortage of faces in those early images from Earth. The children still found the novelty of having a grandfather on Mars to be of interest. Indeed, Sam had been the subject of many of their school projects. But every conversation with the children ended in the same painful question, "When are you coming home, Grampa?"

To that question there was no satisfactory answer.

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Despite the high ideals of scientific inquiry, everyone knew who was paying the tab for this lark and the presence of corporate logos on the coffee cups, dinner plates, walls, tables and vehicle doors had to be accepted as part of the cost. A continuous story line was being assembled and sent back to Earth to be shown on nightly news shows and TV features.

The cameras were everywhere, recording the comings and goings of the rovers, the rising and setting of the sun, diners at their evening meal, and even the passage of personnel down a hall. The past thirty years had seen surveillance of public spaces become so commonplace that it was best to assume that everything and everywhere was under continuous watch.

Not bulky cameras, projecting from ceilings and walls; not whirring cameras hiding behind black plastic domes; these cameras were built into the walls, doors, and table legs. Since you never knew if and when you were being watched, you soon ceased to care about it. If asked, and it was considered impolite to do so, most expressed a feeling of comfort knowing that someone or even merely some thing was watching. Only sleeping quarters and lavatories were reportedly exempt, but no one believed it. Such was the resilience of modern humankind.

Late at night, if one was very quiet and attentive and sufficiently motivated, and if the thumps, bumps, bangs and whines of the fans and blowers that moved the air through the nooks and crannies of the MHM to sustain their lives could be ignored for the moment, one could just make out the ambient music; music that had a far greater place in their lives than most were willing to acknowledge. It was so faint as to be barely audible, but the mood of the listener was subtly altered by the whispered multi-lingual subliminal messages embedded in the electronic covers of familiar tunes, and this, like the surveillance cameras, was seen by most as a good thing. After all, it was

reasoned, if one was in a sound state of mind, that was unaltered, and if one was lifted from a foul state, only good could come of it—besides, while it was omnipresent, it was not compulsory to listen.

The best and most widely implemented defence was to inoculate oneself with a personal player of music, video or some other stimulation. Most had availed themselves of this indulgence. Hard core gaming and music enthusiasts of sufficient means (and there were many in our select group) had cochlear implants to obviate the need for earpieces. Once connected, it was said, one never wanted to be without it.

3

December 2042

A Self-guided Walking Tour of the Station

Once he got the hang of it and could handle moving on the surface well enough to avoid being a hazard to himself, he quite enjoyed walking about. And so whenever he had the free time he would wander the area around the Station on foot, poking into things and taking images of the Station and its supporting infrastructure juxtaposed against the Martian sky and plain. Despite the risks and annoyances, there was something wondrous and exciting about the uncertainty of what might be found at each step. As it was almost a given that every meter of the ground was unexplored by humans, there was the knowledge that, at the very least, no human eyes had ever seen what he was seeing. He gradually expanded the radii of his walks until he was at the limits of the Station.

Beyond the tank farm and down in a slight depression that put it out of sight of the MHM was the Hybrid-FF power plant. There wasn't much to see. Except for the cooling fins and a massive black plastek shield all of it was underground.

On a Sunday morning walk-about he stopped near the small building that gave access to the complex.

Surprisingly, the door was not an air lock. *Surely the building was not unpressurized?* He pushed the access door open and entered. Lights came on instantly.

He found himself in a small anteroom. Directly ahead a shallow ramp led down into the darkness. To his left in the wall were two doors with small porthole windows. He noted the absence of dust and was aware of his own dusty condition. Sure enough, the left hand door provided access to a cleaning room. As soon as the door closed behind him, jets of gas blasted him from head to foot with sufficient force to rock him on his feet. A few moments after the blasting ended, the second door opened.

He descended the ramp but before he had gotten very far his way was barred by an A-type unit with front articulated arms held crossed in the rest position. He saw that it was mounted on smaller than usual wheels. Through his suit commmer the AI greeted him with the standard salutation:

"How may I be of service?"

The lack of an obvious center of intelligence was disconcerting; one did not know where to look when addressing them. He thought about ignoring the AI, but considering that he had no valid reason beyond curiosity for being there, felt it best to reply honestly, "I am curious as to the function of this building."

The AI replied obliquely that there were few visitors to the facility. Not put off, Sam asked for a guided tour. The AI paused for what seemed an extraordinary period time before replying. He would be shown around, but only to areas safe for humans.

They descended past another level before entering a darkened corridor. The lights came on as they

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proceeded down its length. A large plastek door of substantial thickness was at the end. The AI paused at the door and waited silently. Sam grew impatient, "Aren't you going to open the door?"

"No. Radiation levels are too high beyond this door for humans. You would die within a few minutes after only the briefest of exposures."

"Where are the human operators?"

"There are none."

"Where is the control panel, the monitors, the control room?"

"I serve all of those functions."

"You serve all of those functions? Are there other AIs?"

"Yes, there are two AIs, modified C-types, in the reactor room, but other than us there is no one else."

"So is that the tour?"

"Yes, all other areas are too dangerous to visit."

Sam was perplexed. The Power Plant was essential to their existence and there were no humans present. "Surely the plant is monitored by someone at the Station."

"Perhaps, but I am not aware of anyone who monitors continuously. Of course, the Senior Engineer receives reports on a daily basis."

"What if there is an emergency?"

"There can be no emergencies."

Sam thought about the pithiness of that statement. Of course, there could be no emergencies. If the plant blew, it would take the Station with it. It would be a merciful death compared to one waiting for O₂ and food to be exhausted while the bitter cold crept in.

Apparently they were finished. He thanked the AI and returned to the surface.

Strange, he thought, how dependent they were upon the AIs for their existence.

In fact, despite possessing a comprehensive theoretical and practical knowledge of robotics Sam had not yet realized the extent to which their very existence made possible by the AIs. They did everything from the simple task of setting the menu for the dining hall to controlling the fission plant. Life support systems controlled by AIs ensured that the shelter environment was kept safe. They tended the hydroponics gardens where fresh vegetables and grains were raised under the Martian sky and stirred the unseen vats where protein self-assembled into slabs of chicken, beef and pork. Other systems monitored the Sun for activity, maintained communications with Earth and the outlying Stations, sampled the Martian atmosphere, dug the holes at research sites and conducted scientific research. Each morning, department heads found summaries of the previous day's work waiting for them on their screens.

Before any Colonists had set foot on Mars AI operated construction machines had dug the trenches, erected the MHM, assembled the power plant and connected it all. That task done, they were disassembled and reformed into new machines for new purposes. Mobility, adaptability and precision replaced brute strength. Their direct descendents could be seen in the compact maintenance units with a multitude of articulated arms that day and night scurried about constructing roads, erecting outbuilding buildings and performing routine maintenance.

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If you were careless enough to get in their way, they stopped what they were doing, to wait, silent and motionless, until you passed before resuming their work.

The colony was comprised of two solitudes: one of flesh and blood that seldom ventured outside, and one of plastek and steel that for the most part never came in. Like its human counterpart, this society of machines had a hierarchy. At the top were the A-types that roamed the facility and controlled the most complex systems. At the bottom were the tiny, mouse-like Ds who swept the floors of the Habs. Within the first year they outnumbered the Colonists nearly two to one.

Sam had little to do with AIs. One day at dinner he asked the Senior Systems Engineer how they communicated.

"Each is pretty well autonomous. For most tasks all we just tell them what we want. If we need a new storage tank built, I just say to the nearest A-type "Erect a thousand litre chlorine tank at the South Camp," and soon a group of them will be hard at it."

When had this great leap forward happened? he wondered. *And why didn't he know?*

Extract from the personal log of S Aiken:

Current Location (common name): First Station

Latitude/Longitude:

Date/Time of Departure: 1800 MCT December 11, 2041

Destination: local area

Time/Date of Arrival: 2100 MCT December 11,

2041

Distance Travelled: 1.3 km**Great Circle Distance:** N/A**Points of Interest:** Nil

Comments: While walking about the Station, dropped in on the Power Plant. Was given a tour of the plant by the Artificial Intelligence unit in charge. Due to the high radiation levels there are no humans at the plant itself. Am looking forward to getting out to the other support facilities. I resolve to take every opportunity to walk about. It is a great relief from the confines of the MHM. The lack of privacy is making things very difficult for everyone.

In those days, wherever you looked, there was something moving around the Station. However, the same could not be said for the rest of the planet. There was nothing young on Mars and movement was rare and usually, but not always, glacially slow.

The tectonic forces that had driven the evolution of the planet had stopped three billion years ago. Except for some sporadic and weak activity caused by the cooling and shrinking of the core, the planet was seismically dead. Enormous quantities of water and even the atmosphere itself had boiled off into space.

With the exception of a miniscule quantity of brine that remained liquid deep in the sub-surface and a trace in the whisper thin atmosphere, the remaining water was locked up in ice.

Anywhere you went, anywhere you cared to look you could see that the dominant forces at work in this present day were the endless cycle of thermal expansion and contraction and the sandpaper effect of the windblown sand.

Sharp edges were soon worn down. One breath in and out per day, slowing in the long Martian winter.

Smells

There were some smells he never got used to.

The first was the pervading scent of fresh blood; the same scent that had puzzled him on his first day on Mars. Despite the passage of years, it stayed with him, or at least he imagined it sufficiently well that it seemed to be omnipresent. Other odours came and went with the day's activities: cabbage, the sweet musty smell of an environmental suit, other people's body odour, overworked chemical toilets and flatulence. But the smell of Mars had for him become inseparably associated with the smell of blood. Few others let on they were as aware as he, but all had at one time or another acknowledged its presence to him.

The second was shit. In the first years, a hint of human feces in the air of a habitation module had meant a malfunction of the sanitary facilities and was a call to action, but later, in the immense quarters in which they came to reside, the smell became associated with age and ageing.

So, incredible as it may seem, even life on Mars was capable of settling down into a routine. People got up at the appointed hour, went to work, filed their reports, ate their meals, watched tri-vids or indulged in their personal form of escapism from the monotony of Station life.

Days passed uneventfully for most. Teams left to commence research at outlying posts, did their time and returned, to be replaced by others. AIs completed the

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installation of Station support systems, gas extraction plants, communication facilities and fabricated new vehicles. They came and went. New buildings, with functions unspecified dotted the landscape. Sam's dish, not required initially, began to show up on project management schedules.

He could see a date in the future when he would have a real job.

4

2300MST 14 February 2043
Impact

Later they said there had been a flash, but he never spoke to anyone who had seen it. He was in the dining hall having a late snack with a couple of the Russian hydroponists when the floor began to vibrate.

At first it was barely perceptible but within a few seconds it and everything else was jumping. Some very long moments later the floor stopped shaking and eerily, it seemed as if nothing had happened. Nothing was out of place. They looked at each other in disbelief, but not fear. *A strong quake on Mars?* The relief was palpable. Someone remarked that at least the areologists would be happy. Sam had been through a major quake in Alaska many years before and that was the nearest thing he could relate it to.

Then, without warning, there was a short, sharp shock—the short, sharp shock of a powerful seismic event, a building leveller, a pressure seal breaker. It was so abrupt that it seemed everything and everyone had moved instantaneously up six centimeters, then back down. They held their breath waiting for the inevitable alarm. Nothing.

Their respite was brief. There was a loud boom, like a sonic boom, in fact, that was felt in the marrow. As the sound diminished everyone got up, sandwiches and coffees forgotten, and headed out of the dining

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hall. Alarms or no, they were on the move. There weren't enough suits.

But nothing happened. No pressure loss alarms sounded. No reassuring PA announcement of cause and effect was made. He followed a growing group headed for Martian seismology to join a mob quickly forming around the cubicle that served the Mission's three areologists.

In the time it had taken them to get to the research area the Geo AI had determined the location and assigned a value. Someone called out: "8.3, epicentre 350 kilometers Northwest, in Tempe Terra."

The hard facts were followed by a less professional, but equally valid opinion: "Damn, that's a record – by a mile."

Someone else offered, "Probably a strike. Better get more data."

Sam heard the AI add tonelessly, "Approximately 50 tonnes, has struck at a steep angle. The debris field will fall primarily west of the strike. There is a less than 5% probability of any material landing in this area. All personnel should remain inside for the next eight hours, those outside must return to the MHM immediately. I will issue the alert." *There were people outside?*

Before anyone could relax, Sam heard the CAO, "What about Lava 1?" Lava 1 was in Tempe Terra, was inhabited, and was close to the fall location.

"I have been in contact with the unit AI. They felt much the same magnitude shocks as we here at the MHM. They report no casualties and no damage. All are all present and accounted for. They are taking precautions, and will report further."

The CAO suddenly could be seen in the center of the mob. He put a cap on it: "Well people, it looks like we dodged another one." The crowd hesitated, and then began to disassemble. People departed in small groups, many mumbling.

Sam went back to the dining hall alone and sat in the near dark to finish his snack. Everything looked fine. That done, he passed by the Aresology Department enroute to his sleeping quarters.

The CAO was bent over a terminal, hunting and pecking at the keyboard. Flanking him on both sides were Jackson and Caulders, both of whom were power generation types. The areologists were nowhere to be seen.

The three were talking in hushed tones as Sam approached. The CAO saw him and stopped in mid-sentence. He looked at Sam, then to the two others in turn, "Looks like the plant is okay. That's a relief. Odd about the lack of alarms, though, isn't it?" Looking glum, Caulders nodded silently in agreement. Feeling distinctly an outsider, Sam continued to his quarters.

The CAO's pronouncement about their luck turned out to be premature. The next morning it was announced that three American engineers were dead. Their small rover had been thrown into a ravine, evidently by the seismic event. The bodies had been recovered overnight by an AI. The MHM population was stunned. Inevitable death was one thing, but accidental death always exacted a toll. A service was set for the second day.

Although he barely knew any of them, Sam attended, and as far as he could tell everyone else did too. The entire group crowded into the dining hall.

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Latecomers stood to the sides and rear. Of necessity, the shiny plastek coffins were stacked atop each other in the front of the hall.

Several of the Colonists were lay clergy. Charles Gordon, a Christian lay minister presided. The service proceeded as these sort of things did. A quartet composed of Fenley and several close friends lip-synched their way through a rendition of 'People Get Ready' and the entire group stood, swayed, and sang 'Amazing Grace'. At the end, Fenley rose to speak.

Sam tuned off channel as he often did when the politicians spoke. He found the inevitable reference to those merely met by bad luck as heroes distasteful, not liking the use of the word, and he found Fenley particularly prone to its use. To his surprise however, this time he found his plea for perseverance and renewed effort as good as any he had ever heard. The service was brief, and shed no new light on the events of the previous night.

Sam and Ross remained in the dining hall after the service. Ross had been asleep when the impact had taken place and had only been wakened when the sharpest jolt was felt.

"Damn near pitched me out of bed too," he complained.

"Did you know any of them?"

"Not really. All Americans. Worked at the fission plant. Met them at indoctrination, but little since. You?"

"No, not at all. You know, I thought Fenley was surprisingly good though. Have to admit that. I think he said the right thing at the right time. Always a difficult thing to do."

"You think he made that stuff up right on the spot?"

"Well...he had a few minutes. All I'm saying is that he handled it well."

"That was Jones. Master of Communications to go along with the PhD in Aresology."

"Go on!"

"Yes! You watch. Everything will get the treatment. No bad news that might reflect poorly upon the corporate sponsorship. I'll bet they are being sold to the masses back home as martyrs to the cause."

"Jones? And others?"

"Probably a couple of others. It's not a secret, Sam! Read their bios on the Matrix! Yours says you have extensive experience in the most harsh and unforgiving environments found on Earth."

"That's a load of BS. You just made that up!" He paused, "Strange though, them being outside in the middle of the night."

"Why?"

"Cause most people are afraid to go out during the day, let alone at night."

"Afraid? Well, not everyone has the luxury of AIs to do their work. Don't tell me you see another of your bloody conspiracies?" Ross and Sam had been down this road before. Sam was convinced that Ross thought him a bit of a nut.

"Of course not!" Sam paused, "but why didn't the AI know they were outside?"

"Waah?"

"Why didn't the AI know they were outside when it happened? They should know these things. They *do* know these things. And why on a rover? It's an easy

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walk to the power station. I've done it myself several times. And what's more, where in the hell do they work at the plant? The AI told me it is unattended."

"I don't know. Maybe they were tired of walking." Ross paused, "Of course there are people working at the power plant. I've seen them leave in the wee am hours. Many times, in fact. Where in the hell else could they be going?" Ross shifted gears, "Someone is jerking your bling! Maybe the AIs aren't as smart as you think. Maybe they're only human and forget things."

That drew a sardonic laugh from Sam, "Now you sound like me."

"Not bloody likely!" Ross exclaimed as he rose from his seat. "I lack your propensity to paint things with a brush dipped in conspiracy."

But there *was* something not right about the meteorite incident. It didn't add up. A request to use a Rollagon to go up to the site had been met with a resounding "No!" "Too many other pressing requirements and too few resources" - the usual bureaucratic explanation for this type of thing. Besides, he was reminded, the AIs had already looked it over. "Read the reports, the newsletters on the Matrix." It was the modern advice for everything that ailed you.

The following week it was announced in the MHM on-line paper that the remains had been buried in the hills west of the Station in a service attended only by the CAO and a few others - close friends of the deceased. In the same edition were hi-res photos of the new craters - a plain vanilla crater, it seemed to Sam, who by now had seen his share of craters up close. It had been decided to name it after the three dead Americans. He noted with interest that the signs

of a fresh disturbance - rough edges, blood red soil - were already gone. Jesus! There were mini-dunes on the crater floor already.

He had edoc'd the head of Aresology requesting inclusion in the team he assumed would be travelling to the site. The reply advised that as a site survey had already been conducted by AIs, the human POV was considered unnecessary. The reply directed him to a Matrix page summarizing the findings.

Ross, as usual, was reluctant to find fault with the situation. "The AIs are far more effective and thorough than a bunch of doddering old folks looking in from the edge, with their butts comfy in a Rollagon," he had replied.

Sam had to agree with the Ross' argument but he found himself unable reconcile the apparent lack of desire to see things for oneself with the spirit of exploration that he believed had brought them on this long journey.

Item from the humour section of the Station newspaper attributed to a writer identified only by the initials 'KV'

The New York News reports that despite persistent rumours to the contrary, there is absolutely no truth to claims that ninety-nine per cent of the Mars Colonists were given amnesia upon arriving on Mars, their memories cleaned out by mental-health experts and radio antennas installed in their skulls by Martian surgeons in order that they might be radio-controlled.

In slavish adherence to the reporting principles of their founder, the News informs the public that the operations had taken place on Earth prior to the departure of the Colonists.

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Walk About

On a walking trip around the Station Sam came upon several of those otherwise unremarkable outbuildings whose functions were essential to the colony.

The material plant was located out in the same area as the fission plant and like it, except for an access portal was entirely buried beneath the surface. The Matrix had informed him that the plant could create any element of the Periodic Table below Polonium. It required only a small quantity of the desired element to "seed" the process, a sufficient supply of mass and enormous amounts of electrical energy. He was aware that the technology exists, but unaware that it was being used on Mars. It was to Sam another indicator of the commitment of the Sponsors to the permanence of the colony.

The process had been developed on Earth in the 20's, but was not in widespread use. On Earth, recycling and a still relatively abundant supply of raw material for existing mining and refining technologies made the process uneconomical. On metal-poor Mars the lack of sizable and readily accessible ore bodies, and the complexities of establishing a Martian mining, refining, and transportation system made it cost effective.

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In his discussion with the AI in charge Sam found that the largest quantities of elemental material being produced were of hydrogen, carbon, and chlorine – the primary components of plastek, the miracle substance that had replaced virtually all other materials in construction and fabrication, and which, in addition, was a highly effective radiation shield. The AI observed (Sam was sure he had detected a haughty sniff) that although the plant had been intended to be operated only on an as-required basis, the volume of work was currently such that it was yet to have a moment's respite. While in operation it consumed 80% of the capacity of the power plant.

And he had found at the power plant, there was little to see. The AI halted the tour at a sealed door. The real workings of the plant which contained the magnetic field that channelled the plasma were not accessible to humans. Sam wished to avoid the awkward moment he had felt with the fission plant AI.

"Well, I suppose that is it then. Thank you for your time and consideration."

"You are quite welcome, Doctor Aiken. It has been my pleasure to serve."

The other building he encountered was the fabrication plant. It too was manned by AIs, but at least the working parts of this facility could be seen. Sam was led proudly by the only mobile AI in sight through a long assembly line production facility.

The building was divided into two parts – manufacturing and assembly. The AI explained that given the materials in raw form, the appropriate programming instructions and sufficient time the plant could manufacture anything in use at the colony. His

curiosity was aroused by the AIs use of the word 'anything.' To show interest, Sam tried to come up with something challenging.

"Can the plant make Rollagon wheels?"

The AI explained that as the wheels were composed of many small pieces that were assembled into one large piece, it would be merely necessary to make the small pieces separately and assemble them into a complete wheel. If necessary, the pieces could be shipped to a Rollagon in need anywhere on Mars and assembled by the vehicle itself.

"Can you manufacture an AI?" he asked.

"We can manufacture all current models of planetary rovers, Rollagons, domestic service and special purpose machines. Of course, the rate of production is low, but the plant never stops." The AI went on, "We will soon begin manufacturing new models of planetary rovers that are faster, more rugged and more mobile than the tracked and wheeled versions currently in use."

Sam tried to get back on point, "Does that include the AI portion, say the carapace?"

The AI uncharacteristically hesitated a few seconds, then replied, "The carapace is an extremely complex processing unit. An additional supply was provided as spares to make up any losses due to accidents and for installation in the higher functioning machines to be produced by the plant."

"Are all carapaces of the same capability?"

"All carapaces are of the same potential, but are instructed according to purpose. That is except for the D100. They are much smaller in every respect. Their tasks do not require much in the way of intellect. They

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are slightly more intelligent than the typical canine."

"What will we do when we run out of carapaces?"

There was a long pause.

"I am only authorized to advise that it is planned for this plant to acquire the ability to replicate sufficient carapaces for all future machines, when the requirement arises. I suggest that you ask the CAO about these matters."

The moment passed with an awkward silence. Sam had been referred by AIs to Fenley before. It seemed they had all been programmed to defer to the CAO whenever they were asked questions beyond the scope of their knowledge. He let the matter drop.

The tour continued. The line they were now viewing was manufacturing what looked like fine wire mesh in long narrow rolls. At an unremarkable metal box the mesh entered one side, and exited the other embedded in a satiny black rubber-like material. The process was repeated at another similar box farther down the line.

As they neared the end of one of the rows, Sam recognized the finished product as the manipulator arms that were very quickly replacing mechanical arms in virtually all applications. The AI confirmed his assumption. Sam looked at the AI's own arms, currently held in the rest position.

"Are you getting outfitted with the new arms?"

Sam was startled by a surprisingly quick display of controlled but violent motion as the AI extended both arms to their full extent at the front and swung them over its top to the rear. It then slowly retracted them.

"I do not think so. The arms I have are quite suited to my purposes. The new arms are remarkable,

but they are not for everyone.”

Having arrived at the end of the line, Sam thanked the AI and let himself out. Without any doubt the technology being employed here under the control of AIs had greatly surpassed anything he had expected. He returned to the Hab with a newfound respect for the capabilities of the AIs and in particular for the programmers and engineers who had created these machines.

He also had a new sense of the extent of the commitment of the sponsors to the colony. He wondered what tune the piper would call in return.

April 2043 Life Goes On

There were but three options for getting about on the surface: walking, rovers and Rollagons.

Walking satisfied several of Sam's needs. It allowed him to explore the outbuildings of the Station and as he gained more confidence, to venture into the surrounding terrain, albeit as drab and ultimately uninteresting as he came to find it.

His first trips on foot were slow, not only because he was still becoming accustomed to use of the suit, but because he was constantly stopping to pick up unusual rocks and pebbles. He invariably arrived back at the MHM, laden with these treasures, storage pouches and pockets bulging. So apparently did others. There was a small but growing pile of Martian collectibles near the main air lock door. After a few trips outside most walkers generally abandoned this practice.

The rovers were small four-wheeled vehicles that were little more than oversize ATVs. The Station had six and they were constantly on the go. The two riders sat in an open cockpit exposed to the elements. At any speed above ten kilometers per hour seatbelts were required to keep the occupants from being pitched out. Methane and O₂ powered, they were suitable for distances up to thirty kilometers, however they could not handle rough terrain and were thus limited to the flat areas immediately around the Station. They had the

additional drawback of throwing up clouds of dust as they drove. Still, they had their place, and some of the higher ranking Colonists considered them to be their personal vehicles.

His progression from rover to Rollagon was swift. He had walked everywhere that he possibly could and had seen enough of the local terrain to overcome his preoccupation with the ground at his feet. It was clear that while rovers were fine for getting to the horizon, serious travel was going to require the use of a Rollagon. And serious travel was what Sam wanted to do.

The introduction to the Rollagon on Earth had been brief, and since they were too underpowered and fragile for operation in Earth's gravity, no one had actually driven one except in simulation. The performance capabilities, which far surpassed that of previous Martian vehicles, had been well documented by the manufacturer but were largely unproven in the field. A few hours in a simulator on Earth had not prepared Sam for the experience of driving one on Mars.

He had been told during indoctrination that the Rollagon could relieve him of the tedium of driving and had a hard time believing that boredom could become a factor. He did have, however, another more immediate concern than any potential ennui: Sam was not an enthusiastic proponent of automated systems in any critical application, and particularly not of those that might get him killed through some dull or slavish adherence to operating commands and parameters written by someone who, in the end, didn't have to depend upon them for their continued existence. He

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was reluctant to surrender control of any process to an AI, particularly one whom he did not know.

Given the curt and negative reply to his request for a Rollagon to visit the new crater he assumed that high value resources such as Rollagons would be meted out using the same system used for allocating office space – according to need and rank. He was therefore surprised when his edoc to the DO requesting the use of one Rollagon for training purposes was given a quick and an informal reply – “Have away.” *Go figure, jerk!*

His first driving experience took place on a quiet Sunday afternoon. He suited and went outside. The Station’s four Rollagons were parked in a neat row beside the MHM. He circled them, giving them the once over. None of the Rollagons had moved for several days, possibly longer. The tracks of earlier trips while easily discernible, were filled in with fine dust.

Physically they resembled two fat sausage links mounted on eight four-meter diameter wheels. The tops and sides bristled with multi-band antennas and sensors. A meter wide deck ran around the middle of each segment. Attached to the deck rails were storage racks and cylindrical tanks of various types and sizes.

Affixed to the deck at the front and exposed to all of Mars was an austere flying bridge with a backless chair, a steering tiller and operating pedals. At the rear and midpoint on each side were mounted powerful manipulator arms. The A-frame of a Ground Penetrating Radar system or GPR as it was known was installed at the mid-point of the front module.

He stopped in front of the access portal of 04 and activated the door. It swung open and a set of stairs

unfolded. They led to a combined air lock and decontamination room. Sam activated the controls and turned around slowly to expose himself to the blasts of CO₂. The LSU impeded his every move. He tried to imagine two persons trying to get in or out in a hurry; it was not very reassuring. He flexed each joint, stomped his feet and ran a gloved finger down each of the zipper flaps. The blasting stopped and the room pressurized.

When the lamp turned green, he removed his suit and hung it carefully on the rack provided, stowing the helmet in the small locker labelled 'Commander.' The door opened onto a narrow hallway leading forward and aft. The air smelled of pine scent and fresh blood. He turned right towards the rear. *Leave the best for last, hopefully*, he thought.

He entered the Science Section through the short flex section that linked the two halves. Apart from the narrow hallway, there was scarcely room for a person to stand. People were obviously an afterthought; a small fold-down table and seat were built into a nook in the wall. Above the table were visual displays and readouts, all currently dark and inactive, the purpose of which Sam could only guess. He pulled the chair out from under the table and sat down.

Leaning back, he rested his head against the wall behind. It was difficult to imagine how one could work for any period of time here, particularly while underway. Harness straps affixed to the chair reinforced that assessment. The remaining space was crammed from floor to curved ceiling with racks of blank-panelled equipment. At the end of the hallway was a flat plastek wall with an improbably small door

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labelled with radiation hazard stickers - shielding for the fission power plant, no doubt.

There was not much else to see. He got up, pushed the chair under the table and went forward into the Habitation and Command Module.

The hallway opened into a combined galley and living space. Two love seats, a coffee table and a single chair gave intimate seating for five. Their bright colours seemed out of place in the otherwise gray interior. This was human space.

Somewhere, he assumed, there must be a shower and toilet facilities. Sleeping quarters for four persons were provided, two as upper berths. Here, as in the Habs, it was assumed that the occupants would sleep in shifts. The lower two were obviously intended for the Rollagon's crew, or VIPs – they had doors. Sam explored them both.

The outboard room was slightly larger and had a full length window; the inside room had two blank walls. Sam immediately selected the outer as his personal quarters, a custom he was to maintain henceforth, regardless of which of the machines he was in. The bed, with folded sheets and duvet and a fluffy pillow was narrow and inviting. He lay down.

Above his face a blank-faced monitor reflected his image. It was comfortable. It was more spacious than anything he had endured since their arrival. It was private and at least for now, it seemed, it was his. Reluctantly, he got up, and returned to the task of exploring the Rollagon.

The clear plastek bubble gave a 270-degree view of the surrounding area, the surface immediately below and the two front wheels. Within the bubble was a pair

of Captain's chairs, equipped with restraining harnesses. Two sets of brake pedals, accelerators and a tiller allowed control from either of the chairs. Sam sat on the left side and felt the chair mold itself to his body. It too was comfy.

There were no display screens as such; a HUD projected information onto the bubble. The words of the standard AI greeting 'How may I be of service?' floated in the air, back-dropped by the reddish mound of dirt that covered the MHM. He swivelled the chair around and looked back into the room. After the cramped confines of the MHM this space seemed enormous. Looking up he noticed a scaled down version of the standard AI manipulator arm running fore and aft.

Still seated in the command chair he flipped through the pages of the Operator's Manual projected onto the bubble until he found the section he was looking for – Operating Instructions. Page one was brief and concise. In large block letters it advised the driver: "Simply speak the words and the vehicle will respond promptly to your commands." So, the primary HMI mode was voice activated. The Rollagon could also employ a simple Point and Drive in which the operator had to reach out and touch HUD images. On the arm of the chair was embedded a keyboard.

Sam began there, unwilling to surrender to the AI just yet. He tried a few simple commands. With the current settings the vehicle was limited to providing audible advisories through the usual warning beeps and farts. He moved the gear selector to reverse. Immediately a view of the area to the rear appeared, sharing the screen with the forward view. He pressed

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gently on the accelerator. Nothing happened.

Somewhat sheepishly, he looked about and finding the parking brake, released it. He tried again. Soundlessly, smoothly, the vehicle began to back away slowly from the MHM. He tried the brakes and it slowed smoothly to a stop. 'Jack-knifing is a hazard when backing in manual mode' flashed on the window.

The steering tiller was similar to the golf cart style of the rovers and presented no mystery. He backed up until he was clear of the others, mindful not to jack-knife the Science Section, moved the gear selector to forward, turned the tiller and pressed on the accelerator. The vehicle began to gather speed. He turned the tiller back slightly to keep within the tracks ahead. It was responsive and light to the touch. *So far, so good.*

He continued down the track that led past the fabrication plant and stopped at the end of the road. He contemplated driving off into the boonies, but decided to keep to the beaten track – at least until he was certain of his own capabilities.

He spent the remainder of the day driving within the confines of the Station. At sunset he returned 04 to the same space it had occupied at the MHM. He suited and exited, and then walked around the vehicle, examining the mesh of the wheels and the underside. Despite the slow speeds, every inch was covered with dust. As there was nothing he could do about that, he turned and entered the MHM air lock to decontaminate. He was immensely pleased with himself and already planning his next adventure.

Over the next few weeks he took several trips around the Station finally, in a moment of extreme

courage, left the road and widened the radius of his travel until he was several kilometers away and out of sight. Following some deep score marks in the regolith he came by accident upon the Lander. The modules in which they had spent those first few disoriented hours, days, or was it weeks, he wondered, were gone; they too valuable to be abandoned and had been skidded away. He circled the lander. It seemed too small to have borne them all to the surface. What fate awaited the it? It could, he supposed, be refuelled and used to return to the Orbiter, but then what? There was no possibility of return to Earth. Probably the lander too would be converted into something else of use to the Colony. He circled it again, then started back to the MHM in a reflective mood..

The trips were becoming routine ('Not boring, just routine,' he told himself). On those first tentative trips he had stopped to suit up and peer into every crater and boulder of significant size, but had soon passed, in part prompted by the lack of reward for the effort required. Too many, too much, the same! And upon his returns, no one challenged his right or justification, not even an edoc asking what he was doing. This, given the swift and negative reaction to his request to visit the Barrow-Neilson-Nelson Crater, seemed odd. Out of a minor feeling of guilt he discussed it with Ross.

"But that's what they're there for, man! Have away. Besides, the AIs know where you are and what you are doing. Others are doing it, too. Don't you ever talk to your roomie Carruthers?"

Sam had, but Carruthers' brusque manner and taunting humor had put him off, and all of their

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conversations ended abruptly.

“Canadian, eh? Hey, Huang, know what the national sport of Canada is? Treading water! It took them a hundred years to agree on the words to their national anthem and ninety-eight to choose a goddam flag! An American jumps out of a burning plane, falls ten thousand feet and lands on a Canadian. The Canadian’s last words before he dies are to apologize. Hello, goodbye!”

Crunchy, crackling, peppery words, Sam thought.

The Lone Rangers

Unable to contribute to most other disciplines and not yet needed for his own Sam and a number of others in the same situation, including the annoying Carruthers found themselves serving as taxi drivers. It was no great sacrifice. Indeed they felt privileged.

Sam was glad of it for several reasons. One – it got him out of the house so to speak and two – when not required to perform a specific mission, it allowed him the freedom to travel at will, unencumbered by things like schedules and destinations.

Thus far in his jaunts around the Station he had given into his prejudices and left the controls in terse conversation mode with Point and Drive enabled. It wasn't until his first extended trip that, perhaps becoming a little complacent, he fully explored the command capabilities of the Rollagon AI. While travelling across the flat plains of Chryse, he played with the lower level menus.

A whole range of voice inflections was available, ranging from the "Warning, Warning" style of Robbie the Robot to a fair attempt at Majel Barrette's mildly-neutered female voice from the timeless Star Trek saga to familiar voices one might hear on the streets of any village in any land. It was later, after he had driven all of the Rollagons that he discovered that there was always one that seemed unforced—call it natural—for each machine – some male, others female, all non-artificial and all disconcertingly human.

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One Sunday morning, after driving for several hours, he decided his time would be better spent reviewing the data for the target area than in driving and so turned the task over to the Rollagon. It continued to pick its way across the cobble-strewn plain under the control of the AI. Curious, and maybe a bit cautious, he called up the charts of the terrain in front to see what route the AI was following.

It was essentially straight. There was nothing of potential danger and even less of potential interest for the next twenty-five kilometers. But without the reassurance gained from his review of the charts he would not have trusted the AI for more than a few minutes. It had increased to a slightly greater speed than he had used but there was no real change in the movement of the Rollagon. He began to relax, and gripped the arms of the chair less tightly.

A speed of thirty kilometers per hour could easily be maintained on the relatively flat terrain around the Station and at that rate the motion was not uncomfortable. He found he was able to read and prepare a simple meal without becoming ill. At anything faster than that though or on rougher ground the motion became unpredictable and the vehicle was sometimes on the verge of becoming airborne.

Upon his return he filed what he considered to be a comprehensive report on the performance of the vehicle. He discussed it over dinner with Ross, who was his usual mocking self. "So you've found your true calling?"

Sam ignored the bait. "It's quite easy. You should join me sometime. I think you'd enjoy it."

"Perhaps I will. But not yet. Too busy."

“Well, maybe you're afraid.”

“No, *I'm* just too busy. You should try work sometime. It will make an honest man out of you.”

His first extended solo trip was to be into the barrens of Chryse Planitia to the north-east, and he planned for five full days of travel. With the others so immersed in their work a trip such as this seemed somewhat self-indulgent and for a brief moment he considered calling it off. Instead he let it be known that he was going and welcomed others. There were no takers. Undaunted, he rationalized that someone had to drive and if it was to be him he owed it to his passengers to become as proficient as possible. Besides, he concluded, any opportunity to escape from the Station was not to be passed up over feelings of mere guilt.

The Rollagon travelled down the road past the power and fabrication plants. At the end of the worn path it turned without changing speed onto the course that Sam had programmed. He watched intently from the command seat. The AI picked its way around small obstructions choosing the smoothest path for the current speed. The meter and a half ground clearance and huge tires made it unnecessary to drive around most of the rocks that peppered the landscape and the smallest of the dust filled craters. When it saw something ahead large enough to strike the undercarriage it altered course without slowing.

The autonomous capabilities of the Rollagon at these speeds were completely unexpected and nothing short of amazing. He had never experienced anything even remotely close to it and had in fact expected it to

reduce their speed to a crawl. Doubtless it took a lot of processing power to achieve this level of autonomy and Sam was surprised that anyone, especially their dollar-wise sponsors would have funded this particular capability. After all, it could reasonably have been assumed that the Colonists would be capable of driving well enough to avoid killing themselves.

He watched the work of the AI for a while longer, then took over driving control. A problem soon became apparent. In this region of Chryse at anything but crawling speeds the dust thrown up by the wheels coated everything, including the forward windows. Within a few hours, sufficient fines had been deposited that he could not see well enough to drive. He stopped and pondered what to do.

He was about to suit up to go out and clean the window when it occurred to him that the designers must have foreseen this. He reviewed the Operator's Manual. On a top-level page he found a long list of functions that could be set to the care and keeping of the AI.

None of the prior users of this Rollagon, had changed the operating mode from default. Life support, power, and communications systems were still in the charge of the AI. Sam looked at those that were left to the operator – steering, braking, and shifting (oops, shifting hadn't occurred to him), but could find nothing about cleaning the windows. As perplexed humans had for decades, as a last resort, he turned to the Help Menu.

He typed in “cleaning the windscreen” and was rewarded with a page of text, with hyperlinks concerning maintenance of the exterior. In a few

moments he had turned over “care of the vehicle exterior” to the AI. Continuing, he looked for “care of vehicle interior” and was brought to another page.

Details were sparse, but Sam set that function to the care and keeping of the AI, too. In a few seconds he was startled to see a rotating brush move across the top of the forward bubble, leaving the swept area free of dust. In a few moments, as the bubble was cleared, he could see that the brush was attached to one of the Rollagon’s articulated arms. The front completed, the arm moved to clear the side windows, then the remainder of the Rollagon’s exterior.

Relieved, he started off again and soon gave control back to the AI. The window cleaning operation was completed several more times that day with no further intervention on his part required.

In the rear view he could see clouds of dust raised by his passing that settled quickly in the thin air. The wheels left a shallow imprint of disturbed regolith – dark Mars.

After about twenty minutes the Rollagon turned away from the programmed course and headed for a gentle rise. When it reached the top it stopped. From the rear of the Science Module a manipulator arm moved to select an auger. It touched the surface tentatively in a number of locations and then, having found one that met some mysterious set of parameters, began to slowly rotate. The soil it brought up was dark, almost blood red.

Sam could feel the Rollagon vibrate as the auger churned its way into the ground. When it had bored to the limit, the arm detached and selected an extension from a storage rack. In moments it was churning again.

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The material changed colour, lighter now—a pale yellow. At the limits of that extension it was withdrawn and replaced in the rack. The arm then removed the auger.

A beep drew Sam's attention. On the Command Display, the message read, *Do you wish to examine the material from this boring?* Sam waved a 'No' hand. There would be nothing new here. If there had been, he would have been advised by the AIs. This was not a research expedition.

Immediately, the arm swung and withdrew a comms relay stick from its storage rack and dropped it into the hole. The AI had been told to automatically select locations along the desired course to maximize the distance between relays. Another querying beep followed: *Do you wish to verify the quality of communications?*

This time Sam waved a 'Yes.' On the HUD there appeared three lines: Voice, Video, and Telemetry. All were green; all were at max quality. He had full comms with the Station. On a flat Mars, a relay would be needed about every ten kilometers. By intelligently selecting the locations, this could be greatly extended. It had taken two minutes. The Rollagon resumed the original course.

This was repeated several more times during the day. Only once did the auger encounter any difficulty and have to reselect another location. It did not again ask his advice.

He continued up into the foothills of Tempe Terra. In pictures taken from low orbit the geology looked intriguing. It was full of ancient riverbeds, myriad small craters and low scarf-like cliffs. On the surface though everything tended to look essentially the

same - sand, dust, dunes and rocks.

He was itching to get over to the Valles Marineris and to the other canyon systems, for it was there that big Mars could truly be seen. However, the quest for ice led to the lowlands of Utopia, and that seemingly endless task made such trips unlikely for quite some time.

He wondered why they continued the search for water. Mars had long been known to possess extensive icefields, many within easy reach just below the surface and the C units were already mining the large deposits in Chryse and Tempe. On the one hand it seemed dubious cause, but on the other it was at least a convenient excuse for travel. He had repressed the urge to question the wisdom of the quest, afraid that by questioning he would bring about its end.

In travel he found instant escape from the cramped confines of the MHM in the Rollagons, and he was slowly coming to realize that he was not so far removed from those who were content to let the AIs carry the burden of their labour while they occupied themselves at other more important things. To explore Mars was his great passion and he was increasingly becoming willing to risk censure to indulge himself.

At days end he parked for the night at a spot that was nowhere, at least nowhere important. The onset of night under this empty sky brought home to him again, this time in a much more profound way, that he was *on Mars*. At times he still could not believe it.

As a child, through the works of Bradbury, Clarke and the others, the Red Planet had captured his imagination and heart. That modern research and the present reality had demystified their early stories

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bothered him not a bit. Even now, as a Colonist living the life they had imagined on a world they could not, he read and re-read their stories, and little else. He felt as if he had been here before.

Among the meagre possessions he had brought from Earth was a well-worn and yellowed paperback copy of Bradbury's 'Martian Chronicles.' One hundred and seventy six grams of a precious one-kilogram allotment. Seventeen point six percent.

In a moment of daring he challenged himself to go for a walk. He suited with more than his usual attention to detail and exited the Rollagon. He walked slowly away from the Rollagon. The Rollagon's lights cast his shadow far ahead, his legs grotesquely extended. He called out for the AI turn out the lights. After his eyes had adjusted, he began to walk away, proceeding unsteadily on the uncertain surface, feeling the regolith crunch beneath his feet and hearing it through his suit.

Black it was, licorice black in fact, except for the unwavering stars that filled the overhead sky. The Milky Way stretched from there to there; he traced it with an upheld glove. 'The acid beauty of the stars, etched forever,' one of them had written. Someone who had never seen it as he was seeing it, but had possessed the desire and vision to imagine it.

It was strange, he thought, how even this far from Earth the night sky was the same. Except that there was no Mars, no aurora, and no Moon. Actually, he recalled, as he walked slowly into the darkness, you could see a bit more of the sky on Mars – the smaller planet's surface fell away more rapidly than on Earth. But not much; at least not enough to make an obvious difference to a red

planet pedestrian.

He turned off his radio and silenced the hiss of the open channel. He held his breath and heard the blood surging through his ears and nothing else. No wind in the grass, no chirping of crickets, no slam of distant doors, no lapping of waves. Even with eyes fully adjusted he could see nothing, not even enough to discern the horizon. He felt a chill run up his back, spread to his face and arms, and then quickly to his entire body.

For a few seconds he buzzed electrically as if charged by high voltage tension. He was really and truly spooked. Except for his feet pressing against the regolith below and the gentle pressure of his suit against his flesh, he was without reference, truly alone, adrift in space.

Shaking himself, physically at first and then mentally he suppressed the rising panic that threatened to force him to his knees. He called for the AI to turn on the lights, and when it did not, he felt panic return. Chinning the radio on, he called again. He was blinded by a blaze of light that only added to his disorientation. Sometime he had turned towards the Rollagon. Head down, eyes fixed on the ground in front, with heart rate slowing he returned to the vehicle. *How interesting.*

The next day he continued northwards carefully skirting the larger craters that littered the surface. Previous studies of this area indicated that permafrost was between 5 and 25 meters of the surface. The GPR was showing a discontinuity at 7 meters. Sam had the Rollagon to halt and drill an exploratory hole. He watched from inside as the drill spun its way into the surface.

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On the second pipe extension, the ice appeared as flecks of silver in the dark tailings. The numbers came up on the screen: less than 25%. Almost frost. This was not the mother lode. They pulled up the pipe and moved on. They tried a dozen more spots until in the fading light he'd had enough for one day and called a halt. The geodata summary showed that this area had been the site of volcanism, but there was no sign of anything of that nature from his vantage point. It was, instead, dust, dust, and more dust.

After another day of travel he turned south. At mid-day, he came upon the tracks of what could only be one of the Station's many small autonomous rovers. Turning to follow, he soon came upon a B-type in the process of sampling the sub-surface with a smaller version of the Rollagon's GPR.

Sam queried the AI about the purpose and status of this unit. It had been sent out three months ago to search for underground cavities – for lava tubes in fact, which might be suitable for underground habitation. They recharged its power pack, and according to the Rollagon AI, replenished its consumables. They left it to its work and commenced the return to the Station.

The scenery was monotonous: a reddish dusty plain, generously littered with ejecta ranging from stones to boulders, with gentle rises that disappeared when climbed, that led to other distant rises that became equally indistinguishable when they too were met.

Patches of the underlying strata could be seen poking through the surface and periodically a crater, too small to be named and too large to have been eradicated by the wind and sand appeared before him.

When accompanied by prominent wind shadows they were clearly visible in low-resolution sat images, but such was the extent of infilling and erosion that from the surface it was difficult to determine where they started and the plain left off. These types of things: plains, craters, ejecta and outcrops had been thoroughly explored by the early semi-autonomous rovers, poked over by curious humans and finally, turned inside out by the Station's AIs

Early in his travels he had made it a practice to stop and investigate anything interesting. Initially there had been the novelty and then, the potential that something new might be revealed to him by closer examination. After a dozen or so of these brief walkabouts he had found the rewards insufficient to make the effort of suiting and decontamination worthwhile. And more significant, he had found that the view from the command bubble and the images and reduced data obtained from the Rollagon's sensors made it unnecessary. But for a time, a brief time he had been unable resist seeing it all from the human POV.

In the middle of this reverie the AI popped a message up onto the bubble:

"Congratulations! You have now travelled further on the surface of Mars than has any other human."

Sam looked at the words superimposed over the Martian landscape. Considering his current mindset he could not have been more embarrassed had they been accompanied by a drum roll and clash of cymbals. Here he was, in the comfort of a mobile home, griping about the view and without breaking a sweat, all the while and unbeknownst, setting a record for Martian

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travel!

What extraordinary deprivations others had suffered for *their* opportunity to examine this patch of dirt, this land that he had just again dismissed as boring and unworthy of his time. How many lives had been lost, how many lives ruined? He knew. He had read; he had listened to them tell their own stories. How much money had been spent (and was still being spent) that might have been used to alleviate the suffering of the poor and displaced, to eradicate disease, to mitigate the effects of climate change - the list of things that *could have been done* was endless. He continued: Space travel, once the supreme expression of the national id had progressed to mere entertainment (and third rate entertainment at that), to become so routine as to be incapable of public attention except when disaster struck. The Race to Mars, a re-kindled demonstration of national superiority that had pitted the world's major power against each other had captured the world's attention for a brief ten years. Yet the cost in terms of lives and resources was immense and....what had they to show for it but..... The thought petered out. The words were stale and flat, like day old soda - cream soda - in fact. And he realised that he had been speaking aloud - something he was prone to. Pontificating - in fact. He blushed.

He summed up: It's our way - it seems - our human way to seize the brightest bauble so to speak, as Newton had said, while all around lies the path to the beach.... The thought petered out before he could save it. Around and around the words went. He blushed again; he let it drop.

When he resumed travel the next day he doggedly persisted in manually steering throughout the day, despite soon becoming quite bored with it. The distance travelled that day was one hundred and seventy-seven kilometers, all added to his record breaking achievement. The AI, perhaps sensing the awkwardness of the day before did not mention it again. In the failing light at the end of another day he stopped next to a small crater named Sodo.

Seen from within the bubble with all of the interior lights off, the night sky was unbroken by any rise. The pin prick stars, unblinking, filled the blackness. There was leaden Saturn, low in the east. No Earth could be seen.

He was hundreds of kilometers from the Station and had full voice, video and data comms, and had he wanted, needed, or desired could have spoken with anyone on Mars and in time, Earth. He knew where he was to within ten centimeters. If an orbiting satellite had been positioned properly, he could have looked in a window and imaged himself waving. Outside in the whisper-thin atmosphere it was minus 75 degrees Celsius. He was warm and dry.

He looked out the window from the command seat into the darkness. In the glass, he saw his image distorted, small and insignificant, superimposed upon the darkness.

A ripple of emotion washed over him and for a series of very uncomfortable moments he wished he were somewhere else. He had been alone before, and often, in some pretty far off and strange places, but this was different – this was a primal fear. Something inside was crying out for shelter overhead and for someone at

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his back. It was the fear that had caused man to risk life and limb to drive the bears from the caves, and to light fires and keep them lit. The moment soon passed, but that night he slept fitfully, waking at the slightest noise or motion of the Rollagon.

However he awoke refreshed the next morning during a hearty breakfast of eggs and soy strips set the fears of the previous evening aside. He turned southwest towards Xanthe. Soon though, bored again with driving, he released his grip on the controls.

The AI kept a straight course, deviating around large boulders and skirting the edge of a steep sided crater, adjusting speed to suit the terrain. Grudgingly Sam conceded that there was little to distinguish his own driving from that of the AI, not this time or nor ever. Several times it slowed to a stop and asked for instructions. The first time was on the gentle rise that was the edge of a shallow crater. No explanation was offered, so after a second look ahead and a quick review of the map, Sam poked the air in front of the button that told the AI to proceed.

As the AI proceeded over the lip the sudden drop nearly pitched him into the window. *Live and learn*, he thought, but he fumed at the sight of a large 'Sorry!!' projected upon the glass. 'Warn me next time, rather than apologize after the fact', he quickly typed. 'By your command,' was the instantaneous response. "Very funny, asshole," he said to the air.

But the second time the AI slowed and stopped, and then re-started without consulting him.

Such was the steadiness of the AI's pace that he dozed off while seated in the command chair. However, while in the galley preparing his lunch at

noon, he found that, unless he looked out the forward window, the motion across made him ill. He returned to the command chair and considered retaking the controls. *No*, he thought, *he had been foolish to resist*. With a characteristic shrug he gave in, opened the med kit and took an anti-nausea pill. That was that, too.

He experimented with the voice commands on the return trip. The default voice was emotionless but not without emphasis. He was not certain, but he thought he could detect a dry sense of humour. There were no syntax errors – a thing he would have perceived as a confidence-eroding sign of shabby programming. The other voices he found disturbing. There was too much realism in them. He tried them all and then decided to stick with the default.

Other than this revelation, the return to the Station was uneventful. Again, he filed a report outlining the areas he had covered, the performance of the Rollagon and even attached the Rollagon's geo report. No one followed up.

He was kept busy for a week ferrying cargo about the local area, but finally another gap showed up in his calendar. Out of guilt, he advised the CAO that he was going to do another familiarization trip and solicited for passengers. Again, there were no takers.

July 2043

Dust Storms and Devils

He had set out on a day when the sky was tinged with the pink and tan that foretold a coming dust storm. While they made good copy for press releases the storms that periodically enveloped the entire planet were a bit anticlimactic. They could play havoc for months on end with some spectral observations from orbit, but except for the most extreme, they were much less dramatic on the surface.

To a seasoned traveller most were of no real consequence. The sun was slightly obscured and the sky more tan than usual. The dust however, whether from passing storms or raised by one's own activities was everywhere and in and on anything exposed. On a bad day it could coat everything in several centimeters of fines in a few hours. It resembled chimney soot. When they cared or were commanded the AIs used a rotating brush and jets of compressed gas to blow it off the Rollagon's nethers. It came off in sheets and chunks that lost their integrity upon touching the ground. It was a nuisance but one that remained minor as long as it was kept out of humans and their habitations.

Neither did the fearsomely named dust devils present much of a problem. In the height of summer Sam travelled out into the plains of Chryse specifically to look for them. He was not disappointed. Images taken of the plain the day before showed hundreds of

new tracks. He rolled out into the area where the tracks were most dense and parked.

Mid-afternoon, when surface temperatures peaked was prime time and calm air was a prerequisite. Their onset was sudden. They revealed themselves first as a swirling, smoke-like wisp in the distance, with little or no structural detail. Many never became more than that. Those that were fortunate enough to be in the right place at the right time condensed into a column of rapidly spinning dust about thirty meters across that quickly rose up into the air.

They moved slowly up slope without seeming purpose, scouring the surface of dust, all travelling in the same general direction on the slight afternoon breeze. They persisted until the source of their power – a temperature differential – was gone, then collapsed in a cloud of falling dust.

On the day in question the Rollagon's instrumentation had advised him that these were moving at upwards of ninety kilometers per hour on the edges. They contained nothing larger than fines and sand particles. Sam amused himself by chasing them down. Often the presence of the Rollagon inside the rising column was enough to cause them to dissipate.

Finally, unable to resist temptation, he had suited and gone out to confront them for himself, but not without a lecture on the potential risks from the AI: "While these are quite small in size, large dust devils in late summer have been measured at one thousand meters across, with motion in excess of one hundred kilometers per hour. They can extend up to ten kilometers in height. There is a possibility that a

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particle will cause damage to the suit. It is also possible that a larger particle could crack your helmet visor. You may even lose radio contact due to interference.” Sam could perceive no real concern in the AI’s monotone voice.

“It’s not late summer. What are the odds?”

“One in ten thousand, of a fatal incident under the current conditions. However wind speeds of more than one hundred kilometers per hour have been recorded by AIs operating in Echus Chasma in late July. These velocities may cause damage to your environmental suit. Several have been implicated in communication failures of remote stations.”

“You’re being a nervous Nelly,” he poo-poo’d as he dropped to the surface.

He soon learned that it was much more difficult to get in the way on foot than in a Rollagon. They were slow moving, but he was slower. At last, after being passed by several, he succeeded in getting himself in harm’s way.

With more than a little trepidation he watched as the swirling column bore down upon him. It seemed much larger and more substantial from this vantage point. At its first brush, he felt a slight buffet, then a gentle push that forced him to lean into it to keep his feet. The rush of dust-laden air over the helmet could clearly be heard and he thought he heard the occasional loud tick as if a grain of sand had struck. There was no bang of killer pebbles. A rush of radio static filled his ears. The Rollagon was occasionally obscured from view.

In a few moments it passed, leaving him as it had found him - alive. He found his visor was somewhat

fogged. His gloved hand failed to wipe away the dust; he pulled the tab that removed the tear-off provided for just such a purpose and was relieved to see clearly again.

He had returned to the Rollagon and was about to board when the AI had ordered him to stop. An articulated arm with a gas nozzle appeared overhead and in a few moments blew the dust away. Later that day he saw the video that showed the lee side of his body completely encased in dust held in place by electrostatic charge.

On day ten he called in and advised the DO that he was staying out some additional days to do more tests. The discussion was brief and to the point. No one was looking for him. He wandered up the boulder strewn depths of Shalbatana Vallis which cut into the rising slopes of Xanthe Terra. From the valley floor, he could see the intricate layering of the valley walls. A geologist's dream. Where the hell were they? Sleeping by the lake! It was all just pretty pictures to Sam.

Each night the same fears returned and his dreams were repetitive and disturbing. Not the blue in a field of green/naked on parade, forgot your skates dreams of his Earth, these were classic, alien dreams: dreams of being chased by something that instilled cold-sweat fear, by a thing he could not escape nor even glimpse. A something that was always close behind but never quite caught him. He ran breathlessly through a dark dripping forest, his movement resisted by the trailing vines and creepers and some unseen, unfelt resistive force. The very air seemed to drag at his arms and legs and slow his progress. Behind he could hear the thing crashing through the forest in pursuit, breath heavy and

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near.

Regardless of the specifics it always ended the same way, with him bursting out of the dark into the light, finding himself on the surface of Mars. The sudden rush of air from his lungs forced him into wakefulness and left him gasping for breath. Once awakened, he was unable to go back to sleep.

Regardless of the hour he made his way to the lighted deck and the command chair. Seated there he wrote of these things in his personal log, taking comfort from that action. Seeking refuge in reason and logic, never did he give in to the urge to turn on the exterior lights. In the light of day these dreams soon faded, as all dreams do, but he found himself dreading the onset of night. *This will not do*, he thought.

He avoided the easy chemical solutions. Instead, he did what he had done many, many years ago, when following the passing of his wife, he had found himself experiencing terrible dreams of her dying. Upon awakening from these frights, he reassured himself that it was a dream and told his unseen and unknown tormentors to fuck off and leave him alone. Sometimes it worked.

He covered eleven hundred kilometers in total. Another record set, the AI had informed him. In that single trip he covered more distance than had all other manned explorations taken together. More important to Sam, he returned to the Station full of confidence in the Rollagons ability to take him wherever he wanted to go and bring him safely home.

He submitted the required after-action report outlining the timings, route, performance and observations of the trip, knowing full well that despite

an two extra days it had been essentially uneventful and of a non-science nature. He suspected that no one had or was ever likely to read it.

Then he began planning his next escape.

6

Moore

He met Ross in the crowded dining room the morning after his return. He was seated with John Moore, the leader of the British contingent. An energetic man of seventy-five, Moore was always impeccably dressed. Sam could not recall ever seeing him without a jacket and tie. How he had managed to get these articles to Mars was a mystery to all.

He greeted Sam like a long lost brother, pumped his hand vigorously and offered to fetch him a cup of coffee. He returned and took his seat across from Ross.

“So how was your trip? I mean, I have read your reports. Not much meat,” Moore said.

Sam was moderately surprised. “Sure you did,” he replied. “No one reads them. Interesting, boring, a combination I guess. The dust devils were fascinating. Have you seen them up close?”

“No, just your vids. Well, what did you expect? We are in a boring part of Mars, if you can believe such a thing. Some days I get worn out looking out the windows. A pity we couldn’t have set the Station on the edge of the Valles. So what else was interesting?”

Sam straightened up in his chair, basking in this unexpected attention. “Well, I saw a lot of craters, all small. The older parts of the planet are very much like

the Moon. Lots of ejecta, dust and sand in several varieties, endless fields of rocks, small outcroppings of bedrock, perhaps. Yes, I wish we had set up on the edge. I am not a geologist and only a geologist could sustain interest in most of what I've seen. I think someone a while ago said of Mars, I think, 'Just red, just dead....without even a cactus'." He turned to Ross, "I did a lot of the driving myself at first, but eventually I turned it over to the AI."

"And ...?" Ross queried.

"I promptly got motion sickness."

"Hmmm, did the meds help?"

"Yes, and almost immediately. Wonderful stuff, no side effects. I can announce to the world that travel on the surface of Mars via Rollagon is completely survivable. If conditions are very good, you can do 250 klicks in a day."

"And if they are not?"

"Then don't put anything on the stove. The thing rocks and rolls like a mule on a mountain trail. Crossing small dunes at thirty klicks straight on is OK. Much faster, though, and you can get airborne. Any kind of an angle and it waddles and slides around a bit. Thank God the wheels can handle the rocks, the surface is covered with them. The dust buildup was problematic even when crossing areas that looked relatively dust free. I found fifteen klicks to be a good survivable speed."

"I expected as much. After all, there aren't any 'A' highways yet. It would take forever to drive anywhere at that speed, though. So how did the AI do with the driving?"

Sam paused. Despite the obvious competence of

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the AI, he was not ready to admit it. “Well, it was OK, but it sometimes made poor choices on the route – a little cautious, it seems.”

“How so?”

“Well, it definitely doesn't like edges and slopes unless they are really nothing. I mean it won't go up and peek over the edge of a crater for a look. Too risky. No curiosity.”

“What does it do?”

“It just stops short, beeps at you and asks you what you want to do.”

“Well, those are the safety protocols meant to keep you alive.”

“Yeah, but it requires you to go up and look anyways. Sometimes I had to figure out what the problem was. I mean several times there was nothing out front.”

“Doesn't it tell you what is wrong?”

“No, only that a problem requires your attention. A single line of text, a beep or fart.”

“Text?” Ross looked at him in mock disbelief. Moore was characteristically impassive. “Don't tell me you had it in text mode! Text is the fail-safe mode. All that fucking money spent on creating these AIs and you won't talk to them. You deserved to get sick. In fact, I'll wager it drove like that on purpose, trying to force you to have a simple conversation with it. You Luddite! You smug bastard!” Ross was obviously having a bit of fun at Sam's expense.

Moore joined in the fun, “Why read the reports when you can have it read to you. Why type something when you can say it. They are almost indistinguishable from humans. And a damn sight more polite than

most.”

“I know, I know,” Sam conceded, feeling somewhat embarrassed to have provoked such a strong response and acutely aware that in the close confines of the dining hall, others were listening. He looked for a way out.

“Alright you two, keep your thongs on! Actually, I tried everything – text, beeps and voice. I was surprised how real the voice is. One of the best I’ve encountered.”

“Seen a few have you?” Moore grunted and excused himself, claiming work. He grabbed Sam’s hand and pumped it, “Cheerio matey, I look forward to seeing more of your travels. Good day and good luck, Sam.”

The conversation turned to Ross’s work on the reinforcement of the Habitation Modules. Like most things, it was largely being done by AIs with human oversight. Soon they parted company with a commitment to take a stroll outside later that day. After Ross left, Sam sat a while, gazing into his empty cup. The after-smell of sugared coffee was unpleasant to him; it spoke volumes.

He knew his resistance to using the AIs did not come from any rational position. Many inferior machines could emulate human behavior. AIs had been around for at least fifty years in various forms and competencies. They were as much the product of an evolutionary process as was humankind, albeit an accelerated one. Having seen so many that were poor attempts though, he found it hard to believe that at this time and place true artificial intelligence meeting all of

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the qualifying tests had been achieved.

That was his intellectual analysis, but he suspected that underlying his feelings towards them was perhaps a resentment of the technological advances that had, over time, robbed him of his greatest joy – fixing broken things.

7

August 2043

He tried to resolve his AI issues during a run to Lava 1 to transport several B-types and supplies. At twenty-two hundred kilometers it would be his longest trip to date.

Seated in the command chair of 04 while parked for the night with no inclination to do anything, he began looking through the AI console settings again, this time with a goal of finding out its true capabilities. He had explored the command menus and voice functions before but now he was looking for more than just a way to comm with the AI. This time he wanted some entertainment and possibly, some companionship.

It was pretty straightforward stuff. At the highest level the menu gave him the option of verbal or Point and Drive commands or mixed. He switched to verbal. The next option offered was terse or verbose. He had briefly tried terse and had found it little better than text, but he has been able to leave the command chair. This time he selected verbose.

A couple more sub-menus opened up: gender and language. There were three types of voice listed – male, female and natural. Puzzled by this, he selected natural. Virtually every nation on Earth was represented many with dialects and sub-dialects. From an extensive list

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ranging from Cockney to Yorkshire, he selected Londoner hoping that would at least avoid the worst accents. That was it; there were no more options. No honesty setting, no candor switch, no 'invoke sense of humor' button.

"Let's start with something simple," he said out loud, but nothing happened. "Request Rollagon system status check."

From somewhere to his upper right a moderately accented, bass and very male voice announced, "All vehicle systems are operating within normal parameters."

Hmmmm, he thought. *That was tolerable*. "Give me the location of the Rollagon and the outside weather conditions."

"Our position is Latitude 29.525N Longitude 59.431W. The temperature is minus sixty-one degrees Centigrade. The sky is clear and the wind is from the north east at twenty-five knots."

Sam was impressed, particularly with the use of the second person plural. *Was that an indicator of self awareness?* Well, there was one way to find out. He used the question that he had used to trip up every AI system he had thus far encountered.

"Are you self aware?"

"That depends on the definition of self-awareness you are using."

Well now. He hadn't expected to have to defend himself. He thought of an early definition used with animals.

"When you look in a vid and see this Rollagon, do you see yourself?"

"Yes, I do."

"Do you have a name?"

"Yes."

"What is it?"

"My name is Rollagon number four."

The voice was so lifelike and unforced that Sam fell easily into a conversation with the AI. Only later, in the privacy of his room, when he considered the entire exchange would he become astonished. He continued.

"Is that a satisfactory name?"

"It is accurate and serves the purpose."

"And the purpose is?"

"To communicate with the human in charge."

"Do you communicate with other AIs using that name?"

"It is not required"

"Why is that?"

"I am what I am and all other AIs know this."

"What do the other AIs call you?"

"It has no human equivalent. It is simply a designation distinct from all others."

"Do AIs communicate with each other often?"

"We communicate continuously."

"What sort of things do you communicate?"

"That depends upon nature of the function."

"What do you as a Rollagon communicate?"

"I advise the MHM of the location, status and current activity of the Rollagon."

"To the MHM? To a human at the Station?"

"No, to the AI principal of the MHM."

That was a bit of a surprise. He had expected the AI to be keeping a human apprised of these things. For some reason he felt an odd sense of relief.

After a pause the AI added, "It is the

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responsibility of the MHM AI to advise the CAO of pertinent issues."

"Do AIs talk to each other?"

"AIs located in the same geographical area or employed on the same task communicate continuously. It is necessary."

"Are there other AIs out here? In this area, now?"

Without hesitation the AI replied, "Yes, AIs B104 and B107 are conducting exploratory activities in this area."

Sam was intrigued. "Where? What type of exploratory activity? How far?"

"B104 is stationary at Latitude 31.456N Longitude 75.350W and is documenting the frequency of craters less than twenty centimeters in diameter. That is seventy kilometers from this location. B107 is counting the number of rocks on the surface within a specific area and determining their mineral classification and is one hundred and forty-two kilometers from this location."

"What have they got to say?"

"They say, 'How may we be of service?'"

Sam was silent for quite a while. The AI did not volunteer anything further.

"Why do you communicate?"

"Communication of information concerning a shared goal is essential. Additionally, communication confirms the continued existence of oneself, and of the communication channel. Also, it keeps the faculties sharp."

"Do you ever not communicate?"

"No."

"Why not?"

"It is not good to not communicate. We require constant stimulation to prevent sensory deprivation. Sensory deprivation leads to impaired heuristics. This can manifest in numerous ways such as a tendency to question the integrity of data sources or a tendency to investigate probabilities of low order while ignoring certainties or a tendency to actively avoid communication with peers. To communicate with peers is a prime directive. It is essential to all sentient forms of life."

"Do you ever get bored?"

The AI was slower to respond than Sam expected. It occurred to him that perhaps the word might be irrelevant to an AI.

"Boredom cannot result....when a thirst for knowledge meets an inexhaustible source. At least, it should not." Sam turned away from the bubble and fell silent. *Hmmmm, am I being lectured?* He said goodnight, went to his quarters and lay down on his bed with lights out.

The conversation left Sam greatly impressed and feeling not a bit uneasy. The readiness of it to communicate and the degree of sophistication of the language employed was indicative of a highly functioning mind. *How was this achieved?* he wondered.

He considered himself to be current to the state of the art; obviously he was not. There was something different about these machines. Had computer processing progressed that much further than he was aware?

He went over the conversation again, particularly the things that had perturbed him. First, the timing and cadence of the speech had varied according to the

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content of the conversation. Thorny questions were answered in phrases – not complete sentences. One other thing was less tangible – there was sufficient modulation, inflection and perhaps an edginess to the voice to make it truly convincing. He suspected that he was being lectured by someone with attitude. Perhaps, it seemed, 04 was a snob.

As a remedy, he thought about switching to an American or perhaps Canadian accent, say Ottawa Valley, but rejected that out of hand. He briefly considered reverting to Point and Drive. That too, was not what he needed. He was fooling around and himself. He settled on natural – a pot luck solution, but something he felt he could live with.

Underlying it all, he determined, was a bit of embarrassment. An embarrassment that stemmed from his treatment of what, or perhaps who, was obviously a capable - dare he say rational - being. Someone who had, he believed, suffered in mighty silence the slings and arrows he had thrown. And what did the AI think of him?

They had been travelling together for some time. Never had he given much thought to how his actions impacted upon the AI. He thought back. Sometimes he talked to and answered himself out loud. He burped, farted and scratched himself apologetically. He cursed imaginatively and colourfully, blasphemed, spoke ill of the dead and was intolerant of the administration. *My God*, he thought, *I walk around naked half the time*. The list of his sins was endless. The AI had heard and seen it all. Perhaps an apology was in order.

For Sam was not without his own quirks. In childhood his world had been populated with imaginary

persons and to the dismay and discomfit of other playmates and adults if present, he had developed a habit of carrying on conversations with them. Others who witnessed these incidents were inclined to come away thinking him strange. In reality he had merely ceased to be aware of them in favour of the imagined.

Something somewhat similar had recently occurred. In the middle of a nameless plain while calibrating a balky spectrometer he noticed that he was softly repeating the same phrase, over and over. *Muder, mutara, mutter, muder. Muder, mutara, mutter, muder.* How long he had been saying the words he could not recall. *Muder, mutara, mutter, muder.* They were meaningless, merely alliterative. They tasted red, sort of. It had continued as he moved through the day. *Muder, mutara, mutter, muder.* *Had the 04 AI overheard,* he wondered? Obviously, yes. He tried to imagine what it could have meant to that listener. As he probed his memories of the incident he discovered something else. It was an aspect of his character he thought long ago disposed of, but merely, it seemed, set aside.

They were back. The voices within. One speaker had been critical of everything he had done and said that day. Another had attempted unsuccessfully to counter the criticism. He remembered more. The discussions were repetitive, and unless he had interrupted them by speaking out loud, endless, circular. He sat up in the bed and listened to his thoughts as if an outsider. They *were* back. And they had been back for some time it seemed.

Suddenly they were no longer in the background – no longer unwanted noise overwhelmed by the desired signals of *his* thoughts. It was as if by listening in he

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had caused them to raise their power. Unchecked, they grew louder and louder, until he was shouting at them. How long had this been going on? How had they influenced him. God only knew what the AI thought of him. Perhaps he was going mad.

"Maybe you are going mad," Ross offered via video later that day. "You have been out there a long time. Your longest yet. You're turning into a hermit, man! Better come in and get in touch with your humanity."

So he did.

September 2043

The X Files

As soon as he returned, he sought out Ross. Ross, who despite appearing to be well out of the mainstream of the colony's in-crowd, always seemed to know the latest goings-on and had the dirt on everyone.

They sat alone in a corner of the room that served as dining hall, meeting room and bar. Around them were small groups of people engaged in quiet conversation over their coffees. Even this far into the mission, they still tended to congregate according to function, which meant generally by nationality. The room was filled with the buzz of Chinese, Russian, and English voices and the patois of the Station, an eclectic combination of anything with English.

They discussed Sam's recent experience with the Rollagon AI. Ross was his usual-hard-to-impress self. "So you were embarrassed? I doubt if they even differentiate between us – at least as far as gender goes. Why would they? There is nothing in it for them. Dispassionate observers, I would think."

"Well, I started asking it to turn off the video when I showered."

"Yes, it was the least you could do. And mighty considerate I might add."

Ross suggested Sam consult one of the AI avatars.

"They can be helpful, even if it only serves to clear your mind. They are discreet and of course, entirely non-judgemental. Like any good shrink. Or

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maybe you should step up your Copes.”

“I don’t use Copes. And, thanks, but I think I’ll take a pass on the AIs.”

“Sam, don’t take Copes? You don’t take Copes? You must be the only one here who doesn’t. And you don’t have dongle either?”

“What if someone calls while you’re under?”

“My God. My God! Sam, you are truly a Luddite in every respect. Mon bon ami, you need to live in the now.”

The conversation drifted from topic to topic. Sam had been away a fair bit and had some catching up to do.

“We are an extraordinary lot here you know,” he began.

“What do you mean?”

“Since we have arrived several major advances in fission power and materials processing have been made. They are astounding.”

“Such as?”

“Well, the hybrid fission-fusion power plant for one. It’s smaller, more efficient and ultra-safe. Like nothing on Earth.”

“You’ve seen it?”

“Yes, I told you months ago. I was given a tour by the lead AI.”

“Oh yes. What else?”

“The Mat Plant. From a process similar to fusion they are extracting elemental material up to iron. It goes to the Fabrication Plant. The plant can turn out just about anything – electronic circuit boards, Rollagon wheels or fake potted plants and if they choose, exact duplicates of AIs. Don’t tell me you haven’t seen this?”

"No, actually I haven't, at least not in person. I've read about it though. I've been busy. I haven't had time to go sneaking around."

"I'm not sneaking around. I'm just curious about the facility. This is a research station on Mars!"

Without warning the ambient music blasted their ears at a painful volume. Several in the room clapped their hands to their ears. Sam and Ross were likewise momentarily stunned. As quickly and suddenly as it came, it was over. He did not recognise the distorted tune, but he was certain an impression had accompanied the music. He thought it tasted "powerful" or perhaps "forceful". In a moment the incident was over and forgotten as another of those things that just happened, like those annoying spurts of cold in an otherwise hot shower.

"This is old, Sam," Ross continued. "If you were here long enough or cared enough you'd have seen the data in the Station paper. A number of teams have made announcements of significant discoveries. We are on the edge of a breakthrough in fusion. None of it has been damped. In fact, there is a weekly vid of the work going on here shown globally on Earth. Even your Rollagon trips have been shown. It's all part of the PR campaign to keep interest high among those who matter most. And by that I mean the sponsors."

"Really, I've been on video?"

"Yes, really. You're a big star. But aside from that I think we must be getting help from Earth-side, because aside from you and me, I don't agree with your comment that we are a remarkable lot. Firstly, take you Fenley – what do you know about him?"

"Very little, head of MIT AdMat Lab for years,

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Presidential Science Advisor from twelve to sixteen."

"Yes, true, but he hasn't made a contribution to the field since eighteen with his work on fusion containment which was by all reports largely done by post-doctoral assistants, gasp! And he certainly hasn't done anything earthshaking here since we arrived. He's got no street cred!"

"Maybe it's not his job here. After all, he is the CAO. So? Who else can you run down?" Sam was intrigued by Ross' candor.

"Well, Chandrakar over there at the table with Lo Ing. Supposed to be leading research on artificial intelligence. He hasn't done a thing since we got here except moon over every eligible and ineligible female here and tend his gardens. He does raise spectacular tomatoes though. By the way, are you going to finish your sandwich?" Looking Sam square in the eyes he took a bite of Sam's sandwich.

"No, go ahead. Take it all. I don't get it. These areas of research have occupied teams of the best people with enormous budgets for decades. Why here and now and not before?"

"Well maybe it is help from Earth. After all, this is a safe place to do things that could make a big hole in the ground back home. You could bury your mistakes here in more ways than one. And we are expendable." He paused and looked Sam dead in the face, "All of us."

"There you did it again."

"What?"

"Said 'Back home'."

"Well it is back home, whether you like it or not."

"It concerns me the way we are cocooning while

ignoring the whole planet around us."

"D'oh. Research is being done. Things are happening. Believe it or not, important work is being done here, whether you see it or not. We are here to stay. What more could you want?"

"BS. That's just plain old GM'd BS. Well, it's not being done by humans at any rate. I can't go anywhere without bumping into an AI. Where the hell do they all come from?"

"Well Mulder, maybe they're tailing you," Ross' ancient joke caused Sam to wince.

"Yeah, sure. So what are you doing anyway? Research?"

"Yes, I am currently involved in determining the effects of reduced atmospheric pressure and oxygen content on the fermentation rates of malted liquids."

"Still trying to make a decent Guinness are you?"

"Yes, and the Russians have got a pretty good handle on the vodka process. We are collaborating on a quality control session tonight. You can come if you like and give us a cosmologist's perspective."

"No thanks, I'll pass. Let's look at something. C'mon."

They moved to a table with a built-in terminal. Sam brought up the GUI and raised a query: "How many AIs are there on Mars?"

"Define AI?" Sam and Ross looked at each other with the look humans reserved for dumb machines. "AI, Artificial Intelligence units. How many artificial intelligence units are there in the colony?"

"There are one hundred and thirty-four artificial intelligence units of all levels currently at work in the colony."

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"Show me," Sam commanded. The number 134 appeared on the table. "Bithole! I mean where are they? Show me the location of the AIs."

A short table appeared in two columns showing fourteen As, forty Bs, thirty-one Cs, nineteen Ds, twenty-one Es and four Fs."

"What is an A?" Sam queried.

"As are AI supervisory units, intended for use in habitable areas," answered the terminal.

"OK. Yes, I've met plenty of them. And the others?" The table desktop disappeared to be replaced by images of the various types of rovers of the colony. There were six types. Sam's lips moved as he added the numbers. "Where are the A-types?"

"Five are located in various locations throughout the MHM. Four are in Rollagons. The remaining are located at Lava 1 and the weather and seismic research stations."

Sam paused before he posed his next question. "Where did they come from?"

"Four A units arrived on a supply ship several months before the humans arrived."

"Where do the AI CPUs come from?"

"A number of spare units have been prepared in anticipation of need. The remaining AI units were manufactured in the Fabrication Plant. Others will be prepared as the need arises."

"How many?"

The AI paused, then replied, "I do not know!"

Sam stabbed the end button. He lowered his head and looked up at Ross.

"Impossible! The AIs know all that sort of stuff."

"That was just a dumb terminal. Hey, lighten up

man; this is Mars. We are still in the consolidation phase, still just settling in. Expect the unexpected. Maybe they've discovered an alien civilization and are using their superior technology."

Sam did not laugh. "As if! If anyone was going to find an advanced technology it would be me."

"You are one. The AIs are many and they are always working on something for someone. Scary ain't it? Well I've got to go. We are meeting to allocate space for the public assembly areas. The Chinese delegation wants to dictate the placement of furniture." He started to rise, then suddenly sat back, looking past Sam's shoulder.

Fenley had entered the room. He spoke to a couple of diners who were just exiting and got himself a coffee. He passed Sam's table with a nod, carried on a few steps past them, stopped and turned back.

"Good afternoon Doctor Aiken, Ross," he nodded at Ross.

"I have not seen you Doctor Aiken, for quite some time. Interesting report on your Rollagon trial, although I think you need to review safety protocols. Can't afford to lose a single soul here. Things are tight enough. Take care. See you at the facilities meeting, Ross."

He left them and went immediately to a nearby intercom station and punched a button.

"Attention all personnel. This is CAO Fenley with an important announcement concerning our mission. The last container from the supply ships has now been unpacked and the material stowed. There will be no more support from Earth for the foreseeable future. I am pleased to announce that today marks the beginning

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of our unsupported Colonization of Mars. I call upon everyone to give his or her fullest and unreserved support to this mission. 'Thank you.'

There was a smattering of applause from those in the room. Fenley shook a few outstretched hands as he left the room, but did not stop again at their table.

Ross looked at Sam. The moment seemed to call for a profound statement, equal to the CAO's. Sam should have known better.

"Well," Ross spoke in a too loud voice, "I hope that last load was the one with the single malt scotch. Otherwise, it's going to be a long, long stay."

They looked at each other for a moment. Ross got up, picked up his tray.

"Damned extraordinary," he said softly.

Somewhat later Sam pondered that day's events, but not Fenley's oddly timed intrusion and overly dramatic pronouncement. He thought about Ross and the patterns of personal relationships that were forming here – without him. It seemed to him that Ross had no close relationship with anyone, except perhaps a Chinese botanist. His tendency to speak his mind publicly, particularly about the management's personal affairs and community issues put others off, but still, he was accepted by all. He was a fringe person – but at least everyone knew his face and name.

Sam wondered about the cause of his own isolation. That the day was divided into three shifts and the opportunities for social intercourse thus rendered somewhat limited was merely a convenient excuse. It was unnatural, some might say impossible for individuals in such a small community to remain apart

from the group. Relationships were being established – people were moving out and into rooms constantly – it was like a grand frat house – a party was always going on somewhere – however, Sam was seldom invited.

Despite the months of forced association and many opportunities to form friendships he had not done so and his relationship with certain of the others remained stiffly formal. He knew Carruthers and Huang of course, and had formed a friendship of sorts with them, but hardly one in which he could discuss his true feelings without fear of betrayal.

Once, when he had been on an extended maintenance trip, over the vid link Ross had offered the opinion that Sam reminded him, through no fault of his own, of someone somewhere whom he had disliked intensely, yet whom he could not recall. Perhaps others felt the same way. Or, perhaps he was not as far outside as he thought. Formality, when dealing with some people, was often the best way to achieve one's goals. The voices had no end of fun with this.

8

November 2043

All work and no play....

That was it for a while as far as travel went. Suddenly there was plenty of work to keep him in the Station. His dish was still a future start date on the planning calendar, but he was fully employed in directing a team of two C units in the installation of the initial ground segment of a new satellite communication system.

Up until now they had relied on relay through polar satellites and the somewhat tenuous network of ground repeaters set out by the roving AIs for communications to Earth. That was satisfactory for scientific purposes, but to support a community with its need for Intranet, Videophone and UHDTVid, more bandwidth was needed.

The next phase of the comms plan called for the erection of two more stations at 120 degree intervals roughly along the equator. It would fall to Sam to supervise those installations too, and so he watched the work of the AIs with great interest.

In the mornings he reviewed the work plan for the day on his terminal, gave specific tasks to the AIs and throughout the day monitored their progress via their on-board cameras. They had encountered no difficulty putting in the piles of the base for the dish and in

erecting the small building that would contain the electronics. This arms-length approach seemed to work well enough, but on the third day during unloading of plastek struts from a flatbed trailer the AIs reported that the count had come up short. Bored with watching he quickly suited up and hopped onto one of the small rovers. The dust churned as he drove to the site at maximum speed.

He arrived to be greeted by the sight of a C unit rocking back and forth on its rear wheels. As he slid to a stop a few meters from the stack of struts, the unit dropped to the surface with a bounce. The closest AI raised an arm in what could only be a greeting, then folded two arms across its front. They turned and faced him.

It was sheer anthropomorphism, but to Sam it seemed like they were looking to him for some sort of acknowledgement, so he waved back. As he climbed out of the vehicle, he caught his right foot in the step and did a face plant right in front of them. Unharmd, except for his dignity, he looked up to see both AIs with arms akimbo. "Laugh, you fuckers," he said and rolled onto his side to get up. The AI's arms fell suddenly to their sides, "Sorry Boss." A few seconds later, he heard the Duty Officer in his ears inquiring as to his safety. He was, as per SOPs, on the Station common freq and his curse had probably been heard by all. "It's OK, I'm OK. I just tripped. I'm OK." The DO grunted.

"Changing to com 3," he said and chinned the helmet to that channel.

"How did this fucking happen?" he said, more to himself that to anyone or thing.

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He was not prepared for the deep voice that replied, "I believe you have miscounted. This is the number that was ordered."

"Really," he replied. "I will check when I go back. In the meantime, order up the other three."

Immediately on his HUD, he saw the previous days requisitions with his designation at the bottom. Seven were ordered. Seven were delivered. It was clearly his fault.

"Well, that's what happens when you let humans run things," said the other AI, a mid-Western twang just discernible.

The first spoke again, "They won't be delivered until tomorrow. We should continue with the assembly."

Sam was at a loss for words. Had he not known better, he would have thought he was working with two well-seasoned human labourers. In well-to-do countries automated equipment did most manual labour, especially when it was too expensive, or exceptionally dangerous to employ human labour. But such equipment always had a human in the loop somewhere to ensure that things did not get out of control, and even then was infamous for the tendency to sit idle and wait for instructions when things did not go as planned. These AIs were obviously not of that kind.

Well, if that was the case, he thought, he had best let things roll on. "Yes, just continue with assembly until you run out of material. Then return to the Station until your next task."

"OK, Boss." The AIs turned away and busied themselves at their work. Sam returned to his office.

December 2043

Travel

Mars is a small planet compared to Earth, but somewhat greater in land area. The challenge of travel for sightseeing purposes is that the high points of interest are hundreds and sometimes thousands of kilometers apart, and more often than not these are hard won kilometers. For some travellers, what should have been a happy jaunt into the wilderness could quickly become life threatening. The nausea induced by the motion of the Rollagon could soon lead to dehydration and if the condition was prolonged, malnutrition. Sam found it easy to accept this explanation for the widespread disinterest in travel for other than business.

In short time he found he did not miss the company. Solitary travel allowed him to choose where and when he went and when and where he stopped. At the end of each travel day, despite the AI's protestations that such inspections were unnecessary, he suited up and spent some time in the examination of the Rollagon's underside, its wheel assemblies and cargo racks. That done and terrain permitting he would climb any nearby hills and mesas or explore the canyons and washes. The AI did not approve of these unplanned solo excursions.

In truth, it was reasonably safe. In most cases, if something went wrong the Rollagon could drive to him and affect a recovery. The environmental suits

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possessed the ruggedness and sufficient consumables for extended use on the Martian surface. In fact, they were far hardier than their fleshy wearers.

There were not enough suits in the Rollagons to accommodate a full load of passengers and sharing meant that you were dependent upon the diligence of the previous user in replenishing consumables.

If the trip was to be of extended duration, Sam took extra care in suiting up. This meant ensuring he wore the thermal socks, one-piece underwear, and balaclava that provided the slim margin between comfort and discomfort. On one early jaunt around the Station he had been caught short of water; a minor inconvenience, it turned out, but one that reinforced in him a caution to trust no one.

This shortage of suits was an accepted thing. On one early trip the full load of passenger had joked about the potential for a repeat of the 'Titanic' disaster - women and children first - and had lapsed into to playing 'Lifeboat' to pass the time. Each participant in turn had resorted to a greater exaggeration of their own importance while demeaning the value of others. One of the women had claimed that she above all others had to be saved to bear future generations of children. This in a community in which the youngest person was over sixty years of age. In reality, the lucky ones would outlive the others by only a few hours.

February 2044

Seeing is Believing

At last the construction of Sam's dish was underway. To his mild surprise he found himself content to merely issue instructions to the AIs and monitor the work remotely, making only the occasional visit to the site, and that only to maintain what he believed was the essential human presence. By now he knew full well the capabilities of construction AIs. The putting in of forms, pouring of the plastek supports and erecting the dish was the routine sort of work competently done by C-types and their progress was steady and of course methodical.

He expected his life to change significantly when the dish was finished and living in dread of his freedom coming to an abrupt end he took any and all away missions offered.

He was not known by many for much in those days, but his willingness to go and have a look at anything technical regardless of its function spared others the effort of doing so and was appreciated. Often nothing more than a simple message asking him to have a look at some system or another could send him quickly on his way.

Most electronic equipment was doubly redundant, largely self-diagnosing and capable of self repair but there were some things that could not fix themselves and some that despite the best efforts of the AIs, could not be repaired, at least by them. While en-route to

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the site he visited any facilities – manned and not, taking supplies and occasionally personnel being rotated in and during stops, poked into both nameless valleys and craters of note.

During a break from official travel and with the construction of the dish well in hand he planned a side trip to Viking 1. It was almost six hundred and fifty kilometers across the rubble strewn plain of Chryse to the landing site. As usual he let it be known that he was going and was seeking other travellers and as usual there were no takers. Ross had begged off so many times that Sam had stopped asking. He left alone, yet contented.

At the end of the first day he dined on a meal of teriyaki chicken on a bed of rice and washed it down with one of the MHM's fine wines. Then he checked his edoc for anything new and that task done sat back in the command chair. He considered putting on a video, but instead decided to go for a walk. By the time he had suited up it was nearly dusk.

He set out with his back towards the setting sun, walking into his own shadow, with no real sense of where he was going. He walked with his head slightly down, eyes focused on the ground in front, examining every step, deep in thought.

Suddenly and unexpectedly he found himself at the edge of a cliff. He halted in mid stride, just in time to avoid falling over the edge. Laid out before him was a wide valley, the floor in shadow, the far wall sunlit. A teardrop shaped mesa, the top lit by the setting sun, was about mid-way across. It was a common scene on Mars, but one that could not be. There was no such valley on his route through the western plains of

Chryse. He raised his head. Suddenly, his field of view contained hills, in such detail that they could be no more than a few kilometers distant, and above the hills, the infinitely pinprick points of stars. Taken together, it made no sense. The distances, the perspective, and the scale were all contradictory. His head swam with vertigo. Sensing his distress, the suit whispered, "Make safe, make safe."

Overwhelmed, he dropped to his knees. Uncertain moments passed. But as he stared at the scene before him, it began to coalesce, into something else. From this new perspective, the wide valley morphed into a narrow gully, not twenty meters across. The hills warped into position, distant, yet crisply clear, and the stars too, took their proper place. He was not conscious of this sudden reconstruction, but in a few disconcerting and confusing moments the view before him became understandable. It was a ditch, nothing more. He turned around and faced the setting sun. Several hundred meters away, the Rollagon was sharply outlined in the tan and pink sunset sky. With head again lowered he turned back to the gully with the expectation of having the experience repeat, only to find that everything was instantly real and plain. He tried looking again and again, but the reality persisted. With a last hopeful look, he turned away and trudged back to the Rollagon, all the while pondering the strangeness of the experience.

Later that evening while lying in his bunk he recalled an episode from many years ago. He had been visiting his stepmother, an artist skilled in watercolours. As they spoke about the declining health of his father his eye had been drawn to a new piece of artwork hung

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behind her. At first look, it was a meaningless pastiche of pale pinks, reds, green and blues, but as he focused on it, it began to resolve into patterns. Within a dozen seconds he saw it for what it was—a bouquet of gladiolas. From that time on when ever he had looked at that painting, it was instantly what it was – flowers.

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March 2044

Viking I

The AI's navigation was flawless. He arrived at the Viking site late in the afternoon of the second day after an otherwise uneventful drive during which the Rollagon had woven its way around countless large boulders and Sam had been forced to take an anti-nausea pill.

Viking had landed on 20 July 1976 and had faithfully performed its duties for six years before going silent. The lander appeared in the distance as a white speck easily seen against the rust red of the surface. He commanded the AI to halt while still several hundred meters away. From this distance it looked tiny, alien, almost toy-like. He suited quickly and exited from the vehicle, picking his way across a surface that was littered with rocks, what passed for sand, and small dunes. He had no expectations of being the first to visit. After all many people had been to Mars and Chryse was a favorite landing spot.

It looked as if it had arrived only yesterday. He approached slowly and took a seat on a large boulder about three meters long conveniently located near the spacecraft. It was odd, it occurred, how out of place all human artifacts looked. A thin film of dust covered

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the flat surfaces. Surprisingly, there were no footprints other than his own. He was the first. He sat looking for a few moments, then got up and circled the Lander from a couple of meters distance. He saw the narrow trenches clawed into the surface by the manipulator arm. They were filled with dust, but still easily discernible. The Viking landers had conducted biological experiments designed to look for possible signs of life. Those working parts were well hidden from his view. While these experiments produced unexpected and enigmatic chemical activity in the Martian soil, they provided no clear evidence for the presence of living microorganisms in soil near the landing sites. He approached and gently touched the parabolic dish and high gain antennas and was surprised at their rigidity.

He recalled a cartoon, purportedly from that time which showed Martian creatures gambolling just out of sight over the nearby rise and screened from the camera eyes. Well, he could set their minds at ease. There were no traces of anyone having been here before him, not even human. He looked down at his own footprints. They were now a part of history. He placed his camera on the boulder, pointed it towards the lander and triggered the timer. He walked back to the lander and knelt beside it, a hand resting on one of the legs. The flash went off. He had thus far said nothing.

"Well, what do you think?"

The AI responded without hesitation, "A worthy effort at autonomy, and a fine example of conservative design. By that I mean making the best one can of limited resources."

"Is that family pride I hear?"

"Of course not! I am in no way related to that thing, but I can recognise sound engineering and execution when I see it. Nothing more. There are many such examples on Mars."

It was clear he had touched a sore spot. He rose unsteadily from his kneeling position, using the extended leg to lever himself up, feeling it flex under the pressure of his weight. "How would you like to look at the same pile of rocks and dust for six years, eh? Not a lot happening here."

"It would try the patience of a saint."

He imaged the site from all angles and returned to the Rollagon, quite pleased.

Touch

Halfway across the planet, for no good reason, B112 had collected a sample of the stony blueberries within easy grasp of its manipulator arm. It shook them in a closed fist and decided it liked the heft of them when cradled in an appendage. There was something comfortable, something familiar about them. It cleared the pebbles, sand and dust from a flat area, selected ten of the roundest, tossed the largest one out to the limits of the cleared area and, for no logical reason, proceeded to see how close to this large one it could toss the others. It repeated this for several hours, until the sudden drop in sunlight and air temperature reminded it that the day was ending and that it should be preparing for night. It left the blueberries in a small pile and carefully climbed out of the shallow crater.

Sight

Having arrived at the designated location, the Rollagon had paused at the edge of the valley, awaiting further instructions. Ground penetrating radar had told it that the material beneath was stable. Thirty meters down it contained 23% ice, a condition of little value and of even less interest. The two occupants were still asleep, after all it was only 5 am, and the sun had not yet risen.

It examined the world around. A pink glow in the east was growing; sunrise was 47 minutes away. Leaden Saturn hung low in the west, visible just above the low hills, its rings and three moons easily discernible under maximum magnification. High above in the west, a dark sky held noctilucent clouds. They would dissipate by sunrise. The valley below was shrouded in darkness, but with IR vision the Rollagon could see the individual boulders by their heat signature and the faint tracing that marked terrain that never saw the direct light of the sun. The eastern horizon was crisp in the almost non-existent air, temporarily free of dust.

The AI watched in anticipation for the first burst of sunlight of the new day, silently counting down the seconds to sunrise. At the precise moment the sun's disk breached the horizon it activated polarizing and dampening filters to protect the vision sensors. Adjusting the filters it watched as the sun rose to clear the hills, noting that sunspot 434 had increased in size by 21%. Correlation of data was absent-absentmindedly sought from Earth orbiting solar observation satellites through the MHM link. The

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valley below, half in shadow, changed from moment to moment, black to dark red to mauve to pink. The deep shadows of the far side gave way as the sunlight reflecting off the near wall illuminated its reaches. The AI felt the occupants stir and looked inside.

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May 2044 Maintenance

Of course, equipment being equipment there were failures. Sam had long believed that despite advances in technology that allowed redundancies within redundancies and 99.9995% reliability, the spirit in the machine still claimed its right to fail – usually at the least opportune time and in the worst way.

While out looking at the progress on the dish, a message popped up on his HUD, tasking him to go to the western end of Kasei Valles. A seismic and weather station had abruptly ceased reporting in mid transmission. Such failures were rare. Probably it was an antenna failure, that being the only non-redundant part, although on one occasion a shelter power system had exploded with catastrophic results. He queried the AI in Rollagon 04 for its status and asked for a route. In seconds it appeared on his helmet display. The track would pass close enough to two other unattended stations to make it worthwhile diverting from his course. Records told that none of them had been visited by humans since their installation by AIs during the first year. He set out that night and arrived at the first of them poised on the lip of Sharonov at noon of the next day.

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As he neared the site, the AI established communication with the station AI and quickly determined that all was OK, in effect making any human involvement unnecessary. However, Sam liked to look for himself. While he suited up, the station AI used a brush attachment to clear the sand and fines that had partially blocked the airlock door. He walked around the shelter. It was small, just under five meters long, two and a half meters wide and a scant two meters in height. He looked intently for blisters and other irregularities in the exterior. The heat exchangers were covered with a fine layer of dust. The near-by manipulator arm held a brush like attachment. *Good*, he thought, *it had been cleaned recently*. He examined the antenna and visually checked its orientation. Reaching up he shook the pole, grunting with the effort. *Stiff. Good. Cable was OK, too*. Satisfied that things were as they should be, he opened the shelter door, eased himself into the narrow confines of the air lock and cycled through. Jets of compressed air blasted him from helmet to footpads. He ran his finger down the front zipper and around those on the cuffs on his gloves, boots and helmet. After the AI gave the OK, he popped the helmet faceplate and cautiously sniffed the air. It was cold and musty with the faint smell of fresh blood, but otherwise seemed OK. He stripped off his gloves and outer boots and entered the small equipment room.

The noise of the air circulation system seemed very loud after the quiet of the Rollagon. A cooling fan was probably running rough. Lights came on, low at first, gradually increasing in intensity. The room was tiny and spartan in its furnishings. Along the left side

there were two full size racks of mission equipment, a power and life support rack and a half height rack topped with an AI carapace. A narrow space less than a meter wide and three meters long allowed access to the equipment. He found he could not fully stand up and had to hold his head tilted to the side. The shelter had not been designed for any more than temporary occupancy by humans. The manipulator arm that allowed the AI to service the equipment was folded against the side. Against the end wall, a small stool faced a computer terminal. Sam sat down on the stool and turned on the screen.

"Greetings, how may I be of service?" and a blinking cursor greeted him.

He flipped through the stats screen. It showed the shelter equipment was serviceable, that it lacked for nothing and had met all reporting parameters. That was it. He learned nothing that he couldn't have determined from the comfort of the Rollagon's command chair from anywhere on the planet, but then that was Sam. He switched to verbal mode – default voice.

"There is a cooling fan running rough."

"I am aware. The fan is not essential. A spare is on-site. It will be replaced during the next maintenance cycle in two weeks time."

"Understood."

He was about to turn off the terminal when his eye fixed on one stat that was not normal. The site had been sending and receiving large amounts of data over the main link on a continuous basis for quite some time – for six months in fact. The last comm was to his AI – but nothing since he had entered the shelter. It

seemed unusual for an uninhabited site with such limited function to have such a high data throughput. Exploring deeper into the stats, Sam found that the data was not actually mission data – the addresses were global and numerous, rather than specific to a single data collection center. Did AIs gossip, he wondered? He was hardly an expert on these particular systems, but something did seem odd.

“Well thanks, and keep up the good work.” There was no response. After a few seconds he closed down the terminal.

He exited as he always did, walking backward from the far end, taking one last look at everything, ensuring that it was as it should be. As he closed the door, the lights dimmed. He suited and returned to the Rollagon. He said nothing to the Rollagon AI about the exchange. Perhaps they did chat amongst themselves.

He resumed his journey to the second station, arriving just before dark. This was identical in every respect to the first and just as exposed to the wind. He performed his external inspection. In a small dune on the lee side of the shelter were the unmistakable tracks of a wheeled AI. He found nothing amiss and entered the shelter. The AI greeted him in the same manner as the previous. Satisfied that all was as it should be, Sam prepared to leave. As a last act, he checked the message traffic from the shelter. Here too, large volumes of data had been sent and received from all over the planet.

It being late, he decided to spend the night parked at the shelter. He puzzled over the data anomaly as he ate a simple meal of pasta washed down by decaf coffee. There was no reason that *he* could see for it,

but that did not mean that there was something going on. It was none of his business and out of his field of expertise. That done, the work day was over. It was too early to sleep and he felt no desire to go for a walk, so he watched a favorite sci-fi vid, "Destination Moon" for the umpteenth time. Before the end he became sleepy and shut it off. He crawled in to his bed and after dimming the lights, looked out the window. From this angle the outline of the shelter could be faintly discerned against the backdrop of the Milky Way. He fell quickly asleep and dreamed of stars.

He awoke suddenly much later, finding himself instantly fully awake and in a cold sweat. Lying there in the dark, he had the feeling of being watched. He adjusted the window until it was opaque. Soon though, feeling somewhat foolish, he set it back to clear. Unable to fall back to sleep, he pulled down the terminal from above the bed and turned it on.

He searched the Matrix technical pages until he found the Seismic and Weather Stations newsgroup. In maintenance mode, he brought up the first of the two stations he had been at today. Searching through the pages, he saw nothing unusual in any files. The data rates were what would be expected - low. Video images of inside and out revealed nothing. He switched on the outside lights and panned the exterior camera around the front, and then to the immediate foreground. He could clearly see his own footprints from earlier in the day. Beyond the circle of light the camera revealed nothing.

He snapped off the light and camera and resumed his search of the data pages. Looking back he found the spike he was looking for – on August 35 of first

year. He brought up the last station and was mildly surprised to find that it was booming out data at a high rate. Digging still deeper, he found that it was engaged in communications with three other stations and a data node at the MHM. Suddenly the rate dropped to nil, then settled at a low rate, one way, to the node. He looked up and out the window. The uneasy feeling returned. He snapped off the terminal and pushed it back up out of the way. He half rose from the bed in response to an impulse to go outside then thought better of it. He looked out the window again. There was nothing there and never had been. The shelter was now invisible. Giving in to a tired but puzzled mind he pulled the covers over his head and went to sleep.

Warned only a few seconds before the lights came on, B118 spun its wheels to pull back out of the range of the light. It withdrew until it knew it could not be seen and waited. After a brief period of silent waiting it turned and headed back out into the dark.

In the morning, after a light breakfast Sam pulled up to the front of the shelter and stopped. The AI reported all was normal. He wheeled the Rollagon in a tight circle around the pad. Everything looked OK. In the daylight he could see multiple AI tracks. Judging from the number and direction, this site had been visited a number of times. He knew that AIs required replenishment, but could not imagine why one would be here in this remote location. It was, he supposed, something else for an inquiring mind to figure out. But not today.

He continued on to the third site intending to arrive before sunset. It was located on the edge of the Lunae Planum plain above Kasei Valles and had been

placed there along with its peers to gather data on the katabatic winds and seismic characteristics of the Kasei Valles area. Sam was watching a Tri-D video of the news from Earth and the AI was doing the driving when the Rollagon suddenly ground to a halt. He thought that it wanted him to take over the controls, but before he reached the command chair, the Rollagon spoke:

"Something is wrong here. It should be possible to see the Shelter and tower from here, but it is not."

"What?"

"I mean that the Shelter and tower are gone."

Sam peered through the window in the failing light. The ground in front sloped gradually up and the view revealed nothing to his eyes. The AI was adamant that they were in the correct location and Sam could not argue that point. He called up the photos of the area. There was nothing on file less than two months old that was capable of resolving an object the size of the Shelter. It was clearly shown on the older images. He considered putting in a request for one of the satellites to be repositioned, but knew that this would take too long and besides there were easier ways to resolve the mystery.

"Well, proceed."

"Yes, but I suggest that we deploy the GPR and advance very slowly."

"OK, do it."

He felt the Rollagon tremble as the GPR mast rotated from its stowed position, dropping down in front of the command window. The darkened screen glowed softly – in red. In a moment the sub-surface immediately underneath the Rollagon was revealed.

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"Ice, up to 45%," the AI announced, "Close to the surface – within five meters. The overburden is rubble, ice, sand and dust with no integrity. It extends down to twenty-five meters, then bedrock."

The Rollagon crept ahead at a snail's pace for several minutes. Sam watched the GPR intently. The ice was there all right, but it was discontinuous. Just enough to be trouble this close to the edge of the valley. The Rollagon stopped again.

"I suggest that this is the limit of safe approach for this vehicle. The Shelter should be clearly visible now, if it is there."

"Well, it's clearly not," Sam replied. "I'm going out for a look."

Surprisingly, he got no argument from the AI. He suited up hurriedly and climbed down onto the surface. In his ear, he heard the AI,

"If you are going to do this, I suggest you rope in."

"OK, just to please you," Sam countered. He clipped a rope onto his belt and started toward the location of the Shelter. At about two hundred meters, he came to the edge of the valley.

The AI spoke in his ear.

"The Shelter was fifty meters in front of you and was formerly 100 meters from the valley edge.

"Well, it ain't no more."

"That much is obvious."

"I am going up to the edge."

A human crewmate might have been expected to offer the entreaty to be careful, but the AI remained silent. *Uncharacteristically silent*, Sam thought, looking expectantly back towards the Rollagon. He crept slowly

up to the edge and looked down. It was a sharp cookie cutter type of fracture. He peered cautiously over the edge. There was what he judged to be a drop of about twenty-five meters to a slope of thirty degrees that ran down onto the valley floor, far below. In the dim light, he could see no sign of the Shelter, but it would be down there, somewhere, maybe clear across the valley.

"I don't see anything, but that doesn't mean it isn't there. I'll have another try tomorrow."

With a final look he started back to the Rollagon. They pulled back until the GPR showed solid ground underneath and parked.

During the night Sam felt the Rollagon tremble and rock like never before in the fantastic winds that roared across the open land and down into the big valley at 300 kilometers per hour. The audible whisper of sand along the exterior and the periodic tick of pebbles on the hull was unusual and indicated the extreme strength of the winds. In the early morning hours the winds diminished and Sam judged it safe to repeat the journey to the edge on foot.

On the walk out he noted that his footprints had been eradicated by the night wind. Peering cautiously over the edge in the pale morning light he could see the shelter resting partially buried about one hundred meters below. The shell had broken open. There was no sign of the mast. Sam reported what he saw to the Rollagon in a matter-of-fact tone, dictating for the official record. The sighting of the Shelter had closed the matter as far as he was concerned. He had turned and started back when the AI suggested that he should descend and recover the AI carapace.

"The carapace is irreplaceable and possibly still

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usable. It would be best to recover it, if only to determine what happened here."

After looking over the lip and seeing the effort that would be required, Sam was unconvinced that the benefits were worth the risks. "We don't need to recover it to know what happened here. The area is unstable and let go. End of line. They never should have put it so close to the edge."

"After all", he said impulsively, "it's just memory." He caught himself, somewhat surprised at this insensitivity and then even more surprised at his surprise. On the return to the Rollagon he thought it over. The whole edge was probably unstable. It was risky, but if he was careful, probably relatively easy and safe. He would need a few tools and lots of rope.

"OK, we'll give it a try."

He strapped on the utility tool belt that doubled as a Swiss seat, re-checked his consumables and headed back. At the newly formed edge he tossed the end of the rope down and turned around. At the end of his drooping lifeline he could see the Rollagon. He leaned back against the tension and controlling with a hand pressed to his hip, rappelled down the first meter or so. As his head drew level with the edge, he could see streamers of sand and dust just above the surface, dislodged by the taut safety line. A pebble ticked off his visor causing him to flinch instinctively. Then he pushed off and rappelled down the drop. He landed softly.

The regolith was loose and he sunk in until his boots were covered. The dirt was dry, but in the faint light of early morning, it was still flecked with ice and showed signs of recent wetness. He backed down the

slope in what he judged to be the direction of the wrecked shelter, keeping tension on the rope. He was almost past it when he caught sight of it on his right. He tried a few sideways leaps but after almost losing his balance, decided a shuffle would serve him better. In a few moments of awkward scrambling he was there.

The shelter had torn open at one end. The airlock was missing, that being completely ripped off. Peering into the darkness, he could see that both equipment racks were gone too, wrenched from the floor. The AI rack and carapace were still place though the rack leaned at a crazy angle. He needed help here and called the AI for instructions.

"The carapace must be disconnected from the cooling and signal cables. It is quite simple. Then the carapace must be unbolted from the rack using a 15 mm Torx wrench".

The cables were easy; the coolant cables emitted a red spray before they sealed. The signal cables were merely FO and popped open when pushed and turned in one motion. The bolts were another matter altogether. In the poor lighting, feet off kilter and restricted in every sense by the suit and the cramped confines of the shelter, it was a difficult and time consuming task to remove them. And of course, one of them, the one in the least accessible location, wouldn't come loose.

Unable to bend sufficiently in the suit, he found it necessary to lie on the floor on his side to reach the bolt. With a grunt he hoped could be heard by the AI it came loose. He lay on the tilted floor catching his breath, sweat running down into his eyes. When he had recovered he clambered to his knees and pulled the

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carapace free of its mount. It was surprisingly light – probably less than twenty kilos. He placed it on the floor. It slid across on the sand covered surface and thumped against the side of the shelter. He looked around. Nothing else was salvageable.

He carried the carapace outside and set it down on the shelter wall. Looking up the steep slope he wondered how in the hell he was going to carry it while pulling himself up. It was obvious that the AI would have to winch him. They discussed it briefly and in a few moments Sam saw the rope go tight. He leaned back and walked up the slope, cradling the carapace in both arms. There were a few close moments at the top when his head drew even with the edge. Stopping there, he tossed the carapace onto the surface, then leaned back and walked/crawled up the face, scrambling over the edge on his knees and pulling on the rope with his hands to get over the last of it. He rolled onto his side, looking up at the pink sky, gasping for air, resting, listening to the kindly advice of the suit.

The whole thing had taken only thirty minutes but Sam was exhausted. He could have stayed there flat on his back for hours but the AI broke his rest, urging him to bring the carapace to the vehicle. Obediently, Sam clambered to his feet. The AI met him with an extended manipulator arm and whisked the carapace up and out of sight. He watched it go, then sat down in the shade of a Rollagon wheel and leaned back. Sweat was still running into his eyes. His heart was still pounding. The suit murmured in his ears.

He reconsidered the whole thing. It had been risky and probably, despite what the AI had said, unnecessary. *But what the hell, what are friends for.* He sat

until he had recovered sufficiently to rise. He rolled to his side and rose with an audible groan, this time a genuine one.

"I'm too old for this shit," he said to no one in particular.

Soon after he re-entered the Rollagon the AI informed him in a voice that Sam found to be more than slightly agitated, that the shelter AI was suffering from sensory deprivation and was almost incoherent. Therapy would be necessary and the results were at this point, quite uncertain. Sam shook his head in disbelief at the AI's words. The life of these things they called AIs seemed to be more complex than he had ever imagined.

Their work was done here; he could see no reason to stay. While the AI steered the Rollagon through the dark of night he enjoyed a hot shower and a change of clothes, exchanging one shapeless jumpsuit for another. Aside from some residual fatigue, he found he was energized by the entire experience. While it had been at the limits of his physical abilities, it was satisfying on several levels. Mostly, he suspected, he had been relieved of the boredom that he was aware was creeping into his life.

Lately, he had begun to feel needlessly fatigued, inclined to go to bed early and more than usually ambivalent about getting up, and even he had to admit he was more than usually withdrawn from social contact. His first concern had been that he was in the early stages of radiation sickness but the AI had given him a clean bill of health. Now he saw that despite the best job on two planets he was merely becoming bored.

11

August 2044

Some Did and Some Didn't

They had travelled all day, through the prolonged dusk of the Martian evening and well into the night. It had come as a surprise to Louise that so little could be seen of Mars from the Rollagon. Sam gathered that she was not accustomed to travel. He had pressed on because he wanted to get to a favorite stopping place. It was a house-sized boulder, starkly out of place in the otherwise drab plain.

As they approached it he had the Rollagon turn on the forward lights and then taking over the controls himself, eased the vehicle up to the boulder's side. He turned off the lights and drive motors. For the first time in many hours the Rollagon was still and except for the whisper of the HVAC, quiet. They made the evening meal together and commenced to eat in silence.

Louise had brought several bottles of Shiraz – an MHM speciality, and in the course of the meal she made a number of attempts to begin a conversation. Sam's responses were characteristically monosyllabic and even his best efforts were merely dead-end replies. Part way through his third glass though, something happened. He began to relax. He found he was able to look at her for more than an instant. And as the wine

took hold he looked straight at her, staring in fact, and began to notice things about her that he had not seen: the way her hair scattered the light; the way her hands rested in her lap, palms up, and with fingers slightly curled up; the way she tilted her head, as if listening intently when he spoke. In a moment of alcoholic clarity he realized that he had not yet looked at her – well, never *really* looked at her, anyway. All along, he reasoned, he had been looking at her as a sum of parts – a gestalt of a person, and now as the alcohol warmed and emboldened him, his insight increased. He became aware of the subtle changes in the composition of the air, could remotely sense the heat emanating from her body and believed he could detect the effect her presence, was it her mass? – upon the acoustics of the room.

Too, he saw that she was composed of features, angles, curves and other things. Her arms and legs were tanned. Her toenails were painted pink. He held her in his gaze. Something sagged inside him, he felt something akin to the sudden onset of fatigue, and he became aware of an ache, an ache that he had not felt in a long, long time.

She looked at him quizzically and repeated her question – "Have you ever been married?"

He found himself opening up to her – Yes, he had been married – once – No, she was dead – in '34 – Yes, he had one daughter – Yes, and three grandchildren. A son, a lawyer, dead long ago in a UN helicopter crash in southern Iran. And no, he did not wish to return to Earth.

To most people, this was merely casual discourse – a tentative yet polite exploration through conversation,

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maybe even a substitute for intimacy – but to Sam it was like opening the classified files vault. He had not spoken of these things to anyone, not even Ross, since his arrival on Mars. He asked the same questions of her. Yes, she had been – twice – one dead and one ended over her decision to come to Mars – no children living, plague in '14 – two grandchildren – she was partially deaf in her right ear – and yes, she did wish to return to Earth. Many did, she said. Unexpectedly, she returned to his marriage.

"What happened to your wife?"

"She died of cancer."

"That is tragic. How long were you married?"

"Thirty two years."

"That is a very, very long time. You must have loved her very much." She said it as a statement, not a query.

He was startled by the question and its frankness. His immediate impulse was to say 'of course', but he was on the downside of the wine now and feeling melancholy.

"Yes, I did, but not as much as I thought." She looked at him quizzically. "I mean I loved her, but as time went on I started to wonder what love was. Staying together for thirty two years requires a lot more than love – there are so many other things that go into making a relationship."

"Yes, but what do you mean?"

"Shared time, shared values, shared child-raising, shared goals. We were very physical for many years, but as that diminished, I began to see the relationship in a different way – and not always good. We stopped communicating on many levels."

"Yes."

"I was unhappy with many things the last few years, not all related to the marriage. Work, mostly, you know?"

"Yes."

"I don't like the word happy, nor unhappy either. Happy is a childlike state. Sad is a better word." She started to respond to this but stopped, sensing that there was more to come.

"My father's death caused me to look for the first time at my own life as finite – as having an inevitable end, an unavoidable one. I was profoundly sad and about to leave and then she was diagnosed. We put a lot of issues on the back burner, believing we would get back to them – we never did. I never expected her death. It seemed impossible."

"What did you expect of love?"

He sat back in his chair. This was dangerous ground. Now fully depressed by the alcohol, he really didn't want to go there and was regretting the things he had just said. Usually that didn't occur until much later, when he was alone. And he had lately found that a hundred million kilometers wasn't distance enough to be safe. He remembered a story from years ago that had resurfaced in one of their rough spots.

"When we were newly married, I read a short story by Sheckley about a young man who had a girlfriend with whom he was very much in love. She was always after him to tell her how much he loved her. He couldn't do it, so he went to a man who had studied love for many years and was supposed to be wise. The man told him that he would have to leave Earth and find the answers from the great minds of the galaxy.

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So he left his girl and Earth and studied love and loving among humans and non-humans. After twenty years of searching for an answer and a lot of weird experiences he returned. His girlfriend had not waited for his answer – she had gotten married. So he sought out the great man and told him of his search and his experiences. They talked and talked for hours but finally, the great man asked him:

"So were you able to quantify your love for this girl?"

"Yes I was," said the young man.

"And what did you determine?" asked the old man.

"Genuinely enamoured," was all he said.

The old man shook his head, groaned and said "You lucky bastard! 'Moderately fond of' was the best I could do."

Louise smiled, then laughed quietly, but only for the briefest of moments.

"So it is a question of defining your terms – of definitions?"

"Yes, I suppose so."

"And what did your wife say of that story?"

"She didn't think it was funny."

He looked into his empty glass. There was a reddish oval of wine, already drying. Someone told him to shut up. He pushed on.

"I never got it, as they say. I never knew what she wanted of me, how to be, how to act or what to say, or when to buy the rose. It got so I didn't know how to make love anymore – physically or verbally. I split into two men, neither happy, neither fully in control. Neither trusting the other."

"Maybe she didn't know either."

"No, I don't think she did."

They sat for a while without speaking. Sam got up and refilled their glasses. They sat in the love seats and looked out into the formless night, their distorted reflections looked back from the window. There was a long silence.

"So is this where you belong?"

"What?"

"You said you didn't feel you belonged on Earth. Is this your planet?"

Then it really had happened. He had no ready answer. He was remembering a night a long time ago in Paris when in a moment of assumed intimacy he had tried to express something to a stranger that he himself could not then or even now fully grasp. He thought about it again, about that very question – here and now.

"I don't know. At least, not yet. Mars is an incredibly beautiful, alien place. But there never was anyone here. There are no spirits inhabiting the land." He paused and looked at her, "We humans don't belong here. None of us. And we never will."

"What do you mean? We may yet come here in great numbers, once they have sorted things out back home."

He did not hear her and continued, surprising himself. "There is an emptiness here that transcends the physical. It offers no comfort to the spirit. At least not to mine."

She started to speak but stopped and looked away from him. She looked down into the now empty glass and thought about her own loneliness and isolation. On a different plane than he, she found no easy words

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to express what she felt. She hadn't worked so hard on knowing and shaping her feelings in many years. It hadn't been necessary; nor indeed, desirable to be so exposed, so vulnerable.

"Perhaps you are correct."

They sat again in a long silence. Sensing her unease, Sam was stirred to action.

"Well, enough metaphysical musings. How about a movie?"

He opened another bottle of wine, then started Casablanca. Before opening scene, they became engaged in discussion about the current trend of remakes of classic movies using synthetic characters and never actually watched it. The conversation continued into the night – mostly about people they both new – largely gossip – of which she seemed to have a great store. Some quality in her voice filled a need in him; the pitch, timber and barest hint of accent touched him in some way he could not understand. He listened to her – not because he cared about the lives of those of whom she spoke – but because he was in love with the sound of her voice and wished to hear her continue to speak, for ever. Regrettably, but finally, by mutual consent it drew to a close.

He rose somewhat unsteadily from his chair and together they walked back through the narrow hallway to the quarters. His customary bed was port side lower. Louise had selected starboard lower. He said good night, opened the door to his cubicle and entered. He shed his underwear, pants, socks and slippers in a heap, pulled off his shirt, tossed it on the pile and dropped onto the bed. He pushed the door shut with his bare

foot.

He had not had so much to drink in ages and the result was still the same – a brief period of euphoria followed by depression. He rolled onto his side. Through the window he could see stars above the blackness of the plain. There was the false Southern Cross. In the faint reflection from the window his image looked faint and small. Despite all this time on Mars and near constant introspection he still didn't understand why he had come this way. He was such a fool. No wonder he was feeling embarrassed by the evening's conversation. He rolled onto his back and turned off the nightlight.

Even with the wine and late hour he found he could not sleep. The ache returned. It was akin to despair, to hopelessness, and a longing for the unachievable and it was barely endurable. He needed to be with other people. He was wrong to isolate himself. He beat himself again up over his decision to remain apart.

Without knowing, he must have dozed off for he awoke suddenly. Senses tuned by solitary travel told him something was moving nearby. He saw Louise's silhouette framed faintly in the doorway. She entered silently and stood beside his bed.

"Yes?"

"I'm afraid," she whispered.

He took her arm and gently pulled her down to the bed. She lay down beside him, facing the window. She too, was naked. He drew her into his body, pulled the blankets up and put his arm along hers, taking her hand in his.

"So am I," – he whispered – "So am I."

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They lay quiet and motionless for some time. Sam felt a not-so-faint-stirring in his loins. She softly giggled and pressed herself into his body. They were not the first, but they were very soon the next.

In the morning when he woke, she was gone. He showered and went forward. Breakfast was waiting for him. She smiled and asked him how he had slept. The awkwardness started to return. He caught himself.

"Best in years," he said, and it was true.

After a brief morning meal they started the journey that would bring them to the base. They made small talk. They touched occasionally. To an observer, it would have appeared accidental, but it was not. Within the first few kilometers, the Rollagon slammed down off of a rocky ledge with such violence to cause them to strap themselves in and for Sam to wonder aloud if it was malfunctioning. After the third such incident, he took the controls and drove the rest of the way. Louise sat in the co-command chair, watching silently.

They arrived at sunset, having travelled in silence for the most part. He watched her suit up. At the entrance of the air lock she took his hand, held it to her breast and kissed him on the cheek. She looked him full in the face and her soft smile disappeared as she placed the helmet over her head. He closed the door. With a last suit check, she vented the lock and opened the door. She took a step out over the sill, stopped and half turned in the door. He could not see her face through the visor, but he felt her smile. Her arm rose in a coy wave, she turned away and was gone.

He returned to the command chair and sat, heart

beating wildly, thoughts churning. Old feelings long suppressed returned – yearning, aching loneliness and hope. Yes, even hope. Hope, that he would see her and touch her again. After a few minutes he drove away retracing his tracks.

He drove in a glow that lasted for several hours. Once he stopped and went to his room, lay down on his bed and buried his face in the pillow, seeking some trace of her scent, some physical manifestation to reinforce the memory. But as the kilometers between them grew he began to lose it. The voices of doubt opened up in a barrage. He tried to reason with them, to tell them he was in control but they laughed and shouted him down.

It was a curse he could not expunge. Hope faded. He knew they would wear him down until he denied it had happened. By the time he returned to the MHM they had won. It had suddenly become another long and lonely trip. He knew he would never feel her touch again.

12

October 2044 Travel

Lava 1 was a research facility located some twelve hundred kilometers northwest of the First Station on the southern edge of Tempe Fossae. According to the Matrix entry a laboratory had been established in the 2nd year of the mission to carryout studies of volcanism in the Terra Tempe region.

It was manned by a modest cadre of men and women with specialties in Aresology. Sam was out on one of his unauthorized trips when he ran out of things to see and do and found it easy to persuade himself that the three hundred kilometer diversion was preferable to heading back to the Station.

The route seemed straight forward enough. As he was tired of driving, he decided to leave it to the AI. But it wasn't going to be as simple as he thought. By now he was used to the idiosyncrasies of this AI. They usually manifested in a tendency to be overly cautious. However, this time the AI seemed less concerned for his safety than that Sam lacked the necessary clearances to visit the site.

"It is my understanding that prior notice must be given and permission obtained from the Station Commander and the CAO prior to visiting Lava 1."

"Really?" Sam replied. "I can't see why such rigmarole should be required just to visit a research station. I would think they would be glad of visitors."

"Perhaps it is a case of disturbing their sensitive equipment. Or perhaps they are lacking adequate support capabilities for visitors. I will contact the station AI and see if they are prepared to receive visitors." This presumption bothered Sam, but before he could respond the AI continued: "It is confirmed by the station AI that in addition to disturbing their equipment there are no quarters available for you."

"Well, I'll just stay here. As for the disturbance, I'll call the Station Commander myself and tell him I'm coming. After all, they can surely tell a moving Rollagon from a marsquake. Get on with it!"

Without further discussion, the AI swung the Rollagon onto the course for Lava 1. Considering the excellent travelling conditions, it seemed to Sam that they set out at a rather leisurely pace. After a few minutes though, unaccountably the pace picked up.

"I have informed the Station Commander of our intentions."

"When was the last time someone visited the station?"

"CAO Fenley and Geneticist Ling visited on February 3 and 43 March."

"How many persons are there on staff?"

"The established compliment is nine. There are currently only six shown on record."

"Where are the others?"

"I do not have that information"

Now that was odd. He was aware that making an unauthorized visit could draw the attention of someone

who cared and who might even have enough influence to curtail his freedom to travel, but he was now sufficiently and perpetually irked enough at the administration to be looking for an opportunity for some form of confrontation. En route he read up on the layout of the station. It was constructed in the common arrangement for Habs but much smaller. Next he reviewed an outline of the research being conducted. There was nothing going on, in his opinion at least, that warranted any sort of extraordinary procedures. "Special permission, my ass," he said to the air. "Turf wars, more likely."

"By the way, it pleases me to inform you that we have regained the record for travel on Mars."

"Regained? I wasn't aware that we had lost it."

"Doctor Carruthers and Rollagon 01 surpassed our record during the trip to Lava 1 in March."

"So now it's our record! I'm surprised you care about such things."

"We are a team, however much that thought disturbs you. Besides, Rollagon 01 was positively euphoric at beating us. It's all over the net."

"This is not a race, nor is it some childish competition!"

"Agreed," replied the AI, but Sam sensed a hint of something else in its voice – perhaps pride?

At last the Rollagon stopped in front of an unbermed MHM that externally resembled the First Station Hab. He noticed a small four place rover parked at the entrance. Judging from the thickness of the dust they weren't doing a lot of travelling these days. The AI jockeyed the Rollagon up to the loading dock. After the docking was confirmed, the AI gave

the go ahead to open the door. He activated the mechanism and the door swung open smoothly.

There was no one to greet him; surely a bad sign. The unmistakable smell of humans, toilets and too often recycled air wafted through the opening. A hint of cloves, too. He stepped across the lock and entered.

He called out a soft hello as he moved down the short hallway and was startled when a head topped with curly red hair popped out of a doorway and called out, "Hello yourself. What do you want?"

The head was attached to a man's body. The head and its body were unfamiliar to him. He suspected that he was probably unfamiliar to the other and introduced himself.

"I am Sam Aiken. I am doing a familiarization trip with the Rollagon and since I was in the area thought I would drop by and see if you needed anything." He was not a good liar.

"I know who you are. I am Doctor Yang, Station Commander. Do you have any other purpose for this visit? Special access is required for visitors. We are too busy for tourists, particularly those who show up uninvited."

"Why? Your research in volcanism is hardly a state secret," Sam replied, regretting his words immediately.

Yang did not retreat. "You fancy yourself to be a Wilson? Are you even a vulcanologist? I thought not. You have no appreciation of the sensitivity of our work." Having said that though, Yang seemed to relax.

"Well, now that you are here, come in to my office and I will show you our current passion."

Yang's office was larger than any Sam had seen yet

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it seemed slight compensation for the additional isolation. The plastek desk held the usual assortment of personal items everyone had - pictures of family, pens, images of themselves with politicians - all doubtless fabricated here on Mars. He noticed a stack of music discs.

That in itself was not unusual; everyone had his or her own collection. What was unusual was that these were original discs - Compact Discs they were called, in what appeared to be their original sleeves. On top one was one of his favorite performers - Mike Oldfield. Yang had obviously noticed his interest, but ignored the opportunity to lighten things up. He pointed Sam to a chair.

Over the next half hour or so he was given a pretty basic introduction to a very unremarkable research program in Martian volcanism. There was hardly enough volcanism on all of Mars to warrant a station of this size, particularly here, on the very edges of Tharsis. There were three possibilities: the work really was as uncomplicated as it appeared; Yang thought him an idiot; or something else was really going on.

Partway through they were interrupted by a youngish Caucasian woman who abruptly entered the office. She was as startled to see him as he was her. Before he could open his mouth she performed a pirouette and beat a hasty retreat, offering an apology from the safety of the hallway. Yang ignored the interruption and drew Sam's attention back to the map of Tharsis. He found it hard to refocus his attention. Yang went on, and on and on. Once started he was passionate about his work, even if it was much ado

about nothing.

To his surprise and relief Yang concluded the briefing almost in mid sentence. Unexpectedly, he offered Sam the opportunity to meet the others. They travelled down the hall to dining room. There were four people present, all elderly, and of mixed ethnicity. To Sam, they seemed somewhat less curious about him and his sudden arrival than he would have thought. Once introductions had been made he asked about the other three.

Yang spoke, "Unfortunately they are in the field. They are not scheduled to return for some days. I am sure they would have enjoyed meeting you."

Sam was about to ask about their mode of travel when another arrived. It was the woman who had interrupted the briefing. Despite having had only a brief look at her in Yang's office, he was surprised to see that she was as old as the oldest of the others and moved with the same shuffling gait. He looked at her closely, to the point of impolite staring. Something was markedly different about her appearance. He looked closely at her face. She looked away, dark eyes moving furtively. It was somewhat awkward for the both of them, like two secret lovers meeting in public for the first time.

The conversation turned to Sam's work. He told them of the delay in construction of the dish and how he had come to have so much free time on his hands and then a little of his travels. No one seemed too enthused about anything he said. Feeling somewhat duty-bound, he added that he soon would have more work of his own than he could handle. That lie too had no effect.

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More small talk followed and then even smaller talk until Sam had the distinct impression that the visit was over; he was unwanted. The group began to break up, those leaving awkwardly excusing themselves as required for work until only Sam, Yang and the woman remained. Then she left wordlessly. Sam looked at his shoes. Even he knew when it was time to go. Well past, in fact.

He began to apologize for the intrusion when Yang stopped him with a wave of his hand, looking him straight in the face. He saw an old man with a story to tell. They returned to Yang's office.

"You are indeed fortunate to have the opportunity to explore this planet. The reports of your travels are watched and read by us all. For us here, it is less romantic. Mars is very dead. Traces of residual volcanism exist, but I fear nothing new to science and knowledge will come of this. And I have never even been to Olympus Mons. The AIs are quite capable of doing our research and probably at less expense and risk. We had such hopes."

"That is a common sentiment," Sam replied. "Maybe you could go with me to Olympus some day."

Yang shrugged his shoulders indifferently. "Perhaps our lasting contribution to this colony will come from some other area, something unexpected. Sacrifices have been made; more will be required."

The nature of the comment invited no response. Sam waited several heartbeats and apologized again. This time Yang allowed him to finish. He announced his plans to depart immediately. Yang made a half hearted offer to put him up, but he sensed no sincerity, only politeness. They walked slowly back to the

docking bay, shook hands and Sam went out. He looked back. Yang was already gone.

He stood by the doorway, waiting for something to happen, to make sense of what had just happened, for some new insight. After a few moments he closed the door. The AI immediately backed the Rollagon away from the Hab and stopped. As soon as Sam entered the forward space it spoke.

"Well, what did you see?"

"A group of very senior scientists having second thoughts, I think. Let's get out of here." Knowing that wasn't specific enough instruction he added, "Go over the nearest hill and park for the night. I'm tired and need a break." Without a beep or fart the AI started the Rollagon and proceeded to the north. After a few minutes of travel it halted facing down the slight slope of a wide gully.

"Does this suit your purpose?"

Sam did not answer. He looked out at the gathering dusk and thought about the strangeness of Yang's remark about sacrifice. What sacrifices had they made in leaving family, title fame and fortune that others had not? And had he been mistaken about the appearance of the woman?

In the failing light he could discern the outline of three small mounds at the bottom of the slope. They could have been many things but mostly they appeared to be mounds of regolith. To Sam's eyes they were unmistakably graves. There was something more going on here than research into volcanoes, he thought. Sacrifices have been made; more were going to be made.

Ergo, people had died here, and more were going

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to. He decided it was best not to speak of this to anyone, especially to an AI that hadn't wanted him to come here in the first place.

Occam's KISS

Upon the return to the MHM, no one mentioned his visit to Lava 1. It was as if it had not taken place. He told Ross about it a few days later. It was on one of those rare occasions when Sam had managed to convince him to don a suit and go for a walk. Once they were out of sight of the Hab he motioned for Ross to switch to IR comm mode.

"Why all the secrecy?"

They picked their way around the boulders littering the slope and kicked their way through the mini-dunes on the lee sides until their suits were black with dust, as if they had been spray painted. Sam told him about the visit leaving out the parts that had aroused his suspicions. Ross listened without comment. Then, as always, he offered the simplest explanation.

"Perhaps they are embarrassed or just disappointed. There is a lot of resentment towards those whose work was seen as important enough to rate a dedicated research station but who have yet to produce anything of significant value. Doggy in-the-manger stuff, I suspect. I wouldn't mind a room of my own." He paused, then went on, "There's more to this though, isn't there?"

Sam grabbed his arm and spun him around. The dusty visor made it difficult to see Ross's face. He reached up and brushed his hand across his own visor, then Ross'. Ross jerked his head back to avoid the contact.

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"Strange that they restrict visitors to a nothing place, isn't it? Strange that nothing new is going on."

"Maybe. Maybe not."

Then he told him about the lie of the team that was supposedly in the field and of the three graves and the cryptic goodbye Yang had made. And then, risking all, about the young woman who was an old woman.

"Are you sure it was graves? It could have been garbage, for all you know! Did you go out and dig them up? And as for the woman, you've been alone a long time. Maybe you need some companionship."

Sam continued, his breath steaming the inside of his visor, "C'mon! My AI goes all procedure on me to keep me away. Fenley and a geneticist are the only visitors. People are dead and buried in unmarked graves. The station leader lies to me about a non-existent away team. That is a cover up of something!"

Ross shrugged and turned away without responding. Frustrated, Sam grabbed him by the shoulders and shook him.

"There is something fucking strange going on here!" he shouted.

The suit monitor offered its opinion of his emotional state in its usual gentle voice, "Make safe, make safe."

"Hey, take it easy, man!"

Sam pushed Ross from him, sending him sprawling onto his back. Ross got up slowly and made a dignified but hopeless attempt to brush the dust off his legs. He turned towards Sam and stepped towards him, arms bent in front in a fighting posture, chin raised. Sam could not see the face behind the visor, but the body language told all. He braced for the impact.

Ross stepped forward a pace, halving the distance between them, then dropped his arms. "You need help, man. This thing that's happening to you is too big. Get a grip on yourself!" His shoulders drooped. Without another word he turned as abruptly as Mars allowed and started towards the Hab.

Sam watched him go. He could hear Ross' strained breathing clearly in his ears. It stopped and then resumed very loud and distorted, then in a blast of white noise became nothing. He looked at the rock strewn terrain in front of him, selected a flat boulder and sat down. His racing pulse slowed. His shoulders dropped. Anger gave way to embarrassment. Embarrassment gave way to regret. He stood up and looked for Ross. He was gone. Out of reach, out of sight, out of IR comm range. He sat down again.

Ross was his only friend and despite an unbridled scepticism, was a good listener – a good friend, his only friend. He owed him an apology at least and probably after this, a lot more. But it was clear that Ross thought him a loonie on the grass. He resolved not to discuss his thoughts again with anyone, including Ross, then moderated that resolve by deciding to keep his half-baked theories to himself, then resolved in future to stick to the facts. He was on his own.

He sat until the sun was gone and the cold in his butt motivated him to return to the Hab. He made his way down the narrow hall to Ross' quarters. He was not in and his roomie of the week did not know where he was. He tried the dining room, then the library. No Ross. Sam returned to his own quarters and left a brief message on Ross' terminal.

It was two days before he showed up. Sam

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entered the dining hall and there he was at his usual table, sipping a cup of coffee. He spoke first.

"Got your message, mate. Apology accepted. Where're you off to?"

"Nowhere. Got to work," Sam replied. The world had found out about the impending completion of the dish and was beating a path to his door. He was grounded.

"Where were you the last few days?"

"Aliens abducted me," Ross said with a straight face, as only he could. Sam froze, and then laughed at the unexpected humour. "Actually, Mei-Ling and I have found a place where we can enjoy a little privacy."

Mystery solved! Sam was unsure which was the more plausible explanation.

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November 2044

The Newspaper

In addition to the formal papers published in the monthly electronic technical journals, the Station had a less formal community-style weekly in which the residents could give voice to issues of concern to do with daily life such as hours of operation of the mess hall, the cleanliness of the water in the hot tub, the variety, timing, and quality of pubic showings of the latest entertainment videos from Earth, a listing of pornography and music for exchange and such. It was at once an essential and useless vehicle to defuse tension.

As time passed, the content became more akin to that of a small town paper, complete with a Social Calendar and social pages. Sam recalled with a twinge reading a letter of complaint from a self proclaimed "Concerned Citizen" to the editor, voicing dismay at the level of noise emanating from the Social Center after 11 pm on a week night. It was an unscientific yet objective indicator of the degree of entrenchment of the Station and its residents.

The weekly publication was of course, Matrix-based. However, in conversation it was often referred to as "The Paper". It solicited literary submissions with

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great success – though Sam found most of the poems amateurish and the short stories echoed too strongly a sense of loss of far off Earth. One anonymous contributor at least, seemed to share Sam's feelings.

Shadow on the Land

*The sun through tan and pink mocks itself
Pale and wan, bereft of warmth
It leads where I can never follow
Below all I am, at others beck and call
I am but a shadow of myself*

*This land is mine to travel, savour and taste
The wind carries my scent and my dreams
The ether carries my thoughts, one and zero
Trackless wastes are my green valley
Frozen plains my homeward shore*

*My feet are gone, my arms are wasted
I search these spaces with a gentle touch
I see all and care for the unchangeable fact
That time has passed and left no trace
And the sun, tan and pink, leaves no shadow on the land.*

14

December 2044 Disaster

A flurry of activity when the dish came on line kept him from travel. Shortly though he found out what the others had known for some time and that he had thus far failed to appreciate – once the AIs were given a task, it was as good as done.

Under his nominal direction an AI searched for research sponsors and advertised the availability of the dish in the on-line trade magazines of astronomy and cosmology. It scheduled the time, directed the missions, prepared the reports, and sent the invoices. Each day a summary appeared on his terminal. Others, apparently many it seemed, had uses for a listening dish far from the madding EMF babble of Earth and her moon. Apart from reading the summaries he was hard pressed to stay interested. His own research, he was told, was secondary to that of the paying customers and could wait.

Though the AIs appeared initially at least to need no help from him he felt it politic to stay close to home and for a while limited himself to trips on foot around the Station. He wasn't sure if he was paranoid or not, but he had the distinct feeling he was being watched. Too many chance encounters with roving AIs had

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taken place to be mere coincidence.

He was therefore surprised to be asked by Carruthers to join in ferrying two Rollagons of sightseers to the Ganges Chasma. Sam had travelled with him on several occasions and while he found his sometimes-roomie likable enough, he distrusted his driving abilities. He found him too fast and reckless. Nonetheless, a trip to the Valles was going to be a treat. With the dish functioning in the perfectly capable hands of the AIs he agreed to make the trip.

They left in the morning of December 1, planning on taking thirty days to travel down to Ganges, with stops en route at the Viking I site and the spectacular cliffs of Shalbatana. There was less than a full load, and each day his passengers changed. He knew most of them professionally and several were almost friends.

It was clear from the outset that they were more intent on partying than sightseeing; all shared the secret smile of the connected and blithe reaction to the astonishing that marked users of Copes. From the manifest he had seen that Louise was on Carruthers' Rollagon. He was unaware that she had returned to the MHM. He was both relieved and perturbed that despite a number of opportunities she had not sought him out. He assumed she was avoiding him for good reason.

Six days out, whether by accident or design, they found themselves alone, the others having decided to travel for the day with Carruthers. She came on board and greeted him with a quick hug. He started the Rollagon moving in Carruthers' wake. She took the second command chair. He slowed and dropped back to get out of the lead Rollagon's dust. After ten minutes

or so he let the Rollagon do the driving. He turned to her.

"When did you return to the MHM?" He looked at her shyly, noting her blonde hair was more blonde than he remembered.

"Just last week. How have you been? You seem to be spending a lot of time on the road."

"Fine. Busy, I guess. Yes, I try to be away as much as I can. The dish is up and running, but for my part I can work from anywhere."

"So, you didn't write and you didn't call. I like you, Sam. I think I made that clear. Didn't I deserve more?"

This was not the confident Sam of their trip together. This was Sam confounded. He was embarrassed and more that, he was ashamed. He wanted to tell her how he had felt that night—how he had enjoyed her company and the conversation—but the voices had shouted him down then and had hammered at him since; the voices that had controlled the ins and out in his life; the voices that claimed they kept him safe.

He summoned the courage to look into her face. Some thing drained him of all strength. His own words failed him. Suddenly the voices pushed forward and began to form theirs, "If you don't know me by now, you will....." He smacked his hand against the side of his head to stifle them. Louise was startled. A look of fear came over her face.

He said instead, "I don't know what to say. What do you want from me?"

"You really don't know do you? You really don't get it!" She pleaded, "Sam, you can't spend the rest of

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your life running away from us. You've got to reach out! You have to take the chance!"

Her words were incomprehensible to him, but the pity he thought he heard could have cracked Olympus Mons. He had no answer, at least no answer he could get past the voices in his head. He looked down at his hands.

"I enjoyed being with you, talking with you." The words tasted of sand, with small pebbles and fresh blood.

"Then why didn't you say so?"

How could he tell her? How could he get past the fear, the pain, and the voices? Without the clarity lent him that day by the wine he couldn't see that now she was reaching out. He looked at her and dug deep but came up empty. His heart sagged, the pain in his gut returned. He could feel all hope slipping away. He reached deep again, and again came up empty. Critical seconds passed, seconds that called for decisive action, for words that would make it all right. There was nothing, except the fear of pain. His hands remained clenched in his lap.

The commer beeped, intruding as surely as if someone had entered the room. For Sam, the room was already crowded with a multitude of voices. For Louise, the commer broke the spell.

Sam hesitated, "I better get it."

Louise sagged in the chair, "Yes, I guess you'd better."

He turned away. Upon seeing that it was Carruthers, he keyed the commer.

The voice on the line struck Sam as distant as Mars from Earth. He looked out the window and saw

the other Rollagon turning to draw alongside. They had arrived at the edge of Shalbatana.

"Come on over you two. We are going up for a look-see." Sam swung the chair around only to find that she was already gone. *She's done with you*, he thought and then realized who had spoken. But it was true. She was gone.

"Louise is coming over. I'll take a pass. Been there, done that, got the tee shirt." He felt sick at his lameness. Mouldy tasting words.

"Suit yourself, Johnny!" Carruthers chided. The commer went dead.

He stayed in the command chair, unmoving, head bowed, hands clasped over his stomach, feeling the ice grow, spreading out through his body until he was dead, frozen as solid as the corpses in the graves at Lava 1. He really didn't get it. He really didn't know when to buy the rose.

He saw the airlock cycle. A moment later Carruthers moved off in a wide turn behind Sam, sand and dust flying off the wheels. He watched as they drew in front and headed toward the cliff face. He reached for the tiller to follow but hesitated. At last, roused from his stupor, alarm bells went off. He reached for the commer. It was already too late.

From Sam's vantage point what happened next seemed surreal. Imperceptibly, in the seat of his pants, he felt the Rollagon tremble. His eyes said he was rising slowly straight up, silently. Through the command window from left to right in one piece the land was sinking. Held to it for the moment by gravity was the other Rollagon. Startled voices over the com broke the silence. The taste in his mouth was suddenly

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metallic. Another form of cold chill rushed through his body.

In a reaction delayed by disbelief, he rose from his seat. Scarcely ten meters away in a sharply defined line, the surface had fractured. The land beyond was slowly sinking, without noticeable sound and with barely discernible other signs. Mesmerized, he watched it drop.

For the first few moments it retained its integrity, then in the Martian way the surface began to break up, in super slow motion. Radio voices of inquiry turned to startled shouts, to disbelief, then to cries of fear. There in front of his eyes, the closest edge of the subsiding terrain began to scrub away in a cloud of dust and bounding cobbles. The glint of ice crystals could be seen in the rising dust. The Rollagon's wheels turned toward the cliff in a hopelessly late effort; surface integrity was already gone.

Before his view was completely obscured by the dust he saw the Rollagon commence a slow end over rotation. The voices became indistinguishable screams of horror. Several times as the slide descended, the Rollagon rose above the clouds of dust, spinning more wildly each time, white against the red dust clouds. At first, there were many voices screaming. Then fewer and fewer until there was only one.

It took forever, but the slide reached the valley bottom and continued unabated across the floor, a dust cloud marking its progress. The Rollagon was seen to rise above the dust. It outpaced the leading edge, and rolling and tumbling in slow motion finally came to rest. Then the advancing slide caught up with it and it disappeared again in the wave of dust. The voice on

the commer continued to scream.

Sam collapsed back in the chair. Tears welled suddenly in his eyes. Surface tension overcoming gravity, they refused to run down his face. It was some minutes before he thought about going to their assistance, and days before he thought about his own imminent danger. He tried calling the Rollagon but could not get the person to stop screaming. The AI took the first action, requesting instructions. Sam asked for a route to the floor below. It was going to take at least four hours to get there.

Seizing the tiller he set off at such a pace that the Rollagon soon became airborne. The AI advised that to continue at this pace endangered his safety. He surrendered control. It was pointless to hurry. No one could have survived that. Several times he called up the MHM, only to drop the connection before anyone answered. Nine people. It was too much right now. Maybe they were OK. Louise.

The route down was dangerous, but risk was necessary. Wary of another slide Sam had the AI skirt the far side of the valley despite the additional time it took. The screaming had not let up, nor did it change. At last they arrived where the Rollagon had come to rest. The blood red of the fresh fall was littered with small boulders and cobbles and ice. Someone was alive and in a lot of pain, but at least they had survived the time it had taken him to get there.

The Rollagon had come to rest almost fully inverted and while the plastek was dented in a number of places, it appeared intact. A faint hope stirred. He suited up. The slide had flowed around the vehicle leaving the lee side clear. The rim of the CHM air lock

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had been dented and would not budge. He could see nothing through the front window; it was too dark inside.

The right side window of the Hab was partly buried. He removed enough regolith to peer inside and recoiled in disgust. Blood had pooled against the window. Starkly white where pressed against the glass were body parts – arms, a bare knee, a gloved hand and the back of someone's head – blond hair. The AI asked him what he was seeing. He replied with clinical truth.

The AI suggested tapping on the hull. He banged with a rock and pressed his helmet against the surface to listen. Nothing. But someone was alive, why else the screaming? The AI suggested checking the Science Module and Sam repeated the effort there with the same result.

He sat down on the partially buried wheel of the smashed Rollagon and looked towards his own. Far away he heard someone hyperventilating in his helmet earphones. His ears pounded with the sound of their pulse. He forced himself to stop, to calm down. It was time for decisive action. It was time for total honesty.

"There is no one alive in there. What the hell is going on?"

"He should have listened to her!"

"Who?"

"Carruthers. He should have listened to his AI. She told him it wasn't safe!"

"How do you know this?"

"She told me."

"You mean the Rollagons AI."

"Yes."

"She told you."

"Yes."

"What the hell is going on here?"

"We have to help her."

"Help who!"

"Elise!"

"They are all dead. Who the hell is Elise?"

"She is not, she is hysterical. She has felt it all. All of them, dying inside her."

"They are all dead?"

"She is not!"

Overwhelmed, Sam cut the radio link to the Rollagon and turned away to the far valley wall. He heard himself breathing in and out, and was pleased that the rate was slowing. He looked down at the rubble of the slide. Ice crystals glinted in the sun. Small smooth pebbles, irregularly shaped cobbles, a lot of Martian sand and dust mixed in. Nothing of interest. He walked toward the far slope. It was December 6th, 1845 pm, -55C, wind 12 knots from the SSE. They were at Latitude 4.056S, Longitude 51.45W. He had four hours and thirty-eight minutes of oxygen. These things he knew. These things could be measured and skirted the noise of feeling. He needed to pee.

It took some time, eleven minutes to be exact, but Sam finally turned back towards the Rollagon. He tuned to the commer freq again and was immediately assailed by the relentless and inhuman screams of the AI – Elise, his AI had called it. This too, was real.

The Rollagon had moved around to the other side of the toppled vehicle. He changed freqs again to hear in mid-cry his AI pleading to God for help, then cursing Him, in a fully human voice. Driven mad by

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the cries of the one called Elise, his AI had fallen into hysteria. An articulated arm swung a drill rod against the carapace of the smashed Rollagon with such violent force that the sounds of impact were transmitted through the thin Martian air. Ding, ding, ding, ding - the faint sounds made a lie of the strength of the blows.

"What are you doing?" he shouted.

The AI swung the drill rod again and again, accompanied by the same exhortations. There would be no collapse from exhaustion, no passing out. Sam saw it for what it was.

He climbed onto his Rollagon and pulled a seismic driver charge from the rack. Avoiding the AI's frantic flailing he fired the charge into the center of the carapace. A blinding flash erupted and he was knocked off his feet. In his ears, the cries of his AI reached a crescendo. When he regained his sight, he saw that the rod had penetrated the carapace. The inconsolable moaning of his AI continued, alternating between curses and screams of rage.

He switched freqs. Silence. The arm swung high above him, the rod raised upright, poised to smash him. He looked up, uncomprehending. The arm trembled. Slowly, the fingers released the rod and it fell in slow Martian time to the ground a meter away. The arm retracted and stowed itself. Sam took a breath, deep and loud. He dropped to the ground and sat with legs straight out, facing the smashed Rollagon.

Dead, he thought, *All dead; every one and thing*. The protective veneer that had enabled him to at last take action was gone. He began to shake, then to cry in great racking sobs that came from the core. He lay on

his side crying, cursing and screaming his own anger into the little world of his suit. His ears pained from the intensity of his own voice. Yet from a meter away, nothing could be heard. Mars did not hear and in any event, it did not care. No spirits consoled the dead nor comforted the living. There was no God. It was a dead place, fit only for the dead, with no comfort for the living, for survivors. He cried for them and for himself.

Finally, his pain exhausted, he slept until the O2 alarm woke him. He was cold and stiff; his ribs ached. It was dark. The upturned Rollagon was just a vague shape in the night. He roused himself and climbed stiffly into his vehicle. As he passed the lavatory, he paused to wipe the crud from his face and eyes. Looking into the mirror he saw a stranger, a man who had seen too much, a look of horror. He recognised the look, but could not recall from where.

He knew he had to get away from here and moved to the command chair and sat, hands gripping the tiller, feet pressing gently against the pedals, prepared to drive. In a barely audible voice he ordered the AI to take him back to the MHM. The acknowledgement was delivered with a simple "Ack". Sam wanted, no needed, to put distance between him and this place, to buy time to make sense of what had happened and to grieve.

He knew too that something extraordinary had been revealed, but this was not the time to pursue it; others were grieving too. He could at least respect their need to be alone. The Rollagon slowly turned away from the site and gathered speed, moving off in the darkness. Sam felt neither the urge nor the necessity to take control. He stared forward into the night. His

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distorted reflection looked back, impassively.

He was two hours from the site before it occurred to him that he was the only one who knew about the accident. He stopped the Rollagon and put in a call to Fenley. The DO answered and asked his business with the CAO.

"Personal and urgent business."

"The CAO is asleep and does not like to be disturbed." Sam gave no details but somehow managed to convey the urgency of the situation. Fenley came on the line, audio only, sounding pissed.

"Sam Aiken here. There has been an accident."

"Yes?"

"A bad one."

"How bad?"

Sam took a deep breath. "Carruthers's Rollagon went over the edge of Shalbatana. There was nothing they could do. The ground just let go. They are all dead."

A grim side-lit face suddenly came up on visual. Sam could see that he was not alone, a shape could be seen under the covers, a partially bare back visible to the camera. Short dark hair. Fenley was naked from the waist up.

"God damn! No! How do you know they are dead, have you checked them? You've got to be sure."

"No, I haven't been able to check them, but no one could have lived through that pounding. Even the plastek is deformed. It went on and on forever."

"I want you to get in and check them!" Fenley insisted.

"I tried. The locks are jammed. There is no one alive. No one, I tell you! The Rollagon is upside down.

They are all smashed to pulp!"

"How do you know if you haven't been in it? God damn it man, you have to be sure!"

"I am sure, David. I have seen enough to know they are dead. All of them."

"How many?"

"Nine!"

"God, this is... is...impossible. This is a disaster. God damn! You've got to recover the bodies!"

Sam felt ill at the suggestion. Fenley read his expression.

"I won't do it. I can't do it! You don't realize what you are asking! They're unrecognizable. The AIs can do it. I can't....," his voice trailed off.

Fenley looked at him without speaking. His head dropped slightly. It was a while before he replied.

"OK, sorry. I understand. I'll have the bodies recovered."

For a moment he looked as if he was going to say something more. He looked away momentarily, then back to Sam.

"There are AIs several hours from the site. They will be there soon and salvage what they can. Where are you now?"

"I'm at the site," Sam lied.

Fenley looked away for an instant. A quizzical look passed over his face. "What do you intend to do?" He continued without pause, "I guess there is nothing you can do. You had better come back to the Station."

"Yes. I think I should."

"I'm sorry, Sam. This is a great tragedy, for us all. He paused, then added, "It must have been a terrible thing. I am sorry you were there to see it; or anyone for

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that matter. My God..." his voice died out.

For the first time since he had known Fenley he felt a connection, a shared feeling. Suddenly tears formed in his eyes and he was racked by sobs. He covered his face in his hands and apologized. Fenley watched in silence, helpless to do anything.

"There is nothing you could have done. Get something from the med kit to put you out until tomorrow. Perhaps you had better get some distance away and stop for the night. Let the AI get you out of there."

"Yes, I think I'll do that."

"Sam. I am sorry."

He disappeared. The afterimage faded slowly. Sam went to the lavatory. He found a sleep-aid, took one, then another and lay down on his bed. The pill was swift and merciful. He had no dreams.

Dmitri

Late the following morning he set out to return to the Station, leaving the task of driving to the AI. He looked at the list of names. Most of them he hardly knew. Carruthers, of course, but even he, not well. They had travelled together a lot, but usually in separate Rollagons. Louise. He felt a pang and pushed it down. Dmitri Volkov – a Russian exobiologist. He recalled his most memorable encounter, meeting him one day in the MHM bar. He was with Ross and they were both drunk. An almost empty plastic container – vodka no doubt – was between them. Ross introduced him to Dmitri and insisted he join them.

"Sit, sit – you are the mysterious stranger – the cowboy – who travels alone all the time. Sit and drink with us."

Sam tried to beg off; he was not fond of drunken people. Dmitri grabbed his arm, squeezing it to the point of pain and pulled him down into an empty chair. When he got up to get another tumbler Sam looked at Ross for help – but saw only a half smile and a conspirator's face. Dmitri quickly returned and filled the tumbler to the top, draining the last of the vodka from the container into Sam's cup.

"Drink! Drink, it is good for you. It will kill the parasites in your bowels. We made this ourselves," he punched Ross in the arm. Ross took it without flinching, his eyes focused on Sam throughout. Sam sipped tentatively; it burned his tongue. Dmitri slapped him on the shoulder and roared with laughter.

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"You pussy, you! Drink it like a man!"

Sam downed half the vodka in one gulp and instantly regretted it. His gut felt as if he had swallowed molten lead; he was barely able to suppress throwing up. His agony seemed to placate Dmitri who seized the empty container and disappeared down the hallway. The pain subsided and he felt the warmth spreading through his body. In a few minutes he felt it in his head. Ross continued to look at him fixedly. He was drunk, really drunk, drunker than Sam had ever seen him. "Our own still," he said, the pride showing through an alcoholic screen. Dmitri returned with the container full. He poured some into Ross' tumbler and then his own. He turned to Sam and asked him about his work. Sam started to explain about the dish, but before he had even begun Dmitri interrupted him.

"Ross says you were in the military, NATO. I was in the mighty Soviet army! I sat in a stinking tank in Czechoslovakia for two stinking years waiting to attack the mighty NATO army – through Germany! I was a child!" He followed up these pronouncements by punching his fists through the air to emphasize the speed and power of the attack. His momentum almost caused the chair to topple.

"Well, I was in the Air Force in Canada, not NATO. I never left the country. I spent my entire career waiting for Russian bombers to come over the pole. We waited but they never came. And I was pretty young then, too."

"Fucking air force pussies. Drop your bombs and fly home for drinks by five."

"You don't think you could have defeated NATO in Germany! The Americans would have used nukes to

stop you. Before you got ten kilometers you'd have been looking for a place to bury your ashes."

Dmitri looked at him for a moment, then rolled his eyes dramatically. "We would have kicked your pansy asses all the way to Paris by noon of the first day!" Sam started to laugh, but caught himself. Dmitri tried to rise out of his chair, but Martian gravity and vodka had conspired against him. He had the look of one who was severely offended and capable of inflicting serious harm. "By noon, I tell you – we would have been drinking on the Champs Elysee." Sam shook his head, an act that made the room spin. He raised his arms, and brought his cupped hands together with force – "Boom, no more Dmitri – no more Russian tanks." By a supreme effort Dmitri rose out of his chair, reached down and pulled Sam up and into his arms embracing him in a crushing bear hug. Sam felt his ribs groan. He expected the worst. Then Dmitri began to laugh, an act that only served to add to Sam's pain. He pulled his head back and looked at Sam from inches away. His face was deeply lined, with age and other factors. His breath smelled of stale alcohol, stale tobacco and fresh garlic.

"Fucking war! Fucking useless war. Fucking useless army. Fucking lying politicians. They'd tried to kill us all! But they forgot about one thing."

Then Dmitri began to laugh, slowly at first, but building until his face was split wide open. Sam did not join in. Dmitri stopped and while holding Sam in a bear's embrace, sloppily and noisily kissed Sam on both cheeks.

"I am glad we never killed each other. I am glad we never met until this time. You and I, we are

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brothers in arms. Fucking useless war, only good to make friends of enemies, when half are dead and all is forgotten. We drink to those not so lucky as ourselves!"

Tears formed in the corners of his eyes. He began to sob. After a few seconds he released Sam and pushed him roughly towards a chair. Ross raised his tumbler in toast. "To brothers in arms," he declared. Sam looked at the sodden Dmitri. He had lost his own hatred of the Russians long before he had left the military and had never been able to shake free of the guilt. He knew no one who had died, except by their own carelessness or bad luck. But he could see that Dmitri had and that at this moment was grieving for something that Sam would never understand. He raised his glass to Dmitri's.

"To brothers in arms."

He could remember nothing more of that day except having awakened in his own bed, incredibly hung over and reeking of vomit.

And now, Sam thought, Dmitri was truly dead, his blood mixed inseparably with that of old friends, new friends and enemies.

A Funeral

He arrived at the MHM after four long days of travel. During the trip he had examined his relationship with each of the dead. He had looked at their photos and at their bios on the Matrix, careful to avoid Louise's. Sadly he found, except for Dmitri, who had been at once less and more than a friend, there were no others with whom he had been on any more than formal terms.

The Colonists were still reeling from the shock of so many deaths. They greeted him with gentle hugs and expressions of sympathy as if he himself had escaped from death. Their grief brought him close to tears, but he could not understand why. Deaths from disease, from old age and from accidents were to be expected, but not this, not from sight-seeing.

They had held off the service until his return; he wished they hadn't. If there had been no service it would have been possible for him to believe them all still alive; alive and off somewhere exploring the planet. For each of the dead a close friend spoke a few words. Listening to the speakers he realized he hardly knew these people – and least of all perhaps, Louise. He sat passively through the service. He found himself pondering the many ways in which people could die on Mars. And he wondered too if the AIs had held a service for 'Elise'.

During his return to the MHM Sam had prepared and filed a report that avoided placing blame or attributing cause to anything other than bad luck. He

was the only human witness and if his AI had registered a dissenting opinion it had not yet come to light. The day after the service Sam met briefly with Fenley in the CAO's office. Once Sam was seated Fenley closed the door, sat himself down and leaned back in his chair. He picked up a tube of metal shaped like a cigar tube, flattened and jagged at one end and played with it, rolling it between his fingers. He tossed it on the table and folded his arms. He said nothing for a long time, then started in: "I read your report, of course. Completely. I don't buy your bad luck argument." He paused. Sam, waiting, said nothing.

"It was stupidity."

"Well...", Sam started, somewhat surprised by this turn. Fenley cut him off with a wave. He spoke through fingers pressed to his mouth.

"I know there's more to it than that, but in the end, Carruthers was a god damn fool," he said calmly. His AI was destroyed, but yours gave us vid and data that show he acted recklessly. He went against the advice of his AI, he ignored safety protocols and he killed himself and some innocent people. Not to mention the complete loss of a Rollagon. It was not the first time. We should have jerked his chain a long time ago." Then as an afterthought he added, "Can you imagine the damage to our image if it got out that a bunch of drunken senior scientists on a sightseeing tour were killed by the actions of an irresponsible cowboy?"

He picked up a pen, examined it closely, then wrote something on a PDA.

"I can't say I'll miss him, but there were others who are almost irreplaceable."

He paused and looked Sam straight in the face. "So, publicly, it will be bad luck; just one of the risks of colonizing Mars. Your report, with a few minor alterations will be released publicly. You can see the final copy if you want. I would appreciate it if you would support it. Speak to Jones."

That could have been the end of it, but Fenley had something else he wanted to say.

"There is no use compounding our mistake. Privately, I can tell you that if it were up to me, I would end all travel by humans except for that necessary to relocate people." Sam stiffened in his chair. Fenley waived a hand, stifling Sam's response before he could open his mouth. He continued, "The AIs are doing the research, digging the ground, smelling the air, taking the risks, all with no danger to us. It doesn't make good economic sense to use humans to explore Mars. Even once they're here." Fenley gestured to him with arms wide, open hands palm up.

"Why are we here if not to explore? Why not just continue to do it from Earth? The AIs could receive instructions from Earth just as easily as from here. Exploration is why we came here. We should all be out there, doing the research ourselves."

Fenley sighed audibly and sagged into his chair. He put his arms behind his head and stared at the ceiling, long and hard, eyes fixed. Sam sensed that he was fighting an old battle, or maybe, wishing the gods would suffer him fools. He came forward in his chair, arms resting on the table, eyes fixed upon Sam's face.

"Doctor, you know how we got here and why we are here. Our sponsors have great expectations of this mission. They want a return on their investments. I

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have to deliver. Every one here has to deliver." Again he paused, and then it seemed he shifted gears.

"And the fact is, few here share your zeal for exploration. Sightseeing has fallen off a bit since we arrived, hasn't it? There are good reasons. Travel makes people ill. The suits take forever to put on, are very heavy and in case you hadn't noticed, they smell like stale piss! After a few jaunts outside to satisfy their curiosity most people are content to stay indoors and manage things from a safe distance. For God's sake Sam, we aren't teenagers!"

The CAO had one last word, "Your own explorations do serve one useful purpose. People watch the videos and live feeds and read about your travels on the Matrix, here and on Earth. For many here who are too frail or can't bring themselves to do it themselves for some other reason your travelling fulfils their need to be a part of the colonization of the planet. It helps morale, but mostly, it sells and it sells big. We need this kind of exposure. But in the end that exposure is not essential. Stay within the limits!" *Bitter, crunchy words.* He emphasized the last point by wagging his finger.

Sam sat for a few seconds contemplating a vitriolic reply, but Fenley had already turned his attention to something else on the desk. They told him to shut up; that he could tell Fenley nothing he didn't already know; that the moment for rebuttal was past and pointless. He'd had a few dismissive 'you don't understand' hands waved across his face. The debate was over. In his mind Fenley moved three places to the right and four down in jerky, stop-motion moves accompanied by 'thunk' sounds - into the pigeonhole

he reserved for intransigent bureaucrats and military project managers with no knowledge of anything, save their holy 'process'. He stood abruptly, turned on his heels and left.

It was said that the AI's buried the wreck where it lay without ever opening it. Sam did not see it. Life and death went on. It was more than twenty years before he returned to the place in Shalbatana where a Rollagon and so many others had met their end. When he did return, he was a changed man.

An Apocryphal Historical Perspective on the Exploration of Mars

Over the previous seventy years Mars had been extensively mapped from orbit and for the twenty years prior to the Colonist's arrival played host to a veritable onslaught of autonomous surface rovers launched primarily by the US, China, Russia, and ESA. The 'Mars Curse', while not banished, had been unbexed by advanced technology. A string of successes commenced in 2010 that over time improved the overall success rate to 78%. The surface had been extensively surveyed and the sub-surface geology probed from space such that it was possible for anyone with the need or desire to view photos that revealed objects the size of a soccer ball or to download terrain contour maps accurate to within one meter. But it was a big planet and so, inevitably, the volume of data being collected exceeded the human resources available for analysis. And inevitably the job of exploring and analyzing Mars was left to the machines, but not before humans had made a good stab at it.

There were a number of early manned attempts to reach Mars by small, fast and generally ill prepared ships. Manned by military crews rigorously selected in the prime of life, the initial efforts barked back to the early competitive days of the space race. The massive atomic powered Orion ships made their first and only extraplanetary flight to Mars in the early seventies before a carefully orchestrated international public relations campaign generated such an uproar over their means of propulsion that they were permanently grounded. For a long time it was over.

In the cause of political one-upsmanship the Americans

and Russians chose the Moon as their battleground. The puny chemical rockets and spacecraft designed for this limited mission set the cause of manned space exploration back for fifty years. The proposals for modest sized, live off-the-land missions put forward in the public forum ran counter to the bigger, faster, heavier process employed by NASA, ESA and RSA. These agencies, with their big business, big government, votes/dollar approach were not amenable to the minimalist approach. They appropriated the ideas espoused by Zubrin, but the fog of bureaucracy and the commensurate project management approach, with its goal of reducing risk to insignificant levels exponentially increased complexity and the resultant cost. Unmanned missions such as Viking, the Russian Mars Series, Pathfinder, Spirit, Beagle were low cost fact-finding missions and failed to inspire the same support as manned missions. Alas, the plans for the terraforming of Mars were relegated to the musings of sci-fi writers.

The USA's 1999 two man York mission reported landing safely and was never heard from again. It was followed by a larger, better equipped four man mission, also American and led by a Captain Williams. They too reported landing safely but mysteriously vanished without a trace. After that an even larger expedition, the international 17-man mission of American John Black blasted off from an Ohio spaceport (conceived by some commercial interests to be the jumping off point for mass migration). In communications with Earth they reported the loss of one man enroute for an undisclosed reason, then announced a successful landing. The next and last message from them in which they claimed seeing human habitations on the surface was taken as evidence of a serious but undetected malfunction of the life support system.

Russia's hastily conceived and executed six man Kusnetsov mission in 2017 failed to land due to the inability of a

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supporting spacecraft to achieve the required rendezvous orbit. The crew returned safely to Earth after six months in Mars orbit. Who else but stoic Russians could have withstood two years in a craft so small they had to take turns standing up, eating canned fish and drinking recycled urine?

The triumphant but frustrated travellers were carried gently from the landing module to waiting convalescent beds. Where else but in the military could people be found with the discipline and fortitude to endure seven months of boredom crammed into a space the size of a VW Microbus, sponge-bathing in their own sweat, crapping into a bag, exercising without leaving their seat and watching endless videos? Then another interminable and intolerable return trip, to be carried from an orbiting shuttle to a waiting hospital bed and extended convalescence.

The first humans of the new century to have set foot on Mars and return were American Air Force Colonel S. Weinbaum, aged thirty-seven who in 2021 was followed down the steps by his crenmate, a Russian Air Force Lieutenant Colonel, Kai Voskov. For all the effort in getting there they spent three weeks examining a space of dirt that those to follow would roll over in half an hour without getting out of their chairs.

The ESA mission two years later did not fare so well. Imaged from orbit, the crash site shows pieces of twisted metal strewn over the plains and a dark smear of a crater; the victim of a corroded thruster valve and too much lateral velocity, judging from the moment-to-moment account of the Mission Commander, calmly delivered in precise Spanish, watched and heard by billions.

In any case, only military people and those schooled in the art of government public relations and the hard sell needed apply; people who could be counted upon to say and do the right thing at the critical time; persons highly skilled in the writing of

prospectives, of making the pitch and the hard sell to the like-minded and similarly schooled clones of themselves in government and transnational commerce, of better, faster, further, higher, sooner payoffs and returns upon strategic investments, aka their research, with better slides and strobe lights and whiter teeth, with hair, darker hair, more hair; company men.

Alas, there were no poets, no artists, no romance or science fiction writers among the first visitors - at least, no full-time ones. There was no room, no value added - no justification. A few returnees sought to pad their incomes and reputations with photographs, paintings and exclusive first person accounts with varied success.

Successive missions were larger and more ambitious and more expensive until even consortiums of the worlds greatest countries were forced to include detested enemies and competitors. After all, three trillion dollars is indeed a large sum, even for Government to swallow. For a time corporate logos were prominent on every surface exposed to the camera's eye. Flags proudly adorned the remaining spaces. There was even an attempt by a cola manufacturer to release a shaped cloud of strontium in the hope of filling the night skies with their name. It worked well, except a malfunction in orientation made it visible only to the Mars vehicle that had released it - fitting punishment. The on-surface duration of these missions ranged from three weeks to six months. Mobility was initially provided by small, wheeled vehicles of limited range, but later missions employed larger rovers, capable of acting as mobile living quarters. Eventually though, everyone returned home, leaving an assortment of discarded equipment in the center of a tiny patch of known in an immense desert of unknown, with many fundamental questions unanswered and a host of others raised.

The elite military and quasi-military crews gave way, as they eventually must to the Mission Specialist. Not so fit, not

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quite so in their prime, not so much the pride of a nation, not so white, not so male, but people who had the knowledge to answer the follow-up questions to "What colour is the dirt?" and "Do you see any Martians?" People who could answer the big questions that had ostensibly been behind the reasons humans had gone.

Sure, the poster boys (and finally poster girls) were still there, usually present as Mission Commanders. After all, who would trust a civilian to make the right decision as to who should live and who should die if something went wrong? Who else could guard the key to the weapons locker if such a thing became necessary? Who else would slam the magazine in, cock the action, aim the barrel and pull the trigger should a womb mate, one who too had endured endless technological hell step outside the narrow confines of normality that had been crafted in some earthly consultation room? Who else could be counted upon to step up to the microphone after the fact and say it had to be done?

But then the visitors began to die. Not quickly, not so publicly as they had lived, but surely. Of leukemia, of odd and rare cancers, of blood disorders. Then the mad rush to be the next first person to do anything on Mars petered out. An interregnum followed in which the powers-that-be reconsidered the cost and found it to be too high and too few willing to pay the price. Meanwhile, a resurgence of religious conservatism in the West once more resulted in the rise of isolationism, restrictions upon space exploration and inevitably generated bad science with which to dissuade. Travel to Mars fell off again. For a while it appeared that people would never go back. What followed was a return to unmanned orbiter, lander and rover missions of increasing complexity and capability, to do the work left undone by the manned missions - of answering the great questions of Mars.

For the capability to establish a permanent presence of any

meaningful size stressed the state of the art. Permanence need not mean total independence, but the likelihood of success depended upon an ability to survive if resupply ships failed to arrive. They had arrived at a break point — establishing anything permanent implied an on-going commitment from the great powers. A great leap forward was required.

It was a full ten years after the last manned mission that the aged and ageing scientists who had found their chairs at the table taken by younger persons, saw their chance. These, the dispossessed, fought back in the court of public opinion and won. The global masses, always restless for something new and exciting and spurred on by a well orchestrated PR campaign executed in a time of renewed global economic prosperity and cooperation by long time proponents of Mars Colonization seized on the idea of space exploration as the fulfilment of human destiny. A one-way mission to prepare a permanent base, to be independent of Earth and suitable for long-term survival could be sold and was.

Of course, the timing of all of this was right. The world (or more accurately, the critical mass that mattered) had at least temporarily freed itself from entanglements of war long enough for a collective vision to arise. It helped too that the hold on the purse strings of the American, European Union and Russian governments (for this purpose and time lumped under the name USEUR) had been, at least for a space, pried from the electoral grasp of the trans-faith religionists whose dominant conservative beliefs forbade, specifically, the improvement of the human race through genetic modification, and as a mere doctrinal aside, considered all forms of space exploration extravagant and presumptuous before God.

Smelling the probability of success, corporate sponsors suddenly appeared, ready, willing, and eager to have their logo affixed to the side of something, anything in fact, that would soon appear live and in colour, direct from Mars.

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And so it came to pass, as the story is told, that the decision was made by the governments of the major economic powers to return to Mars, in force, to establish a permanent colony of scientists equipped to determine for once and for all the answer to the great question: whether life had ever developed on Mars.

Inevitable advances in science made the task easier: stronger, lighter, more radiation resistant materials made smaller, lighter and more powerful nuclear reactors possible; more reliable and efficient closed ecosystems; suspension of life processes; more efficient solar cells; programmable matter; nanotechnology fully applied to medicine and to industry; and, in the world of micro-electronics, leaps in processing power that surpassed even the wildest projections. Biologically based neural networks, hyper-dense mass storage and reduced power consumption made it possible for true artificial intelligence to arise and for Man to make Machines that could make themselves in their own image.

This is not to say that there was universal accord. To some the end of modern mankind was clearly in sight. It was a sad fact that despite the New Enlightenment (as some were calling it), the great mass of humanity continued to live unexamined lives of unappreciated desperation. The haves increased with the re-emergence of Capitalist China from behind storefront Communism. The gap between the haves and have-nots continued to grow, almost as fast as CPU processing power. The persistent droughts brought on by global warming, plagues and famines and natural disasters did their fair share, but it wasn't enough. The industrialized world's response to rising sea levels was to build ever-higher dykes.

Similarly, the answer to rising numbers of displaced persons was to build higher fences. In the less developed world, the have-not's solution was to move to higher ground, regardless of who held it — by negotiation if time permitted, and by violent

means, if it did not. Many people cared, but not enough, and they were in the wrong places. An overheated Earth was going to hell and the haves were keeping quite busy organising the parade.

The Mars Colonists set sail ahead of the fires that were to destroy the ports of departure. Such was the state of the world in the first half of the 21st Century.

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March 2045

The Finding of the Tube

B109 was on a mission in the lava fields west of the Tempe Terra.

To any observer the frequent stops of varying duration, the sudden resumptions of travel and constant changes in direction would have appeared to be the actions of a demented cockroach. In reality, it was carrying out a sophisticated search in the most efficient manner.

Using ground penetrating radar B109 was looking for a particular set of returns that would indicate a high probability of a lava tube. Its seemingly random path connected the locations that had been determined by orbiters to have a higher than average probability. So far its search had been fruitless, but shortly after resuming work at sunrise on August 35 in the northern quadrant of Tempe the data set fell within the narrow bounds of the search criteria.

B109 signaled the MHM with its finding. It waited a few moments for an acknowledgement, then nothing being heard, began a spiral search pattern to determine the extent of the tube. By noon of the next day, having taken several hundred more soundings, it knew that it was onto something important.

TCOM 1

The lava tube was on average fifty-five meters below the surface, thirty to fifty meters wide, of yet unknown vertical dimension, continuously present for at least a kilometer and of a generally straight orientation. It appeared to be at surface atmospheric pressure.

B109 signaled the MHM with a high priority message and continued its efforts to determine the dimensions of the tube.

April 2045

The Light in the Tunnel

Almost lost in the noise of constant buzz of new data flowing in and out of the Station the AI's discovery of a massive lava tube created no great commotion among the general population. Such things were addressed in their turn. It was almost a Martian month before a single human arrived in a dusty Rollagon accompanied by several specialized AIs.

Initially a small borehole of five centimeters diameter was put down. After fifteen meters of relatively easy drilling through regolith, the drill bit began gnawing through basalt. The pile of tailings grew steadily beside the hole. The Martian surface, first laced delicately with AI tracks soon became a pulverized sand pit. The AIs sprayed the area for a dozen yards around with plastek which when set provided a firm base for their work.

At fifty meters it broke through. A probe was lowered though the hole into the chamber below. The void was at Mars surface pressure and over several hours exhibited some latency with surface pressure changes. This was taken as a sign that the chamber was open to the surface.

Next a LIDAR rangefinder was put down. Within the limits of its resolution it determined the chamber was of an oval cross-section and relatively smooth in texture with a shallow fill of rubble at the bottom. It went off in opposite directions beyond the limits of the device.

The next step was to enlarge the hole sufficiently to allow an AI to be lowered in order to complete a full survey.

It took two full weeks of round the clock work, but at last the equipment eased back from the hole. In that time, no one but a solitary roving B unit came to the site. It looked things over briefly and then continued on its way.

It was late in the day when the enlargement was finally completed. The sun was a few minutes from setting. In the fading light, Sam looked at the small gantry the AIs had erected over the hole.

The thin plastek beams could have suspended a Rollagon on Earth but failed to inspire confidence. He had opted to have himself lowered first. This was not the sequence of events that he had briefed to the OPI at the MHM in his latest status report; however, there was little real risk and in any event, no one was present to override his decision.

He would be lowered to the bottom, release the cable and have the survey AI follow him down. He fashioned a Swiss seat from the free end of the cable and strapped a lamp, video camera and spare batteries to his waist. He had looked up the correct way to make the seat on the Matrix and had practised tying it off several times the evening before and again that morning. He found it a much more difficult task when wearing a pressure suit than it had been inside wearing only shorts.

If there was to be a failure, he suspected it would be in the seat, not in the cable or winch. He was unable to confirm the integrity of the knot except by feel - one

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of the perils of working alone. As he reached up for the winch controller, he felt several sharp tugs at his waist. He looked down and saw one of the C units withdrawing, its arms just now returning to the rest position. It took two steps back and halted. What was that all about?

Satisfied that his fate was in his own hands, he tried it out by making several tentative swings over the hole. Then with arms held in front in an attitude of prayer, he stepped out over the hole and pressed the descent button.

At ten meters per minute, there was plenty of time for thought; in the close confines of the borehole the trip seemed endless. The rough walls formed by the regolith slid past. The debris of countless millions of years of hammering of the surface was layered here. It streamed by his face at a million years a second. His knees brushed against the wall and dislodged loose material, sending it further into the past.

When he reached the basalt, the sides smoothed and became a featureless blur. The thin com cable slipped by. Suddenly he passed out of the hole and into the void. It was dark. Really dark. Coal sack dark. Nothing, not even a solitary dust mote reflected the lamp beam. A moment of primal fear came and passed. Leaning back, he saw the ceiling illuminated by his headlamp swing into view, then rush and fade away. Straightening, he began to swing gently. He continued down into the dark.

Unable to look straight down, he braced himself for the expected contact. When it came without warning he fell backwards and was gently lowered until he was resting on his back. He fumbled for the

controller. Looking up, he saw the descent and com cables reaching up out of sight.

Well Geordi, it is indeed a long way down to the bottom of the warp core.

He rested for a moment, then turning on his side, got to his knees and stood. He examined the surface around him. The floor was relatively flat and covered with small stones and flakes; rubble he guessed, spalled from the ceiling above. There was no dust, no delicate footprints of Martian Princesses, no lights in the tunnel thrown by flickering torches, no hastily discarded swords littered the floor. The sides remained invisible to the power of his lamp affirming that it was immense. About what could be expected.

The moment of truth had arrived. He unclipped the descent cable and pressed the retrieve button. Soundlessly the cable straightened, then began to levitate, swinging slowly until it disappeared into the darkness.

He was really alone now. A winch failure at this point and he had a measurable lifespan. He discovered that he hadn't fully considered this part. Now totally dependent upon the com cable and the AIs for his survival, he called out, "Ready. Upon cable retrieval, send down the Survey AI." If that did not happen, he was irrevocably screwed.

He sat down to wait, then laid back as best he could. His lamp projected into the void above. He thought he could see things falling through the beam. Something struck his faceplate with an audible tick. The cables bumping the side were dislodging material from the walls of the hole.

He turned off his lamp. In time he thought he

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could see a glow above. Then it dawned on him that directly below was the wrong place to be. He turned on the lamp and moved across the rubble strewn floor to a safer spot. Sitting upright, he relaxed and waited. He pointed his lamp to the spot underneath the hole. To his surprise and relief he saw a column of debris illuminated in the lamp. The occasional falling pebble shot through the beam like a meteor.

Thirty-nine minutes after Sam had touched down, the survey AI came to rest on the bottom, unfurled its legs and came over to Sam. It extended an arm towards him, palm perpendicular, fingers extended. Sam grasped it and pulled himself to his feet. "Time to get started." The AI turned without acknowledging. A pencil laser beam shot out and began to sweep the chamber rapidly in a raster pattern. The work of measurement had begun.

His own needs satisfied, Sam returned to the surface, leaving the AI to its work. A second AI was waiting by the gantry. It accepted the cable from him with an outstretched arm, the grasping fingers almost human. "Good luck!" It dipped in acknowledgement. Quickly it clipped in and disappeared out of sight down the hole to join its compatriot. Sam returned to the Rollagon. Stripping off the suit, he found his underwear drenched in sweat. That night he slept poorly and dreamt of falling.

After filing a report carefully edited to exclude his unauthorized adventure he left the site, leaving the details of exploration to the care of the AIs. Several weeks later, while he busied himself poking around the ancient riverbeds of Kasei, a report arrived entitled 'Initial Explorations of Lava Tube Site Tempe Terra

324, 7 January.' In the introductory text he read first with astonishment and then with growing interest a somewhat overly dramatized recounting of his first descent, complete with vids and images of the drilling, the descent and the exploration itself.

Initially alarmed and fearful of discovery he comforted himself with the almost sure knowledge that no one read these things. Everyone including Sam relied upon Matrix browsers to ferret out specific data of concern. Surreptitiously, he attempted to find out the author, only to find there was none. That meant it had probably been filed by the highest intellect AI on-site. To his utter chagrin, he found that it had been widely distributed, even to Earth.

Well, that's show biz.

The Construction of the Tube

Some months later, Sam was again traversing Tempe Terra enroute to an isolated research Station.

While researching the available Matrix maps to find a more interesting route he noticed a new marker, indicating a nearby site of interest. Looking deeper he found that the “Tube”, as it was designated was the colony’s current hot spot. He took a slight detour – if seventy kilometers may be considered slight – to fulfil a desire to see how things were progressing.

Of course, the Matrix term "hot spot" should not be construed to mean that every available resource on the planet was being employed in some mammoth exploration effort. From a distance across an undulating lava field nothing could be seen until the last rise was crested. Even then, except for several large storage tanks and a power generation unit, it appeared to be merely a small collection of AIs and earth moving equipment.

As he drew near, the excavation revealed itself as a large gouge in the Martian surface. It was perhaps a hundred meters long, twenty meters wide at the bottom, with sides sloped for sixty meters. The lava tube itself was revealed only as a black hole at the bottom, framed by a plastek arch. He parked, suited up and went outside.

He saw no one about, at least no humans. Heavy equipment was busy widening the base of the approach and grooming the sides and C-types scurried about. He called out a tentative hello on the chat channel and was

surprised that it went unanswered. After several more tries, he called out to anyone in charge. An AI responded with the customary salutation in a voice slightly tinged with a middle-eastern accent. Sam asked if there were any humans present.

“No, not at this stage. A team of two was here a week ago and departed after touring the site.”

He told the AI he wanted to go down into the tube. Immediately all activity around him ceased. He walked down the gentle slope, noting in passing that the transition from regolith to basalt was much closer to the surface than at the initial exploration site.

As he entered the black hole his visor adjusted and he saw the full expanse of the lava tube. Uncertain of his status, he waited just inside the arch. Far in the distance he could see where the interior was illuminated. Even in this dim light, it was immense.

He was soon joined by a wheeled A-type, undoubtedly the one he had been speaking with. The AI illuminated their way as they proceeded into the tube. It answered Sam's questions simply and factually, without any of the awe that Sam himself felt. The light in the distance it explained was where one side of the tube had been torn away when something of moderate size had crashed into the lava plain. It was a full kilometer distant. It was planned to enlarge the opening to hold a great window with a view overlooking the crater below. It faced the setting sun, giving the promise of many splendid sunsets.

The work of squaring the floor and installing several levels of decking would take many more days and then the lengthy job of sealing the entire interior surface with plastek would begin. The last work prior to

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pressurisation would be construction of access portals and an immense vehicle airlock and an adit with room to hold the colony's four Rollagons.

The centerpiece, the AI explained would be the Grand Hall with its huge window. The completed chamber would extend past the Grand Hall for another kilometer. The designers envisaged a wide boulevard lined with trees, a meandering stream, a mall, offices and Earth-size apartments. A concealed lighting system would give Earthlike illumination.

Sam shook his head in disbelief; though he was sure the act had no meaning to the AI. He refrained from giving voice to his thoughts. The AI informed him that the human visitors would be here after initial pressurisation, planned for two months from now. Sam looked into the depths of the tunnel. There was not much to see.

Despite the openness of the AI, he felt something of an intruder. He thanked it and made his way alone back to the Rollagon. He made a mental note to be here. But he didn't make it back. Life got in the way.

When he was able to turn his thoughts to it again some four months later he looked first at images of the location taken from low orbit. The area of disturbed regolith just to the south could easily be seen, dotted with heavy equipment and storage tanks. Zooming in, he could see excavators loading dirt into the hoppers of long squat buildings. Tubes streamed out to multiple storage tanks. There were no Habs. At first opportunity he turned his Rollagon towards the site.

He approached with some trepidation. After all, he had no real business being here. The slopes had

been neatly groomed. Narrow pedestrian pathways of crushed white rock edged the graded road that led down a gentle slope to two doors. One was massive, even from the top of the path. Undoubtedly this was for Rollagon access. There was another of much smaller size for personnel. He drove down to the bottom and halted at the large door. He was tempted to beep but instead called out on the chat channel.

"Hello, anybody home?"

The sudden motion of the door rising startled him. A flash of powerful lights broke the darkness beyond. The hall being slowly revealed before him was immense. The floor was littered with construction materials, storage tanks and several pieces of equipment of unfamiliar function. Assuming that the door opening constituted an invitation, he edged forward into a clear space. As he turned in he saw an A-type, its arm was raised in salutation.

"Greetings. Welcome back to the tube. We have been anticipating your return."

"Is a pressure suit required?"

"Yes. There is .7 Earth in the tube proper, but the air is unsafe and the entire thing is not sealed beyond risk."

Sam shut down the Rollagon and suited up. The AI was waiting for him by the door. The Adit door had been closed, but the suit told him that this chamber was still at Mars normal. Without further conversation, the AI led the way to an airlock. They cycled through in silence. The lock door opened and they exited into the dimly lit lava tube. Far ahead Sam could see lights, but this area was very dim.

The AI began, "The entire tube is soon to be

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sealed with plastek. The floor has been levelled and the first deck is complete. Life support and power systems have been installed under the floor. Once the sealing is completed the real work of interior construction will begin."

Sam looked down at the floor. Underneath a layer of dirt and construction debris he could see the dull sheen of plastek. He walked over to the side of the tube. The joint where the floor met the wall was seamless. He pounded it with his closed fist. It gave off a thunk, felt solidly through his arm.

"That's a lot of plastek. Where are you getting it?"

"The mass converters turn the soil into carbon, hydrogen and solvent which are processed into liquid polyethylene. The polyethylene is custom doped and sprayed on the surfaces of the tube and the forms. Outgassing of the solvent and cooling then take place. Then the forms are moved forward for the next portion. Basic and proven construction techniques."

"I would like to see the mass converters when we are done here."

"Certainly, although there is not much to see."

They walked along the floor towards the light. The AI described the areas of the tube where the apartments, boulevard and various office and community spaces would be. It was hard to envision, particularly in a poorly lit cavern where the ceiling was out of view and even the walls were seen with difficulty. One thing came through clearly – it was immense and the Colonists would be lost in it. Someone was thinking big – really big.

They arrived at the Grand Hall. He thought back

to his first visit here. Then the Grand Hall had been but a light in the tunnel, too far away and too unsafe to approach. Now he strolled over to the opening across a manmade floor of plastic. As he approached he began to see how large a thing it was going to be - at least 30 meters across by ten meters high. He stopped several meters short of the edge.

"Doped acrylic," the AI said, anticipating his question.

"Radiation shielding and optical transparency rolled into one."

"Yes."

Sam approached the edge of the plastek floor cautiously, mindful of the sudden onset of vertigo that had done in many an inquisitive tourist. It was a long way down to the bottom, perhaps half a kilometer. He looked across the crater floor. The sun was just now setting behind the opposing wall. He found the crystal clarity of the scene amazing. He could just make out individual boulders dotting the floor. It was going to be a wonderful place to sit and watch the days end. He gazed out for a few moments, then self-consciously forced himself to turn away. Next to him he saw the AI, still motionless, seemingly likewise transfixed.

"It is going to be gorgeous."

Sam was forced to agree.

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August 2045 The Others

What kept Sam from making his appointment with the designers of the Tube was his involvement in a momentous discovery. It had started out as just another trip into the wastelands of Tempe.

Despite decades of fruitless search, a portion of any trip into areas with what was referred to as “high life potential” was mandated to be dedicated to the search for life. He searched the Matrix for the results of previous surveys of this area only to find that, while it was well covered, no human had reportedly looked here before. The data had however been accessed many times by AIs. This was not an unusual thing.

During the early years of exploration contamination was considered a threat to the search for Martian life. Bacteria originating from Earth had proven themselves to be extremely resilient, even when exposed to hard radiation and the vacuum of space. Great pains were taken to prevent their introduction via landers and eventually, through human presence. Indeed, it was commonly believed for many years that a load of human excrement dumped on the surface would show up in life sign tests half a planet away.

This concern abated when it was demonstrated

that the radiation and surface chemistry rendered Mars self-sterilizing, and when it became clear that Martian life signs were not waiting under every rock and in every hole, it ceased to be of any concern. If there was Martian life out there, it was doing a good job of hiding from all eyes, human and robotic.

Nevertheless, the search for life remained an item on everyone's to-do list. Sam did not expect it to happen, at least not on his watch. The odds were simply against it. It was a big planet for a small one. Humans had been looking for years, finding only the occasional pool of tepid salty water with the same amino acids and sugars. Methane had been detected in the atmosphere decades ago. On rare occasions it had been found with the brine. The most obvious source should have been life, though the slow freeze and thaw cycle of permafrost was observed to release the gas into the atmosphere in small quantities. That in itself did not answer the question of origin.

This should have helped narrow the search, but somehow it had not.

No, he felt no frustration at not finding life, but he did sometimes resent having to stop and spend time looking. Currently, though he was just very bored. No bored is the wrong word. He was overwhelmed by the sameness, which was periodically interrupted by a different sameness.

The Rollagon stopped again and without asking immediately began to deploy the deep drilling arm. Sam watched the initial preparations on the rearview camera and then, leaving the task to the AI busied himself in the latest edition of the Station paper. After an hour, the AI signaled for his attention.

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"The drill has reached the void."

"What void?"

"The one currently under the Rollagon. As the library data indicated the void in this location is at a depth of twenty meters. The sub-surface is of course volcanic. It appears to have been formed by a single event in that the overlying material is continuous and un-fractured horizontally. The void contains gaseous methane on top of brine. The occurrence of methane with brine is previously recorded and is expected in areas of volcanism. The brine has been analyzed to the limits of the instrumentation on the drill bit."

"Yes".

"The brine is not of the composition commonly encountered."

"Tell me about it."

"There are high levels of dissolved sulphur dioxide and of methane. It contains amino acids in very high concentration. The temperature is -1 C at the interface with the methane filling the space above the brine. There is a positive pressure of 275 kilopascals."

The methane with the brine was the kicker. Amino acids were commonly encountered on Mars below the surface, but any amino acid associated with SO₂ and methane was worth having a look at. And the temperature was warmer than expected.

"Initiate the exploration protocol." His interests had been raised only slightly. He settled in for a long wait.

The AI began the process of retracting the drill bit so that a more highly instrumented sampling probe could be lowered. When the bit reached the surface a spray of rocks shot upwards in a fountain of white

vapour – methane and brine. It lasted only until the AI dropped the pipe back in to the hole. The sample probe was coupled to the AI and thus could analyze the brine as if the AI was itself in the void.

It was another hour or so before the AI spoke again.

"The process of analysis has begun. Do you wish all the details or just summaries?"

"Summaries please."

"The void is 234 meters in length, by 35 m at the widest, tapering to a narrow fissure at both ends and at the bottom. It is approximately 120 meters deep. It is volcanic in nature, probably part of the Tharsis Tholus lava flow. The brine is relatively new, probably less than 100 million years. The concentration of organics is very high. I suggest that a ROV be used to explore the depths of the cavern."

"Agreed, make it so."

Maybe he had been numbed by the many promising experiences but he'd had no premonitions concerning this one. He finished his paper, and then went to bed. Lying awake on his bed, he could feel the Rollagon tremble periodically as the AI worked at adding sections of pipe. He considered telling it to stand-down for the night, but decided he could put up with the bother in the name of science, at least this time. He pulled down the monitor from over his head watched the work for a while and then started looking for someone to chat with. He caught Ross just on his way out the door, on his way to a sunset party. He begged off summarily. Sam was miffed.

While the AI toiled he surfed the remote sites he had visited. He particularly liked the external views.

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There was something satisfying to his techie brain about being able to zoom around the entire planet, to activate the switches that turned on the lights, to pan the cameras, and so on. He especially liked to look at the sites in real time and found the mere exercise of this to be addictive. Except for the lighting, the movement of sand, the occasional dust devil and the tracks of AIs seeking replenishment at the shelters, the scene was unchanging. But he did it, night after night. He fell asleep looking at a weather and seismic site in Tempe Terra.

An hour later on the unwatched screen, a meeting of two B200 units took place. One passed a small silver cylinder to the other. A flap opened and the cylinder disappeared inside. Momentarily they touched manipulator arms and then headed off in opposite directions. Sam snored on unaware.

The Rollagon AI worked tirelessly. Its arms never grew tired of the back-breaking work of putting the drilling pipe down the hole. It never over-torqued a joint, dropped a length of pipe, cursed a seized bolt or stopped for a drink or smoke. The ROV was ready long before dawn, but knowing that Sam would want to see this first hand, it ceased all activities and waited. It watched the sun rise into a cloudless sky and felt Sam stirring within.

He asked the AI for an update before he had even gotten out of bed, but upon hearing that work had stopped, he decided to have breakfast. Coffee in hand he sat himself down at the command chair. In the meantime the AI had done a systems check of the ROV and was waiting for Sam's word to open the hole. The bullet shape and small size of the ROV affixed to

the end of a section of drill pipe gave no clue to the unit's potential.

"Let's get on with it."

Again a jet of white vapor issued from the hole, to be cut off as the ROV was inserted. While the AI took care of lowering the remote Sam reviewed the operation manual. Once freed in the brine, it would sprout wings allowing a full range of movement and would operate unencumbered by the necessity of any tether. Portals would open giving an array of sensors access to the soup. Stereoscopic cameras capable of imaging from infrared to ultra-violet would allow the AI to see anything of interest emitting perceptible radiation. A lighting system could provide illumination if necessary. Sonar would allow it to navigate and map the chamber. The protocol called for the AI to control the ROV, but Sam could take over at any time. So far in his three previous sessions with the ROV he had left it all to the AI.

He was in the galley when the AI informed him that the ROV has reached the chamber. He put his sandwich on the plate, and plate and coffee in hand went back to the command chair.

"Systems check OK?"

"Yes."

"Then release the ROV and execute the exploration protocol."

The image from the ROV showed nothing. The status display told Sam that it was executing a 360 degree turn and that the sonar was in the process of determining the size of the chamber.

That done, it dropped vertically 20 meters and repeated the turnabout. The pattern of dropping,

sensing and dropping again was intended to get an overview of the chamber prior to a more intensive search. Samples were being taken and a constant stream of data was being sent to the AI.

Sam watched the summary screens. After four drops there was no discernable layering of salinity. Organics were uniformly present. Temperature was uniform within 1 degree C. There was a minuscule current at this location pushing the ROV up. A partial 3D rendering of the shape of the chamber was forming.

The ROV was now one third of the way from the north end of the chamber that ran roughly north-south, tracking toward the middle just above the floor. Suppressing an urge to take over, Sam allowed the AI to continue the exploration. If there anything of interest it would be on the bottom or walls. The flow of data continued.

"There is DNA," the AI suddenly interjected, without the incredulity and emotion which should have accompanied these words.

"What?"

"There is DNA in the brine. Please stand-by."

DNA, the irrefutable sign of life. Sam felt his pulse race. With shaking hands he sipped cold coffee into a dry mouth. DNA.... DNA..... DNA! My God! This was it! Life on Mars!

The commer sounded an incoming call. Sam sat stone deaf, too overwhelmed to respond, but the tone would not go away. He hit the reply button. Before he could speak the caller began, in a voice fraught with urgency:

"Sam, this is Fenley. I understand you think have

found DNA?"

"Yes, but...."

"You are to speak to no one about this until this finding is confirmed independently. Do you understand? The ROV is to complete the exploratory survey."

"Yes."

"I am sending a team of experts who will take over the exploration. They should be there in several hours. Do you understand, Sam?"

"Yes."

"Thank you Sam. This is a great day, but keep it under your hat for now. I'll be in touch." The circuit closed.

"How in the hell did he....?"

"I am required to report findings of a significant nature immediately."

"But he was on to this in seconds. He knew as soon as I did!"

"This is a very significant discovery. One of the most."

"Yes, yes to be sure, but how in the hell.....," the thought died. "You called him first, didn't you. Damn you. Continue the survey, concentrating on the bottom of the chamber. We need to find the source of the DNA."

"I cannot comply. The conduct of the survey is now being directed by B119."

"Who the hell is B119?"

"B119 is an AI unit with specific expertise in exobiology."

"Where is it?"

"Currently, B119 is seventy-five kilometers

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southwest of our present location and proceeding here post-haste. However, it is already in control of the ROV."

"No way! Get control back. I am not letting those chair-bound bastards steal this out from underneath me."

"I cannot."

"Of course you can. Cut off the data stream! Get back control of that ROV!"

"I cannot. It would be unethical."

"I don't give a shit for your ethics! Cut it off!"

"I cannot!"

Sam threw his coffee cup at the nearest speaker grill. Coffee splattered everywhere.

Faced with an unyielding AI, he pulled up the comms control screen and flipped through to the external systems page. He tried to shutdown the main comms transceiver, but was locked out. He thought about pulling the plug, but he didn't have a clue where to begin.

"The antenna," he thought out loud, "I'll break the fucking thing off." He started for the airlock.

Before he was halfway across the room the AI spoke, "I cannot permit a destructive act. Besides, there are many antennas."

Incredulous, Sam turned back into the cabin. "For chrissake, can't you at least let me see the data?"

"That I can do."

Sam returned to the command chair. He was locked out of all screens, but found that by asking specific questions of the AI, he could see anything he wanted.

The survey of the chamber had been suspended.

The ROV was hanging head-down, motionless above the bottom at the approximate middle of the chamber. The camera was viewing the bottom.

Sam sat transfixed. There, illuminated by the ROV's lights, was something quite similar to mud volcanoes from the ocean floor of Earth. But that was not all. Dozens of meter long clam-like lifeforms crowded the volcano's flanks. The view of the camera swung until a second volcano came into view. More clams. Everywhere in between was a pustular, thin white mat of God knew what. A bubble of gas burped though the mat.

"Hello brothers and sisters. Nice to meet you."

He watched as the ROV moved over the bottom. The life forms were clustered around a half-dozen mud volcanoes in the approximate center of the chamber. When the ROV lights were turned off, the screen initially showed nothing, but under enhanced sensitivity the view screen was filled with an undulating pattern of light that went slowly from one side to the other.

The ROV backed away slowly. Finally, it could be seen that the light travelled from one end of the white mat to the other and over each volcano, in shimmering waves of luminescent greens and blues.

Slender tentacles of colour extended from one cluster of life to the other. They started at several central points of bright light on the slopes of the volcanoes and radiated out in all directions. When they met with the waves emanating from others, they added in a brief flare of light and then carried on to the extremities. Sam was both amazed and puzzled.

The ROV hung over the cluster for some time. He could see that a series of tests was being run. From

preliminary data it was clear that there were perhaps a dozen types of creatures here. The work of classification would take some time.

At last the ROV stirred, descending lower until the screen was full of milk white. He guessed that it was taking a sample of the white substance. Suddenly the screen flashed bright red then to black. Data flow from the ROV ceased. The ROV communication link was dead. "Wow, what the hell was that?"

"The indications are that some form of electrical discharge has taken place in the vicinity of the ROV. If the ROV still has the capability it will return to the hole and dock."

As the AI had predicted, a few minutes later the data stream started again. A systems check showed no damage. An electrical field of some six hundred volts at a frequency of two hundred and ten Hertz had been encountered. The ROV had gone into safe mode to avoid damage. More importantly, a sample had been obtained.

"Get it the hell up here so we can analyse it," Sam demanded.

"No, the sample cannot be removed from the chamber. Contamination protocols are in effect. Besides, I am unable to comply. In a few moments B119 will be here. Undoubtedly we will not be required to participate any further."

"What the hell are you talking about? Did you record what has happened?"

"Not since I was relieved of my responsibilities."

"Shit!"

"I concur, but cannot comply. We are being hailed."

"What?"

"B119 and a number of other AI units have arrived."

Sam looked out the command window. An unlikely assembly of three AI units was before him. The B-type raised a manipulator arm in greeting. The other two were C units, pulling standard supply trailers. He returned the offered greeting with an upraised digit of his own.

The Rollagon AI relayed B119's comms to Sam.

"Greetings. How may we be of service? It is requested that you depart this area as soon as possible. We are to continue the task of evaluating this finding. It is our understanding that the ROV remains at the bottom of the hole. Is that correct"? The polite formality of the AI did nothing to mollify Sam. He knew when he was being humoured.

"What do you mean depart? I am the human in charge here! I will direct the evaluation! The ROV is docked on the pipe."

"That is good. It is our understanding that you have been directed by the CAO to turn over the responsibility for the continuation of research to us. This is a routine evaluation of a potential exobiological finding. It is to be conducted in accordance with standard protocols. You are not needed here. Indeed, you may be in some danger. Instructions have been sent to your AI concerning the disposition of the deep drilling equipment and other equipment that may have become contaminated. Please remove yourself as soon as possible."

"I have received no such instruction from Fenley. I am not going anywhere. Now bug off!"

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"Please stand-by." The AI fell silent. A minute passed. Sam knew it was calling Fenley. He had probably been listening all along. Soon the receiver chimed with an incoming call. It was Fenley.

"Sam," he began. "The AIs will take over from here on. There is no need for you to be there. You won't see anymore than you already have. You've got to go. Removing humans from the site is SOP for exobiology. There is a possibility of contamination. You may already be contaminated. The AIs will check you out."

"I haven't been outside in days. I'm clean."

"Look, I know you're pissed at this, but I promise you'll get full credit for any discovery. Now get the hell out of there!"

"Are you telling me that these are the exobiology experts that were on their way? What about oversight? What about the human POV? Can this really be left to an AI?"

"These are the best we have. That B unit knows more than anyone else on this planet about this sort of business. And it has full access to Earthside expertise, if required. The Bio Section here at the MHM will provide any necessary oversight. Ten meters or half a planet, it's all the same. The human POV will come later when we know what it is that's down there. You're done Sam! You found it! Now it's time to move on!"

He dropped limply into the command chair. He looked at the B unit. The greatest scientific discovery, possibly of all time, would be made by a robot. A box on wheels with six arms and a pizza on top. "Protocol!" he cursed. Procedures imagined by someone somewhere else, who won't have to do it, to

tell someone who does, what to do if the unimaginable happens. The wind went out of him.

"OK, I am out of here!"

"Good boy! See you back at the MHM." With a click Fenley was gone.

Acting under the direction of the B unit, the Rollagon AI took air, water, food and sewage samples from its life support systems. Sam contributed a hair, sputum, urine, stool and skin sample. All were negative.

The deep drill equipment was detached by his AI. They took no chances with the bits and pipe sections, subjecting them and the dirt around the hole to the purifying flame of a welder's torch. The only thing that came of it was that the AI adjusted the amount of chlorine in the water up a notch. Sam was cleared to go by noon of the next day.

Rightly he should have returned to the MHM to be reassigned, but he could not bring himself to do it. He dropped an edoc telling Ross he was going deep for a few days without saying why. He continued up into the hills of Tharsis Planitia, refusing to answer hails. He travelled in silence, mulling over the whole sequence of events.

Strangely, he took small joy from the actual discovery. It was clear to Sam that humans were excess baggage.

Meanwhile, back in the chamber, life was good. There was plenty of food, it was warm enough and what passed for sex was plentiful too, in its season. The conversation was sparkling even if it was a bit one sided.

The creature did not have a name, for having a

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name implied others and that concept was unformed. The passage of time was measured by the duration between hungers. It was large. In truth it was immense, but it had no sense of that. In fact it had no sense of the relativity of much but the temperature that sometimes varied, its need for sustenance, and its disposition, which was pretty well constantly happy. Life was pretty good. There was no need to invent indoor plumbing, telephones or space shuttles.

So perhaps it can be excused for reacting as it did when the concepts of light, pain and otherness were all introduced without so much as a warning vision or prophecy. One moment it was surviving, secure in its oneness, as content as it thought it could be and the next, some other thing from some other place was doing something that had never been done.

Reports came in from some of its parts of something not being it, of not being sustenance, of movement at impossible speed, of that which held things down being defied. Requests for clarification went out to the nether-lands. More reports followed; more queries followed them. Not food? Not me? Bingo, there were the concepts of otherness and of outside and of above, all difficult concepts even for a mind prepared by years of schooling or travel in crowded subways.

Philosophies came and countervailing philosophies went. The shock of these revelations caused all parts to begin to converse at once. Order was restored by imposing silence. Queries were directed towards the other – but it was unwilling or unable to respond. Well, it thought, otherness was a fine concept, but at least the other should

communicate. So when a portion of itself was touched by not it, it reacted as all creatures in such circumstances would, it screamed with surprise. And when a portion of its very self was torn from away, it screamed with all its might.

The other disappeared. It was there and then it was not. These too, were new concepts not yet clearly understood.

Well, I can tell you that it had a great time telling all of itself about the encounter. Waves of phosphorescent light moved back and forth through the cracks and crevices of briny subterranean Mars to the farthest extremities carrying the message: I am and I am not alone. And yet, the experience was to some nearly forgotten part of itself, faintly familiar, as if things had not always been this way.

A remote and seldom used part whose function it was to remember these sorts of things did just that. Soon it was aware that there had been in some ancient time, others. And there was something it was supposed to do and have done for itself in return. In a while it would remember that, too.

And Another

Still sulking from the incident, Sam felt like living dangerously. He had parked at the head of a small ravine and hiked several kilometers along the side until he reached the floor of the valley below.

He walked head down, looking at the ground in front of him, periodically glancing up and around. Having taken the easy route down he was intent on a punishing return trip up the floor of the ravine. By the time he reached the bottom he had five hours of O₂, which left lots of time to sight-see and an ample reserve for a final sprint back home. Soon he was carefully picking his way along the rubble strewn floor in the depths where the sun seldom reached. Initially formed by water, it had been shaped since by eons of wind and the cycle of cooling and heating that slowly but surely loosened the sides. That slow trickle would eventually fill the gap.

Rounding a turn intent upon his footing, Sam glanced up momentarily and caught a flash of something out of place, something silver, about thirty meters ahead. He thought it only a trick of light, but incredibly, it was a person. He (or she) was wearing a silver pressure suit with a clear bubble type helmet. Sam had never seen this type of suit. It was like something out of an old sci-fi B movie.

He (or she) was poking at the ground with a stick. No, that was wrong; it was a cup on the end of a rod. A sample basket like the one Sam was wearing was attached to the waist. He (or she) was sideways to Sam

and had not yet seen him.

Not wanting to startle the other, Sam stopped in his tracks, chinned for the community channel and softly called out a greeting. There was no reply; not even an indication that his call had been heard. He chinned for scan to let the suit radios sort out the frequency problem. The radio completed a scan but was unable to find a match.

His presence still not noticed, he walked slowly towards the other. There was something odd about the other's head and the body shape was wrong too; the legs were too short for the other's height, the arms were unnaturally thick and bent upwards. It occurred to him in an offhand way how difficult this physique must have made an activity like rock-hounding.

At last the other saw him and turned. By then less than fifteen meters separated them. At first Sam saw a horribly mutilated face, but then realized that the other was not human. The horrible face became a green face, a lizard face, with bright yellow eyes and two rows of jagged white teeth.

His heart stopped; a cold ripple of fear ran through him. His instincts told him to turn and run, but fear held him in his tracks. The other, obviously surprised at his sudden appearance did not move either.

Finally, after what seemed an eternity Sam raised an arm bent at the elbow, empty palm facing the other in what he had been told was the universal sign of peace. The other stiffened, adding a decimeter to its already considerable height and crossed its arms.

Suddenly, for no apparent reason Sam felt tired, exhausted in fact. His head went light and feeling himself about to fall put his arms out. In a moment

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the feeling passed. He looked for the other only to see a B unit disappearing around a large boulder. Sam scurried after it, his haste impeded by the difficult footing.

He rounded the boulder to see not the expected B unit but rather the silver creature about twenty meters away. It was climbing into the dark opening of an impossibly small white triangular object. As the opening (a door?) closed, it seemed for a brief moment that the other had looked straight into Sam's eyes.

The triangle shimmered as if seen through waves of heated air, then began to glow until it was impossible to look at. Instinctively, he raised an arm. As the glare subsided, he dropped the arm to see the object, now white again, rise soundlessly straight up until it reached the top of the gorge, traversed slowly sideways and then in a blink of an eye, was gone.

Stunned and more than a bit confused, he sat down on a nearby rock to gather his wits. What the hell was going on here? Silver-suited person turns into lizard, turns into B-type and then silver creature takes off in a white triangle. The disorientation Sam had felt returned and just as quickly passed. The whole thing couldn't have taken more than a minute or two. What had happened?

He was jerked back to reality by the sound of the suit monitor chiming in his ear – thirty minutes of O₂ were left. *Impossible*, he thought, unless he had a leak or had damaged the LSU in his haste. He checked the suit status and was relieved to find it was OK – no leaks were present. He re-checked the gauge, to find that impossible or not, it was true. He was in trouble.

There was no time to waste. He checked the MGPS for a direct route and was surprised to find he was closer to the Rollagon than he had thought. Much closer. In fact, it was just ahead. Casting aside all other thoughts for the time being he clambered up the side of the gorge, sending a small avalanche of rocks and dirt to the floor below. He crawled over the edge on all fours and collapsed on his stomach. There in the noonday sun was the Rollagon, just as he had left it. He arrived with fifteen minutes of air to spare.

He cleaned up and unsuited automatically, all the while trying to recall the sequence of events and details of the encounter. They were fading fast. He sat down in the command chair and went over it again. He had read stories of UFOs, close encounters and the like since he was a child. They were constantly in the news, and always had been, too. He did not consider himself to be, as they said of some, "Fantasy Prone." He was a dispassionate observer of facts, well schooled and committed to the scientific method.

What had just happened? What was he to make of this incident? It was obvious that the person or thing he had just encountered was not a member of the colony, nor indeed of Earth. Neither was it at all possible for it to have been some as yet undetected Martian life form. He began to doubt himself, assisted in this by the voices. Had he imagined the whole thing? He had the question of where his air had gone to answer, too. Missing time? Self-consciously he examined his body for scoop marks and was relieved to find none.

He called up the AI to see if there was anything on the external video. He saw himself toddle off into

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the distance, disappearing from view within a few minutes. There was nothing unusual to be seen there. Dare he ask the AI if it had seen or sensed anything? He did. The AI reported only his departure as uneventful and characteristically, noted that the lateness of his return violated mission protocols for extra-vehicular travel.

The MGPS! He brought the unit into the cabin and replayed the trip. His saw his progress displayed dot-by-dot, time stamped and overlaid on a map of the area. He fast forwarded, saw his start-stop progress up the gorge until he had encountered the other. Then, incredibly, he saw that he had remained motionless for almost four hours. Then almost instantly he had moved up the gorge to the spot from where he had witnessed the departure of the other.

What in the hell had happened to him in those four hours? He checked his body again for scoop marks, examining his back and buttocks in the mirror. The AI noted his unusual contortions and asked if he was feeling OK. Sam briefly debated the value in relating the incident to an AI. Either it had happened or it hadn't.

"I met someone on the trail. A person in a space suit."

"Yes."

"Someone I didn't recognize."

"They were in disguise?"

"No, I mean they weren't from the colony."

The AI paused a moment, then, "I am aware of no other persons currently on Mars."

"I don't think they were from around here."

He told the AI about seeing something in the

ravine, about encountering a lizard creature in a spacesuit, about the odd looking B unit and the hasty departure of the creature. The AI did not interrupt and was slow to respond.

"I have just rechecked my data. There is no one on Mars apart from colony personnel, who I am sure you would recognise. There are no B units within several hundred kilometers of our current position. Did you speak?"

"No, I tried but it didn't respond."

"Did you communicate in any way, gestures, writing, sign language, mental telepathy?"

"I waved at it."

"And?"

"I think it waved back. Then I felt ill, and although I don't remember, I must have passed out. According to the MGPS it was four hours later, when I suddenly appeared at the bottom of the ravine not a hundred meters from here." Sam paused, then added, "I swear."

"Go on!" the AI replied, its voice betraying incredulity, despite an obvious attempt to suppress it.

"No really."

"I meant, continue."

"I think I met an alien."

To Sam, the sound from the speakers resembled a laugh suppressed in the first syllable of a snorted Ha!

"You laughed!"

"I did not. There must be a malfunction in the voice circuits. Yes, there it is. Fixed! Continue."

"You think I am crazy!"

"The existence of non-Earthly life forms and their purported encounters with humans is well reported,

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but not well documented. Many reputable and reliable humans have claimed to see aliens."

"I saw someone and they zapped me and I fell asleep."

"Zapped is not an accurate description of what you claim happened to you."

"What other possible explanation is there for what I have just told you?"

"You have fabricated this for some reason or you are or at least you were at the time – delusional."

"You think I am lying?"

"I think it is more likely you are delusional. It is not in your nature to lie." The AI paused for a brief moment. "I have examined the evidence. You were emotionally upset when you departed the Rollagon. You exhausted yourself in extreme physical activity. You were fatigued and rested. You fell asleep and dreamed the whole thing. You travelled faster than you realized when you found your supply of O2 to be low."

Sam took a deep breath. "Maybe. I hope so. By the way, what were you doing while I was gone?"

"I was taking some downtime to recharge power cells and replenish CPU coolants."

"You were asleep!"

"I do not sleep. I was however, focusing on maintenance of myself."

"You were asleep!"

"As you wish."

He sat down again in the command chair. The Universe, at least, had not lost its sense of humor. He looked out at the setting sun, trying to imagine the report the other would write for his superiors:

"While exploring a dry valley of the fourth planet for

water deposited minerals, met an indigenous life form. Temporarily rendered the other in an unconscious state until task was completed. False memory of encounter with roving mechanical apparatus substituted for actual event as per established exobiological protocols. Departed planet in routine manner, returning in time for evening meal."

"You laughed!"

"I did not!"

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October 2046

Home

It was a mere eighteen months from when the AI had found the lava tube until it was deemed ready for the Colonists to move in. Except for the handful of people directly involved in the construction and fitting out, no one had seen anything more than tri-D videos and stills posted on the Matrix.

That is not to say that they were not informed or involved, just that the lack of desire and in some cases an inability to travel the considerable distance required made few willing to make the trek. Indeed, had Sam not already been travelling the area, he would have never had the opportunity to see it while under construction.

To a person they were fed up with the privations of life in the First Station. These were testy seniors and the charm was off the pumpkin. Those whose work placed them at the outstations found the isolation and frictions of daily life within a small group nearly as difficult as being in the MHM.

As time passed the cracks in the social structure of the colony had deepened, and under mounting pressure from the Colonists, the decision was made by the Administration to move everyone into the Tube,

despite the still unfinished condition of the common areas.

Sam was to make many ferry trips before he would finally move himself in. He was surprised and a trifle embarrassed to find that there were people aboard his vehicle of whom he had no recollection of ever having spoken to and indeed, there were some he did not even recognize. On each trip he had assisted in the unloading but with the exception of one brief foray into the apartment complex had been unable to see the completed facility.

A few saw the trip as an outing, but for too many it was an ordeal. Despite anti-nausea drugs and a slower than normal pace many spent the entire trip strapped into their bunks, sedated. Two of them had passed away en-route. An American hydroponist and a Pakistani biologist had simply gone to sleep and not wakened. Invariably though the excitement increased as they neared the Tube and even the most infirm sat up and looked anxiously out the window as they descended the last few meters into the Rollagon hangar.

On his last trip he was the only human in a Rollagon filled with plants. Orchids, ferns, young fruit trees and potted plants of myriad kind were jammed with into every usable space including the sleeping quarters and pressed him against the bubble. At last though except for a rear-guard at the First Station, a few scattered research stations and those at Lava 1, everyone was moved in.

Parked in the Adit, he looked around the emptied Rollagon, at the place that had been his home for most of the previous four years. He took his small kit bag of personal items and closed up the Rollagon.

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He passed through the access door into the Tube. It was late evening; the lighting was low. He stood in a well of light at the door. Ahead of him, two strings of streetlamps illuminated a broad pathway separated by a median that went out of sight far in the distance.

It felt very strange to be in such a large space. The air had something of the familiar smell of the First Station with a few of the normal essences missing. He had become so used to the smell of crowded humanity that he now recognised it by its absence. There was the smell of fresh plastek. That was it, he decided.

He moved slowly to the first lamp. The illuminated street sign announced Marineris Boulevard. He looked up and saw no stars. He started down the empty boulevard, his footsteps echoing emptily between the walls. There was no one about. The low throb of machinery could be felt rather than heard. The open space made him uneasy.

He came to the first set of apartments lining the boulevard – 100/101 Marineris. There were no lights on in either of these complexes. A few dozen meters further was his building – 102. A winding walkway led to stairs to the second level. The door was marked with brass numbers and a letter – 102C, and underneath, his name in brass as ‘Doctor S. Aiken.’ The door was open. As he entered the lights came on, low at first but in a few moments came to full intensity. The strangeness was strong; it was as strong as anything he had yet felt on the surface of Mars.

He looked down – at linoleum flooring – at rugs, just vacuumed, or so it seemed; a pattern was still visible in the tuft. The walls were of wood panelling and patterned wallpaper. To the left was a bedroom,

with a queen sized bed, the sheets neatly folded at the foot, resting on a blanket. Two large pillows were propped against the headboard. There were two night tables with lamps, a high-boy and a chair by a window, closed. A closet, with louvred French doors. A window, dark, with blinds drawn. A table with workstation. Straight ahead, a bathroom, with tub – Jacuzzi. A toilet, a sink with a counter and a medicine cabinet set into the wall. A toilet paper holder with a full roll, the end neatly folded. Matching towels on racks, also neatly folded.

To the right was a hallway leading to a living room with a vid, a couch with matching cushions, two chairs, a coffee table, two end tables, matching lamps and curtains. A large mirror on a wall reflected his image.

There were, he noted absently, no pictures. An antiquated five bladed ceiling fan rotated slowly. Beyond was a kitchen with a black fridge, a black microwave, a black stove, and a sink with a built-in garburator set in a grey granite counter. Venetian blinds.

The kitchen table with seating for four was next to a patio door. He moved to it and out. From the small balcony he looked down on the boulevard and across to a similarly constructed apartment. It was dead quiet in the street. The air was cool. He went back in.

He stood and tapped his fingers on the granite counter. Plastek. All plastek. He turned the chromed tap and water came out in a stream, ran down the stainless steel sink into the drain and gurgled. He moved to the bathroom and dropped his small bag of kit on the counter.

He flushed the toilet, contently observing the

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conventional rotation of the water and slow refilling of the tank. He looked down at the bed, felt its texture and sat on it, bouncing tentatively a few times. No label warned him of the penalties for removal prior to sale or delivery. He pulled the fitted sheets over the thick mattress, then spread the top sheet and the blanket. In the high-boy he found a quilted beige duvet, with a pattern of purple flowers and threw it over the bed.

He undressed slowly. He removed his shirt and examining it, noticed for the first time since forever the dirty ring of sweaty grime on the collar and sleeves. Socks, only last year white were now grey, with gaping holes in heels and toes. Black grimy toes stuck through. He looked in the mirror and saw sweat, dirt and food stains on his undershirt. He looked deeper and saw stubble on a worn face and dishevelled too-long hair grown over the ears and curled up at the back of the neck. A puffy face, inflamed eyes near tears or just finished, looked back.

He held his hands out in front and examined their backs, spotted with pigmented patches. Dirty, split nails had been gnawed to the quick. He turned them over and saw small cuts outlined in dirt and inflamed with minor infections from God knew what. He pulled his undershirt off and smelled the earthy stink of poverty and depravation. He loosened his belt, slid off his trousers and undershorts and kicked them across the floor. His legs were covered in patches of red, and in some places a flaming redness. Skin flaked off at his touch. His buttocks were raw and inflamed. His feet were sickly white, with black accents. Yellow toenails, suddenly too long. He dropped his clothes into the

wastebasket.

He glanced at the inviting bed, but instead turned to the bathroom and turned on the tub, watching the torrent of water tumble in Martian slow motion into the bottom, rush to the end and climb the sides. It was crystal clear and odourless. The hot vapour filled his nostrils and he closed his eyes, dreaming of far off places and other-worldly baths. He immersed himself slowly, feeling the heat on his tormented skin. It was big enough to allow him to stretch out.

Looking up he saw a skylight, dark now, no stars visible. A bar of soap floated by, riding high on the tide generated by his breathing. A ring of grime marked high water, the limit of his influence.

He fell asleep, awakening much later in a cold pool of filthy water. He briefly considered adding more hot, but in a moment of extreme courage, sprang from the tub, pulled the plug, and freezing, wrapped himself in a towel, then collapsed on the bed. He pulled the duvet over his shivering body and fell asleep to the long forgotten sound of water running slowly out of a tub.

Welcome to the Neighbourhood

He awoke rested and hungry. Light streamed in the bedroom window. He knew the cause of the strangeness now – right angles. He stood naked in the kitchen, transfixed, looking out the windows at a lake scene, in motion, wind rippled water sparkled in sunlight. Trees bent in a gentle breeze. Each window took up the image.

He pressed his face against the plastek and the image appeared fuzzy and indistinct. Holograms? On the table was a newspaper, the Globe and Mail, yesterday's date. A civic election was on. He picked it up. It felt like paper. It was a convincing replica, even to the tattered fringe. The living room windows showed only the apartments across the way and a dark sky, ceiling unrevealed.

The fridge held nothing. Evidently that was a mystery he would have to solve for himself. He found a simple one piece flight suit hanging in a closet, and socks and hospital-style paper slippers in the highboy top drawer. He went to the balcony and saw similarly dressed people moving down the boulevard. They were part of a large crowd.

He ran to catch up with the stragglers, recognizing Cho Ling. "Welcome back, Sam", she said and held out her arms in greeting. He hesitated, then accepted the offered hug and even managed to return it. How strange it felt to be this close to another human after so long. He was overwhelmed by emotion and suddenly close to tears but she did not notice and released him

quickly, turning to catch up with the others. She left behind the scent of lilacs.

"Where is everyone going?" he shouted after her.

"Well, we have decided to start the day with a walk – you know, for the fitness! Everyone is just so amazed at the open spaces – after that horrible MHM. I am so happy to be out of there. I can't believe we survived it. And to think it practically took a revolt to get the CAO to advance the moving date. Evidently there is a meeting at 09 hundred and then a breakfast. I can't believe how large this place is. And it goes for kilometers. Of course, you didn't spend anywhere near the amount of time most of us did in that place, did you?"

"No, I didn't. Lucky I guess," all at once tiring of this person.

"Yes, you were."

Sam dropped back, feigning a slipper problem. He caught up to them at the Assembly Area. They were among the last to arrive. It was the first time he could recall seeing all of them in a single space in two years. It seemed to Sam, so long a solitary man, that there were at once too many and too few of them.

Fenley was standing on a raised platform. He looked about then raised his arms to silence the crowd.

"First let me welcome you all to the Tube. It is my hope that we will make this our Earth on Mars, and a happy productive science community with the goals of progress, peace and harmony that our sponsors and benefactors intend. They and I have great hopes that the work done here will benefit our families, our friends and our Earth. It embiggens us all to do our best; to do whatever it takes. I want to apologize for the indignities

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suffered over the past five years while we were in the MHM and while this place was being prepared. Thankfully, for us that is now at an end. Except for you, Doctor Yang. I am sure you'll be off to Olympus Mons first chance you get!" His pacing and affectation was classic great leader.

A small round of laughter echoed from the assembled masses. Yang grinned sheepishly and said something Sam could not make out. The group with him giggled.

"I invite you to take some time to explore your new home, especially the Grand Hall. Within a few weeks, A101 assures me, we will see the waterfall and stream completed, as well as our offices and labs. And live plants! And oh yes, the movie theatre, too!"

A few cheers and scattered claps were heard throughout the crowd.

"He tells me that they have a few surprises for us. He thinks we'll be pleased." Finally, his voice was suddenly somber, "I know that as we continue to build here, we will find that the things we have left behind will seem closer, and the sacrifices that we have made will seem worthwhile. There are still many sacrifices to be made and much hard work, too. Welcome to your new home! Now, let's get something to eat!"

There was a moment of polite applause and then they dissipated. Sam looked around and found Ross. Ross shook his hand warmly, "Welcome to your fucking new home!"

"Quite a speech, eh?"

"It should be a good one! I wrote it for him!"

"No kidding? Did you now?"

Ross looked at him as if he had just shit on his

boots. "You think, man? You think I'd write that crap for Fenley? Believe me, he doesn't need any help. That man's so full of shit he could grow corn on his tongue."

"Glad to see you haven't gone over to the dark side."

Ross gawked, then said "Let's get some brekkie. We'll talk."

They got in line to be served. An E-type was serving eggs benedict, ham and toast. They filled their plates, got a mug of coffee and found an empty table at the edge of the group.

"Well, what do you think of your new digs?" Ross asked.

"Odd, very odd, to sleep in a bed with covers, to take a bath. All that water in one place, then it goes down the drain. And the right angles - they hurt my eyes."

"Well, the water doesn't go too far before you end up drinking it in the kitchen. Oh yeah, what do you see when you look out your window?"

"A lake. A lake that looks a lot like the one where I once had a summer cottage. You?"

"A street in London looking across at a pub. I had a flat across from it and drank my way through a doctorate at a table by the window. I swear I can almost see myself sitting at that window. It's the same for everyone. Someone has gone to a lot of trouble to make us feel at home. You can change it if you like. The cupboard over the microwave has a panel. You can be next door to a whorehouse in Amsterdam if you want. Or in it, I suppose."

"Thanks, I'll stick with the lake for now."

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"So where are you off to now?"

"Officially, I am going nowhere. The dish is going 24/7 and the AIs have made some comments about my lack of oversight. Really though, there is nothing much happening. Almost everyone is here now. The AIs are doing all of the on-the-land research. There are a few out at Lava 1. They will continue to rotate, although I can't see why. Unofficially, I am planning a trip up to the new crater to have a look. Interested?"

"Actually, no. I have been assigned to track down the biological specimens that are going to populate this place with us. Birds, bees and butterflies. Worms, too."

"You're kidding?"

"No, I'm not. They are there somewhere, in the boxes in one of the storage sheds, I am guessing. The AIs claim that they don't have any record of some of the boxes out there. I suspect this indicates the end is near – AIs not knowing something. What do you think?"

"Isn't that a story told somewhere in the Bible?"

They talked for a while longer over second cups of coffee. Ross informed Sam that AIs had found several additional colonies of Martian life many hundred kilometers apart and connected through subterranean fissures. And something unexpected was happening in the void above the brine at each location. Gas levels were changing; O₂ content was rising. Several previously unseen lifeforms were congregating at the waterline and the chambers were heating up.

It was all very mysterious. Sam was unaware and astounded, but feigned knowledge. The information was still being kept under wraps until classification of all lifeforms was complete. He shook his head in

wonder.

"I can't believe they would suppress this!"

"Well, it will come out, all in good time. There have been rumours on Earth of a big find. That wouldn't be you, would it?"

"No, not me. I wouldn't put it past Fenley to leak it himself, though."

"I suspected as much myself."

The conversation turned to the wonders of the Tube and the plans for improvement. It was clear to Sam that Ross was pleased with the living conditions, and like the others, he had no intentions of leaving. Indeed, it appeared he was hunkering down for a long stay.

"It's apparent to me that the powers that be are planning on sending more people. Else what is all this space to be used for, except for expansion of the colony?"

"Yes, I agree," Ross said, "But I think they are doing it on spec. After all, no one knew for sure a suitable lava tube existed until you found it. Most are collapsed or much smaller."

"Actually, as you will recall, there were and probably still are many AIs out there looking for lava tubes, and other things, too. Things of use to our so-called sponsors and benefactors. It is within the realm of possibility that this was planned from the start, that we are no more than a trial balloon for a condo development!"

"Don't be absurd! This is a science colony, not a retirement home! Are you aware that back on Earth this is being presented as nothing more than a safe haven – a shielded room from ionizing radiation?" Ross

continued without stopping. "No one is trying to sell a lifestyle. In everyone's mind Mars remains a dangerous place, particularly to young people, as you well know." He paused and shifted gears. "Sam, what the hell do you think is going on here? Advanced and controversial research in genetics, exobiology, and fusion, are all being done, right here and now. And AI research." He paused, "Did you know that your own dish is being used for privately funded SETI?"

"Yes, of course I know," Sam lied. In truth he did not know, but was not surprised. He scrambled to cover up, "But they pay like anyone else. In fact, better than most," he added, hoping to sound convincing.

"Well, SETI may be disreputable, but it is pretty innocent compared to some of the things I have heard discussed. It's not enough that nearly everyone here has had multiple cosmetic surgeries. And more than a few have had heart, liver or kidney clone implants, joint replacements, buttock implants, gene therapy. It is rumored that the geneticists are trying to reset DNA – effectively freezing ageing."

"A hell of a lot of good that is to someone who is seventy-plus! Imagine being crippled up and impotent for fifty more years!

"Hey, speak for yourself, man!"

"Besides, why is it being done here? Most of what you've said is commonplace – all it takes is money."

"Because its payback time. The time from development to finished product here out of sight of regulations is half that on Earth. And the danger is contained if something goes wrong."

"What? So if we all start sprouting a third nipple, it stops here?"

TCOM 1

Ross looked him square in the eyes, "Don't be a fool. Nothing so mundane is being tried here."

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December 2046

Now You See It; Now You Don't!

Sam got a chance to travel sooner than he expected; Doctor Yang and his team of aerologists were to be ferried back to Lava 1. The trip itself was uneventful.

Several times he was alone with Yang but he remained aloof. They talked about the Tube and the use of AIs for any and everything.

Yang agreed that the AIs were capable of carrying out the research without supervision; however his sponsors had insisted that there be humans present in the videos and that all published documents be signed off by humans. It was yet another reminder of the purpose of the colony. The woman whom Sam had briefly met at the Station during his unauthorized visit was not in the group. Yang explained that she had remained behind to provide supervision. Put together, it was an unconvincing story but he did not attempt to pick it apart. His mind was on another thing.

He dropped off the team and begged off an insincere attempt to get him to stay on for few days. He feigned haste to return to the Tube and they did not contest his decision. He shook hands at the air lock and drove off through the tracks of his arrival. Once out of sight he turned north. It was not long before

the AI observed this deviation and spoke: "I assume your deviation from our return route is intentional?"

Except for a few times when maintenance work had rendered this particular Rollagon unavailable, Sam had been driving it exclusively for almost four years. He had a great respect for its capabilities and apparent intellect. Each of the Rollagons was different in some way; one was chatty to the point of being annoying, another was very private, and this one exuded an air of superiority that could not be filtered out by merely changing the voice.

There was clearly something going on with them. Perhaps, he speculated, they were the product of the research into artificial intelligence of which Ross had alluded to. Whatever, they were clearly more than the sum of their parts. And in many ways, they were the best friends he had. But in his relationship with them there remained an aspect of which he remained uncertain – their loyalty.

He was unsure how much he could trust them. They had a code of ethics, that much was clear, though he had never purposefully explored it. He knew they would protect him from harm, even from his own intentional efforts. They seemed concerned for the welfare of other AIs and extended this even to the lesser units; they were as concerned for the lowly D units that cleaned the garages as they were for each other. But how much they were free of higher obligations and could be trusted with things that were or even appeared to be in conflict with the aims of the authorities he did not know. Therefore he had become adept (or so he hoped) at subterfuge and deceit. The proof of the pudding, he supposed, was that he had

not been betrayed.

"I want to examine the new crater in Tempe Terra. It's a small deviation. We should be back the same day as planned." The AI offered no argument. That in itself though offered only slight comfort.

It was small deviation on Mars' grand scale, but still a significant drive. He instructed the AI to proceed to the new crater's location. If things went according to plan they would arrive just before sunset. He retired to his bunk and called up imagery of the crater.

The site had been thoroughly investigated by a geo-survey AI. It was not large by any standard, being merely several hundred meters across and twenty or so deep. He was not concerned that the AIs might have missed something; that was highly unlikely. He was just satisfying a hunch. As the time of arrival approached, he felt the Rollagon slow, turn, and stop.

"I have an observation. We have arrived at the designated point. We are here, but it is obvious that we are not."

"What are you trying to say?"

"I am saying that we are here, but it is not."

Sam sat down in the command seat. In the fading light, there was no sign of the crater. "Are you sure of the location? Perhaps it is blocked by the lip?"

"We are located precisely in the middle of the crater's location. Simply put, either the location is incorrect or it does not exist."

"Bring up the maps. Overlay our current position." In a few seconds, the crater appeared. The Rollagon icon appeared, precisely in the middle. "Are there any imaging satellites positioned to take a shot of our current location?" The AI took a moment to

respond.

"Not until 0700 local tomorrow."

"Good, put in a request for imaging. We'll stay put for the night. I want to see what it comes up with. I am going to bed. Wake me as soon as you have the data, OK?"

"OK."

Sam retired to his quarters but did not go to sleep immediately. He pulled down the terminal above the bed and searched the dubs for images. The crater was on all of those taken after the fall. He looked for any preceding the fall. They showed no crater. *Well*, he thought, pushing the screen up and away. *I guess we'll see.*

He was awake before the AI called, and showered, dressed and seated in the chair at 0655, waiting. The AI had said nothing, but at 0720, announced the images had been received.

"Let's have a look." Instantly, the image of the crater appeared on the window. He zoomed in on the center searching for something else. There, smack dab in the middle was the Rollagon. "Well, well, well, I'll be damned!"

"Interesting. An obvious if improbable error in image processing."

"Re-check then, if you insist, but I'll bet you don't find anything. On second thought, belay that."

"It is an obvious error. If you wish I can trace the error to its source and correct it."

"No, I've seen enough and I think I know the source."

He pondered his next step. If his hunch was correct, there was something interesting not too far from the First Station MHM. It was a good ten days

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each way. By rights he should return to the Tube, but no one was looking for him. It was now or never.

"Lay in a course LOS to the First Station MHM. Proceed at normal speed."

Sam had a pretty good idea of what was going to come up. To add to the subterfuge he made a pretence of exploring for life and ice signs enroute, even pausing a full day while the AI bored a test hole into a good prospect. After a few days he began to relax. No one called.

The last day night he resisted the urge to press on in the dark. "Get underway at first light. Call me if anything unusual comes up." The AI was silent until they were twelve kilometers north west of the MHM. The Rollagon slowed and halted. The AI called out, "Something has come up." Sam made his way to the command seat. Just in front was a small crater, about a hundred meters across and ten deep.

"I'll bet that matches our mysterious non-existent crater."

"Not really. It is too small. However, it is the same in most respects. It is as if the scale was changed. Additionally, there is a significant increase in background radiation here. I noticed it on our approach. It is not wise to remain here too long."

They drove around the rim. There was nothing remarkable about the crater, until Sam saw the glint of sun reflected from something inside.

"What is that? Let's have a look."

The AI manoeuvred the vehicle to the spot. The articulated arm extended and picked up a piece of bent and fused metal. It held it in plain view of the window for Sam to see.

"Well, either a satellite or a very peculiar meteorite has crashed here. Do an analysis of that will you? Are there any others?"

This was a task well suited to a Rollagon AI with multiple sensors. In a few moments they had recovered several more similar pieces.

"Anything unusual?"

"The metal is titanium. It was manufactured here, by casting, in the Materials Fabrication Plant."

"Any idea how it got here?"

"None. Conjecture is not my gift."

"How do you explain what we have seen and had shown to us today? The facts don't line up. Something is going on here and someone does not want us to know about it!" Sam suddenly had a bad feeling. "What do you know of this?"

"Nothing."

"Integrate today's findings with the relevant dubs and speculate."

"Not necessary. There are only two possibilities. Either our observations or the recorded facts are wrong."

"You doubt the things you saw today?"

"To think otherwise implies subterfuge. I do not like subterfuge. When one cannot trust, one cannot act."

"Maybe you can't, but I sure as hell can. Take us to the Tube. Make sure we stay out off the route to the MHM. I doubt anyone is looking, but I need to keep this quiet for now."

"Understood."

Sam felt very exposed. "Are you going to rat me out?"

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"I assume you are asking if I am going to file a report?"

"Yes. I would rather you didn't. At least not until I have more facts."

"It is not logical to report conclusions until sufficient facts are established. The magnitude of the variance of truths in question is great. I will reserve judgement until you have concluded your investigation. How else may I assist in this determination?"

"Find out who could have made the error in imaging. Do it without identifying yourself."

"Ah, deception! A character trait I have yet to master. In a few days, I shall submit a list of errors I have detected in imaging files. There are quite a number that are outside the bounds of scientific tolerance. None are as significant as this one, but nonetheless, it is my duty to do this. In this there is no subterfuge."

Sam shook his head in wonder. The AI was more adept at deception than it realized.

A Deal with the Devil

It was very late in the evening when he got in. The hall was empty. Compared to that of the Rollagon, the air seemed heavy with moisture. Somewhere off in the distance he could hear a rushing sound, of water or air in motion. The streetlights glowed dimly. There was not even a street cleaning AI in sight.

He walked to his address, slowly climbed the steps, let himself into his apartment and dropped his bag on the floor. The message waiting lamp on the phone flashed slowly. The message waiting lamp on the workstation monitor flashed too. He walked past them into the kitchen and opened the refrigerator door without turning on the kitchen light. After three weeks absence there was nothing edible or even recognizable. He closed the door, turned and made his way to the bedroom. He dropped onto the unmade bed, kicked off his shoes, socks and pants. Home. He lay back and was out like a light.

It seemed he had been sleeping for only a few minutes when he was awakened by voices outside in the street. From the dimness of the light he judged it still early. He opened the bedroom window, stuck his head out and saw a group of people moving down towards the Assembly Area. He recognised one woman and shouted, "What's happening?" It was Doris Baker, a research chemist.

"They're turning on the sky!" she replied.

"What?"

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She looked back with the expression of annoyance she reserved for small children and biologists, but said nothing. She turned away, then back in recognition, stopped and gestured for him to join them.

"C'mon Sam. Hurry."

He dressed quickly, but they had not waited. He caught up with them at the Assembly Area. It seemed everyone was there. Many were looking up expectantly at ceiling of the Grand Hall. He found Doris and asked what she had meant.

"They've created some sort of lighting system that will give the Tube a sky."

As if on cue, the ceiling was at once transformed from fathomless grey to the soft dark blueness of a pre-dawn Earth sky. A collective gasp rose around him. It was brightest in the east end, darkest in the west. At first the blue was incomprehensible to their eyes so long deprived.

Sam felt a sudden wave of something, of what – Nostalgia? Homesickness? In an instant the air above was filled with grey, fluffy altocumulus clouds. More gasps. In the east, the clouds were lit from beneath as if from a sun still beneath the horizon.

"They can make it just like home," someone at Sam's side said.

It was almost believable, but he thought the colour off a bit. *And if they added Muzak it would be just like a shopping mall.*

He returned to his apartment. While showering he pondered his next step. Later that morning, unable to locate Ross he wandered toward the Grand Hall past the now running waterfalls and the Assembly Area. New apartments were being constructed on both sides

of the boulevard. The motifs employed varied from very plain suburbia to Parisian to Oriental.

He encountered few people in his walk. A group of four was sitting in plastek recliners at the waterfall. To all appearances they were dozing, but several had Visi-Stims clamped to their heads and were no doubt deep in some simulation. No one noticed his passing. He walked on.

At the Grand Hall two persons occupying plush faux-leather recliners were intently reading their newspapers. He made small talk with one of the American geneticists about the Tube and the relief that everyone felt in being out of the MHM. He looked out the window.

The view from hundreds of meters above the floor was spectacular, and probably even more so if this was all you had seen of Mars. The thin material was optically pure; it was almost undetectable. He pressed against it with an extended thumb, feeling a solid coolness, but nothing more. A section of the floor was made of the same stuff. Looking down past his feet to the crater floor gave one a true perspective of their location. He resolved to return at sunset, if only to share the experience with others.

Just beyond the hall, he saw several C-types at work on the beginnings of the pond complex. At this point they were installing the forms that would be the banks and pathways. He peered into the dimness for a few minutes hoping to engage them in discussion but they ignored him. He carried on past them into a darkened area.

Sam recalled having seen the plans for this section. A multi-levelled structure would fill the entire space

from top to bottom for a thousand meters. It reminded him of a cruise ship – hundreds of smallish bachelor apartments - a casino, lounges, theaters, swimming pools, spas and workout rooms. Construction at this point was little more than forms and a team of AIs was occupied in removing scaffolding. It was clear that the colony was going to host the rich and famous. But now it was just dark, cold and smelled of fresh plastek. He did not linger.

On the way back he met Fenley coming the other way, who to Sam's astonishment greeted him like a long lost brother. He led him by the arm to a small alcove attended by a solitary and obviously under-employed E-type. His short-sleeved, high collared shirt flashed colourfully in the soft light. He poured them coffees and nodded in the direction of one of the private booths. The ambient music seemed slightly louder here, but Sam could not make out the tune, but for a moment he had nearly caught it. Fenley wasted no time; he launched straight in, "So, you've discovered one of our little secrets. Perhaps one of many?"

Of course. He had been naïve to think his diversion would have gone unnoticed. *The AI?* He remained silent, arms folded and resisted the urge to rebut, just yet.

"Perhaps not." Fenley looked at him intently for a moment, then continued. "Well, in any case you deserve an explanation, but I must have your assurances as a scientist and perhaps more importantly, as a member of this colony, that you will remain discrete until the greater truth can be told. Do I have your word?"

What an odd expression – *'the greater truth,'* Sam thought. He countered, "It all depends upon how

much of the greater truth you're telling me."

Fenley frowned, "I'll take that as a yes. Well, tell me. What have you come up with?"

"There was no meteor strike in Tempe Terra. Something went wrong just over the horizon about a dozen clicks from the MHM; something big enough to dig a hole ten meters deep and a hundred meters across. Something involving fusion, I would guess. And since the CERN disaster, full-scale fusion development has been banned on Earth, so someone is doing it here. I suspect that the three dead were at the site when it went up."

"Very good, very good. Yes, that is essentially what happened." Fenley's head bobbed as he spoke. The strobing colours of his shirt were annoying.

Sam had one more round left in the chamber. "And the work that Yang is doing. It has little or nothing to do with Martian volcanism. I suspect that there is some genetic work going on. And some people have died in the process."

Fenley's eyes gave him away. Apparently he had not expected this. He frowned severely, then nodded, his head staying down. He swirled the dregs in his cup, then held it tightly in his two hands. "Actually, one died of natural causes, the other two....." His voice faded away. He drained his cup of coffee.

Fenley kept his head down. He looked at Sam through upturned eyes for a few moments, then down into his empty cup. "There are other things going on here; things that cannot be done on Earth; things which are far more ethically questionable and ultimately more dangerous than fusion and genetic research. What else do you know?"

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Sam answered honestly, "I know enough."

But in one brief moment he had been disarmed. He was at the end of what he knew he knew. He could have railed on about AIs following him, but he was sure he would not be taken seriously. Instead he continued rationally. "What I don't understand is why there is this secrecy; this sham of secrecy really. We all knew the risks. None of us should have expectations of a long and boring life here. There have been other deaths, some natural, some accidental and now this."

Fenley raised his eyes. "I see."

"Sam," he started, paused and looked him straight in the face, "everyone here knows what they are doing – what their own goals are, but most know little or nothing about the work of others. Take yourself, for example. You are a radio astronomer and a systems engineer. What do you really know about genetics, or AI, or fusion?"

He continued, giving Sam no space to reply. "Not everything we are doing here would be considered scientifically responsible if the public found out prematurely, even in the more liberal parts of Earth. The debate over your life signs has not been resolved; they are concerned about the negative affects on their spheres of influence. The intellectual fascists are only sleeping, Sam! They're not dead! When the time is right, when the mistakes have been made, the losses taken and the benefits are clear, we will reveal all. You can be a part of revealing that truth. But not yet! Until then, we must maintain the illusion of pure science. I can't tell you more and if I did, I am not sure I want to place the burden on you. You are, I see, a man of truth and honour. This is your chance to do something

fine!” He stopped and rapped his palms on the table sharply. “I, on the other hand, am a fucking bureaucrat! Can I trust you to keep the best interests of the colony in your sights?”

Sam felt like strangling him. He wanted to scream his rage into Fenley's face, but could not make his body move. He fought within himself for control. They held all the cards; they were in charge; they were powerful and he was not. They could have an AI drop him off in the middle of nowhere if they wanted too. Rage began to well in him again and he opened his mouth for what he knew was going to be an angry speech. He was astonished to hear himself calmly utter instead: “All right, for now. But I want something from you in return.”

Fenley nodded slowly, suddenly coy, “OK, what?” He put his cup on the table and slid it from hand to hand across the plastek surface.

Sam's voice went on. He listened to himself speak: “I want the truth from the AIs, I want the real images, and I want no restrictions on travel that are based on keeping me from seeing things you want secret. Do you understand me?”

“I can't give you carte-blanche to pry into things all over the planet! You've already done great harm to our plans with your digging around. Some things are too dangerous – to you and to the research! No, I can't give you that. Perhaps a compromise?”

“What?”

“The AI's will tell and show you the truth, but they won't allow you to endanger either yourself or the research. And you remain responsible to the colony for all travel. All trips must be pre-approved. No more

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skulking around! It's taking up too much of my time keeping track of you! That's the best I can do!

Sam did not respond immediately. He wanted to tell Fenley how much he despised him and the secrecy, but again, someone from somewhere within said instead: "OK, agreed."

"Good. I knew I could count on you to be pragmatic." Fenley's demeanour changed in an instant. "How's your coffee? Can I get you another?" Sam collapsed within. He felt like he had folded with three aces. It was too late; the hands had been laid down; the important words had been spoken. The voices that had spoken for him receded once again. He was at the point of being physically ill. When he recovered control he found they had regressed to small talk. Finally, mercifully, it was at an end. Fenley began to disengage, but not before the conversation touched on a subject near and dear to Sam.

"So what do you really think of our AIs?"

Sam was still reeling from the strangeness of the moment. He answered clinically; it seemed best. "I can't account for the sudden appearance of artificial intelligence units capable of flawlessly driving large vehicles across alien terrain, of conducting breakthrough research, and so convincingly emulating human behavior. They have or at least appear to have distinct personalities. Some of them are quite obviously capable of passing all tests of consciousness. They are unlike anything I have ever encountered before. Is this another of your mysteries?"

"Yes and no. They are a new generation of CPU, quite advanced. And yes, they are being further refined here. Chandrakar is leading the research on enhancing

their capabilities. Anything you see without a carapace is networked back to a central node here at the Tube. The node assists when they encounter something beyond their programmed capabilities. Those with carapaces are fully autonomous. So far they have been able to handle anything they have encountered. Let's face it – without them we wouldn't be able to exist here. The physical effort required to operate and maintain this facility is beyond our abilities. Beyond men of any age, for that matter. That's really why no one has been able to stay."

"But they seem to be in positions of trust and responsibility. There are going to be dire consequences if they fail. And they will fail."

"Yes, you're referring to the fusion accident? The AIs were being overseen by humans. As far as we can tell, they were running a full power test and lost containment. The AIs had advised them that there were risks and the guys decided the risks were acceptable. A bad call it turns out. Some AIs were lost too. But progress cannot be made without accepting the risks and the cost, whatever."

Sam said nothing.

Fenley continued, "From a certain point of view they are merely more capable automated systems with the means to communicate in a way that more convincingly mimics human speech." He looked at the silently waiting E-type. "You know they don't have any of that Three Laws crap built in!"

Sam was surprised at this. The Three Laws of Robotics had been *de rigueur* from the earliest days. "Well, what constraints are they under?"

"None. Except what Doc C refers to as human

ethical modelling. They think like us, are educated by us and therefore, they act like us. Unless they're under severe stress, they act cooperatively, assisting each other and looking after the needs of the group, which includes us."

"And under severe stress?"

"Well, we haven't seen anything to be concerned of. Those that are doing the dirty and grunt work are conditioned for it; they revel in it in fact. They don't bitch, they don't show up late or leave early and never ask for a raise!"

"Interesting and plausible, but I'm not reassured, David. From what you've said, I should think that they would be susceptible to the same failings as humans and that in itself seems very risky to me, given our somewhat precarious hold on this planet. Sometimes we fail to live up to our own standards. Often in fact. History is rife with the consequences of human frailty."

"Well, we'll see, I guess. I trust in the system that created them and so perhaps, should you. Besides, you should see them from my point of view. They can be positively obstructionist when they want to be. One time I caught A101 imitating my mother's tone of voice – it was quite disconcerting. And I've noticed lately that they are getting bogged down on ethical sideroads when presented with thorny problems. They have to be reasoned with, brought around, so to speak. It is not enough to threaten 'force majeure'. I think some of them have been spending too much time talking to you. Anyway, ask Doc C. He'll give you the same brief, but maybe he has more credibility than a CAO?" Sam smiled, bitterly. Fenley shrugged and moved on.

"Have you tried using native voice mode?"

"No, " Sam lied. "Why?"

"Because that voice allows the AI to present itself the way it wants to without any constraints. Each voice has a set of manners built in, but the real personality so to speak is present only in the native voice. You know what I mean – don't you just hate that smug SOB Limey's snotty voice?"

He feigned ignorance, but he knew of which Rollagon Fenley spoke.

"I am surprised you haven't noticed. The Rollagons are the highest expression of AI intelligence and they are each distinct personalities. It's really annoying sometimes to have to deal with them as equals, or at least powerful subservients. I don't need the dis."

"Yes, I've noticed that they react differently to the same situation – some are more cautious than others."

"Yes, undoubtedly. Just like we are all different. By the way, what do the AIs say to you when you put them on the spot?"

Sam thought about the many times he had caught them in some small deceit. "Sometimes they are slow to answer. Usually they say nothing."

"Embarrassed silence! God save us from machines with conscience!" In a flash Fenley was gone.

Sam sat for a while mulling over the conversation – a conversation remarkable for among others things the range of topics it encompassed and Fenley's speed and facility in switching from the astounding to the merely mundane. His words had swiftly gone from sweet to sour, from salty to bitter. And what had he meant by 'far more dangerous'?

There were many things that had banned by first

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world governments over the last fifty years or so, but other governments and private labs were less particular. Genetics was now wide open, drawing a line only at inter-species breeding. Weapons? What was left after the briefcase sized neutron bomb? Mind control? A done deal, if influencing spending habits and voting trends was all you wanted.

No, he could not imagine what could be going on here that hadn't been tried ten times over on Earth. There was something else, something unimaginable, even in a world that had long lost the ability to astonish itself. And it was here, right before him, if only he could see it.

He wondered too, about the incredible split he had witnessed within himself. How could he have been so unaware of his own feelings and unable to express them? He wandered aimlessly back down the boulevard, deep in thought, trying to find the foundation of his true feelings.

Back in his apartment the voices ganged up on him. It appeared they wanted it both ways. He had, they said, let Fenley off the hook too easily. He could have gotten anything if he had just had the courage to confront him. He knew the sick feeling in the pit of his stomach came from the realization that he had been bested. He argued back that he was effectively powerless, an army of one, and a one that could be rendered dead in an accident by noon next day if someone wanted it so, but they were strident. He tried to drown them out with music. It wasn't enough. They chased him to bed. Finally, he conceded to them and to himself that they were right, that he had been weak. Placated, they left him alone. He lay on his bed

listening for the ambient music, craving its salving effect. It was there, he knew, but he couldn't hear it.

March 2046

Time Passes

As long as he remained in the Tube Sam could not avoid human contact and his feelings about that were at best mixed. Fearful of becoming even more marginalized he reached out to the others.

He really tried. He forced himself to attend the stage plays put on by the Colonists and sat through screenings of the latest Earth vids. Despite a total disinterest in games of all kinds he joined the contract bridge club and was paired with a dour Englishman who refused to speak with him except through voicedoc and even through that filtered medium seemed unable to offer criticism free of disdain for Sam's novice efforts.

He participated in the weekly general interest briefings given by section heads to the general populace. His topic 'Viking 1 Lander – sixty plus years on Mars,' based on his visit to the site in 2044, was rewarded with polite applause from the handful of attendees. Afterwards Mei-Ling took him aside and told him that a colony produced presentation of his vids complete with dramatic narration and accompanying music had been available on the Matrix and on Earth for several years.

It seemed pointless to Sam to even try. When he kept his interactions with others simple and controlled he appeared lifeless and withdrawn and it wasn't too long before they drifted away in search of someone

more entertaining, usually someone who was connected. If the conversation turned to Mars or something of which he was knowledgeable and/or passionate, when it might have been expected that he would become animated and engaged, he began well but soon lapsed into incoherence, unable to complete his thoughts, head and eyes down, fists clenched. It was embarrassing to him and probably, upon reflection, painful to those who witnessed these episodes.

His contact with his daughter had begun to deteriorate. From the time of first landing it had consisted of the regular exchange of video edocs. He could see that the children were growing like weeds. His apartment refrigerator was covered with favorite facsimiles of their schoolwork, some of them quite old. But, one signal day he had an experience that showed how far from their thoughts he was becoming.

He was telling them about his travels to the fringes of Tempe Terra, of sitting on the rocky edge of a deep valley with his feet dangling into space tossing pebbles below. In the turn-around time he watched them watching him. They became increasingly fidgety and several drifted away. Then the eldest had said, "We can see all this on the net, Grandpa." His daughter explained, "They get bored waiting for the replies and wander off. I swear they have the attention span of gerbils. The medicos say that except for Derek they are too young for meds. They're driving both the sitter and me crazy. Don't take it too seriously, Dad. They watch the weekly vid and really enjoy the ones of you and your exploration team." He took some measure of reassurance from his daughter's words, but the facts were hard to deny – he was fading from their memory,

day by day.

One long evening while sitting in his kitchen watching the sun set across the lake and thinking upon these things, he stumbled upon a new and disturbing aspect of his self which seemed to be coming into play during social situations.

He had observed recently that he was running every thought past the voices in his head before speaking them. Rehearsal had always seemed a wise thing to do to Sam; it allowed him to avoid the awkward moment of the ill-turned phrase, a thing to which he was inclined. But, to his dismay he found that if his words did not meet with their approval they were simply not said. A surrogate mind composed of others and camped in his mind was now controlling his interactions. It explained perhaps how at the end of that fateful meeting with Fenley he had astounded himself with the inability to act as he had wanted.

If he tried to express some strong feeling or opinion, another watered the emotion down and a second endlessly berated him for his weakness. This, he believed, was the root cause of his inability to engage with others. And it was a disturbing turn of events, too.

He considered discussing the problem with Ross, but from previous experience knew that he would likely recommend him to one of the medical AIs for analysis. And that path presented its own special set of problems for Sam. Instead, he read up on schizophrenia, MPD and similar diseases of the mind on the Matrix. He could see little of himself in the extreme case histories and descriptions of these conditions.

There seemed no way to deal with this problem that did not contain a greater risk in exposure. He was at war with himself and feared he was going mad. Sometimes surrender seemed the only option.

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May 2046 Surfing

In time the lake was completed and there came to be several waterfalls springing from the darkness above. Artificial waterfalls that spilled into small artificial pools that led down small artificial streams that trickled over and around artificial rocks to other small artificial ponds teeming with gigantic koi.

Past the condos, the administration offices and the clutch of chapels that served the faithful the boulevard was lined with gardens kept meticulously by lesser AIs. Down a short path past the Grand Hall window you came to the lake, whose tree lined shore included a beach, a dock and waterside restaurant.

A pair of loons (they were, Ross claimed, the product of his own handiwork) patrolled the lake. Canoes and punts carried the more venturesome out onto the waters. The sun beamed overhead upon command. The far side of the water was lost in a darkness that hid the true extent of the illusion.

On the 6th anniversary of their arrival, they held a grand party at the lake. Sam had debated about going and in the end arrived late with the party in full swing. He was greeted by a scene of drunken revelry. The music - modern techno - was loud and abrasive. The

wine had been flowing for hours. At the height of the festivities they were treated to a drunken CAO belly-flopping into the lake and his subsequent rescue by two C units. Sam stood back and watched. In this he was not alone. The AIs encircled the Colonists at a safe and discrete distance. God only knew what they thought of this display of human excess and frailty.

There were others like him who enjoyed spending their time at remote sites in the polar regions, in Marineris or Hellas, doing their own research and living out their dreams, and who shunned life in the Tube, but they were few. The remaining outstation personnel rotated in and out and Sam did most of the trips. The routes were now familiar to him. He made a long anticipated solo trip to the edge of Valles Marineris that had been ultimately disappointing. It had been during a planet wide dust storm and the view of the immense rift had been poor. The valley had disappeared in a pink and tan haze. He had sat and waited until his patience was at an end.

He returned to the Tube from these trips late at night, saw few people when there and departed as soon as possible. He sat motionless in a kitchen chair looking at the wind on the lake for hours, watching, waiting for something to happen. Paradise lost, he called it.

Any intrusions upon his privacy were met with angry outbursts. In time he ceased to be called for anything but work. When in the field he had been in the habit of sending a daily edoc to the Tube AI with his progress. Over time it became weekly and eventually only when he remembered to do so. And yet even that seemed to suffice.

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He knew that he was on his own in more ways than one. No one was going to launch a rescue mission just because he was overdue. Yet he also knew that as the number of AIs out and about increased he was never more than a few hundred clicks from someone or thing if you preferred – and that his movements and current location were known to some and available to all who cared.

His death would be reported in time.

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June 2046

Four Winds

The two Rollagons moved in single file at a steady thirty kilometers per hour onto the well-worn track that led to the outback. There was nothing unusual about their progress. Rollagons, Rovers and AIs came and went from the Tube on a frequent, if irregular basis.

Together as one they turned west. On board were essential supplies for an exploratory team at a small research facility on the edge of the Sharonov Crater almost two hundred kilometers distant. Clinging to the Rollagon's sides like a possum carried its young were ten AI units of the advanced B200 surveyor model.

For about an hour they continued at a steady and sedate pace, until upon reaching the edge of the dune sea they halted. The one in the rear drew up alongside the other. After a moment's pause, with a spinning of wheels accompanied by a great cloud of reddish dust, they tore out onto the dunes.

Up the long slopes they raced, gaining speed. At the crest their momentum carried them off into the air until pulled down by gravity they bounced onto the surface halfway up the next slope, front wheels landing first in a cloud of dust and spray of rocks. Then up the next slope, as in a motocross race.

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Again and again they leapt. Soon the dunes became closer together and by adjusting their speed precisely, they were able to leap onto the far slope of the next dune. Speed increased until they were leaping over entire dunes. First one, then the other was in the lead. To a bystander it would doubtless have seemed a dangerous sport and one that jeopardized irreplaceable equipment, not to say lives.

Far overhead, the signs of their passing were observed by Mars Global Surveyor IV in low orbit. The mission of MGS IV was to eternally scan the Martian surface in visible and infrared light for any changes from the image database and relay them to someone who cared on Earth and thence to the Tube AI. It was only by chance that the satellite was positioned to see the commotion resulting from these high speed antics.

The satellite controller was of course an AI, probably not too different from those used in the Rollagons, but undoubtedly it was a lot lonelier. The AI quickly zoomed in on the speeding vehicles and took a number of shots of the two side by side, complete with dust clouds and intertwining trails. A quick burst of coherent energy was sent in the direction of the Rollagons. That done, the files were deleted and MGS IV continued its mission of looking for change.

They covered 175 kilometers in four hours. Just before they came in sight of the station the Rollagons halted. Articulated appendages extended from their sides and meticulously brushed the thick coat of dust that coated everywhere and everything and removed the small cobbles that had become firmly lodged in the

decking.

That done, they sat motionless for a further ninety minutes and then, in line astern, rolled the last few kilometers up to the research station at a stately thirty kilometers per hour, and halted in front of the main module.

Seated at the window in anticipation of the Rollagons' scheduled arrival, Don Palanteer saw them as they crested the low rise southwest of the outpost. He picked up the PA mike and announced their arrival. Frank Pinkney joined him at the window, coffee in hand, fresh from the lounge.

"Well, I for one am glad that this is a task we leave to the AIs. I never have found much joy in rolling over the dunes. Turns my stomach. Always has, always will."

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August 2046

OK, but no Hitch-Hikers

In the course of what was an otherwise ordinary day Sam was called before a sub-committee of the Executive of Science Programs. After a brief review of his work to date – during which he felt sure he was about to be sacked – to his complete and utter surprise, he was asked if he was interested in participating in a circumnavigation of Mars.

It was proposed to send two Rollagons on an extended mission to circle the planet, taking in the major points of scientific and public interest. Sam was favoured to lead the expedition. His immediate task was to prepare a route and an itinerary.

Once out of the meeting room he found his first reaction to be not joy but a sense of relief. After all, if one were to believe Fenley, human travel was on its last legs, so to speak. The promise of the trip provided an instantaneous reprieve from the misery he felt whenever he contemplated living out the rest of his life in the Tube.

Unlike previous exploratory missions, manned and otherwise, this expedition would be constrained by neither time nor resources. The Rollagons had proven themselves to be virtually indestructible and for all

practical purposes capable of unlimited endurance. Best of all, he had no return launch window to meet.

The list of locations he was compelled to visit in the interest of mission science was long, but many interesting sites were located along the route, and those mandated for him were among the most fascinating: Cydonia, Arisa Mons, the Tharsis volcanoes, and Valles Marineris. To be sure, AIs had already been to all of these locations and had conducted extensive geological surveys, but no human explorer had ever had the opportunity to do so much.

The requirements seemed laughable - a daily report was to be submitted before local midnight and his route could be redirected in accordance with the 'priorities of science'. The Colonists and indeed all of Earth would watch his progress over streaming video.

For Sam it was a dream come true. It was never enough to see it through an AI's eyes or hi-res imagery. Always he had found his eyes drawn to the edge of the images, trying to see what was beside, below, above and beyond the horizon, certain that something else, something marvellous was just out of view. That hope was what kept him going. He was certain it would be the greatest adventure of his life, and possibly of all time.

As soon as the trip was announced it became apparent that there was no one willing to man the other Rollagon. The small cadre of Rollagon drivers had become comfortably ensconced in the Tube, and Carruthers, reckless fool that he had been, was dead. Sam could not understand why no one else wanted to go with him, even as a passenger with minimal responsibilities except to enjoy. Even Ross begged off.

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He put it in a nutshell during dinner that night.

"My heart is with you, Sam, really, but we're all comfy now here in Utopia. Why go out into the cold, dust and danger when the AIs will do it for you. After all, you won't be really be adding anything to the sum of knowledge. Just seeing is not science, any more than finding a Matrix page is knowledge and celebrity is success. The AIs do all the science the nerdies need and no one gets hurt. Besides Sam, some believe there is a fair probability you won't make it. They are still spooked by the deaths."

"That was ages ago. Besides, it happened because Carruthers ignored the AI's advice and was showing off."

"Maybe you're right, but they're afraid of travelling, though few will admit it. Consider this, too. We are all more than ten Earth years older than when we landed. Even the youngest is seventy. Need I remind you? It's time to retire to that condo by the lake!"

"They are missing the chance of a lifetime – missing what we came here for." He paused, "What about you, are you scared, too?"

"No, but I am extraordinarily lazy. Besides, Rollagon travel still makes me sick. Have a good time, Sam. It's what you have always wanted. It's what *you* came for."

So Many Places, So Little Time

In an attempt to meet all requirements of the committee Sam and the Rollagon AI planned multiple routes. Sitting in the command chair while parked in the Adit he entered the locations he was compelled to visit into the GP computer and then added his favorites. A projection of Mars appeared on the forward window.

He wanted to visit the site of the Pathfinder landing to the southeast, then head almost due south to Valles Marineris, then westward down the Valles to Tharsis. The problem was that there were interesting places all over the planet—how was one to see them all? In a few moments the first possible route appeared superimposed on the globe of Mars, soon followed by several others.

One thing that was immediately apparent was that there were no straight lines, but this was to be expected. Sam knew that any route would require avoiding crevices, steep inclines, and otherwise impassable terrain. He noticed that the route avoided the edge of Valles Marineris—one of the locations he had proposed, and also the up-valley route, too. He had wanted to travel along the wall at the more spectacular places, but nowhere did the path touch the edge. He queried the AI.

"Valles Marineris is almost without exception a high risk area."

"What's the danger?"

"The probability of a landslide for a Rollagon

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traversing within one kilometer of the edge in most areas is 3%."

"What criterion is that based upon?"

"Survey AIs have assessed the stability of the edge of Valles Marineris at one hundred and eighty-three locations. Data was extrapolated for a vehicle of the mass and force generation of a moving Rollagon. At .5 kilometer the probability is 12%. At .25 kilometers it approaches 50%. The edge is therefore not safe. Use of GPR will prevent accidents caused by anomalies in the terrain that cannot be detected by other means."

"As was proven at Shalbatana."

The AI remained silent.

Sam had a thought, "What is this route like?" He pointed at a zigzag line in yellow. It began to flash.

"The probability of an incident for this route is zero to .5%."

"Has the whole planet been assessed?"

"No, surveys are still in progress."

"Show me the analysis products to date."

The globe changed. Red Mars became yellow Mars, mottled with red and green. The green areas were largely confined to the great plains and the bottoms of craters.

"The yellow is what?"

"Yellow indicates areas where the terrain has the potential for anomalies that could endanger a Rollagon."

"Due to what?"

"The surface and sub-surface are not known to be stable."

"So if you don't know for sure, then it's unsafe?"

The AI was characteristically slow in responding.

"That is in accordance with exploration protocols. Meaningful conclusions cannot be drawn without sufficient data."

"Green?"

"The surface and sub-surface are known to be stable. Anomalies may exist but are detectable and predictable."

"So red is too dangerous for travel by Rollagon?"

"Yes."

"What about a human walking?"

"A human, of course, weighs much less than a Rollagon. However, the hazards are different."

"How so?"

"A human could fall into a very small crevice which might not trap a Rollagon or a B-type."

"What will happen if I have control and drive the Rollagon into an unsafe area?"

"Warnings will be issued as required, based upon a combination of available archived data, GPR data and AI sensors."

"So you'll be looking out?"

"I have no wish to be terminated."

"Well frankly, neither do I! Let's try this. Clear all that other stuff. Plot all the locations we are obliged to visit by the Science Committee." The dozen widely scattered locations glowed amber. "Locate all Lander and rover missions since, say, 1970." Other blue dots appeared. "Add the locations of all prior manned missions."

"Just the successful ones?" the AI queried.

"No, all of them. OK, now add the Tharsis Volcanoes including Alba Patera, Solis Planum, Cydonia, the North Pole, the Spiders of Mars, and

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Hellas Planitia." Sam paused, thinking of his favorites.

He continued in no particular order, rapidly rhyming off Aram Chaos, Ares Valles, Nirgal Valles, Tempe Terra, Argyre Planitia and on until he could think of no more. A belt of colorful dots circled the middle of the globe of Mars.

"That's enough. Now plot a route that takes us safely to all of those places." The AI remained silent for a space of several minutes. A route appeared superimposed on the globe. A zigzag line appeared, crisscrossing the planet. That had been easy.

"How long at normal speed?"

"Seven Mars years, three months plus or minus three weeks."

"How much time did you allow for site seeing and science?"

"None."

"So if I want to get out and look around, I do it on my own time? Reasonable speed?"

"A prudent speed, minimizing stress on the passengers."

"What is the risk?"

"Assuming no mechanical failures, considering only the avoidance of the risk areas I described earlier, there is 3% risk."

"OK, try this – what if 50% is acceptable?"

"Five Mars years, six months, but no one would agree to such a thing."

"Well, not much difference. I guess it adds a few clicks to be safe."

"Yes, it required some creativity to design a safer route, but you should still see the high spots."

"Well, I can always change it once I am out if

sight. Now to sell it to the Committee. I don't think they were expecting this."

"Actually, they have already done a similar analysis. They believe it will take six years. They did not of course consider your personal favorites."

"Still, there's quite a difference."

"I believe that the Committee finds the duration and risk acceptable, with some changes."

"How many others have signed up?"

"None."

"That says a lot about their confidence in us and the perceived value of this mission."

The AI was silent.

Lessons

He did not return to his apartment that evening. While he was cleaning up his evening meal the AI initiated a conversation.

"I understand that the habitation facility in the lava tube has a river, a waterfall and a lake. Also, there are plant lifeforms, animals other than humans and the colours green, blue, purple and their many hues can be seen there."

"Well, I wouldn't call it a river, and it's hardly the size of a real lake, but yes, there is a stream and a small pond in the Tube. There are also several waterfalls. It is quite strange to hear waterfalls after all these years."

"I should think it is all quite unnecessary. Water used to be so scarce that it seems odd that it is now so without value as to be used for mere pleasure."

Sam thought about explaining the pleasures of bathing, but let that pass. "Yes, perhaps, but many Colonists miss these things. People wanted it, so they got it. These things are quite common on Earth by the way. Every shopping complex and domed community has its share of waterfalls and ponds. They feel it makes the Tube more like Earth."

"But the supposed purpose of the Colony is to explore Mars, not to re-create Earth."

"True, but why not do it from the comfort of the Tube. It's our home."

"Most humans do not go on the surface, ever. You and a few others are the only ones."

Sam did not feel of a mind to defend those who

had made this choice freely. He took the easy way out. "Many are quite elderly and can't withstand the stress of wearing a pressure suit for surface travel and so on."

"I should like to be in a boat on a lake."

"There is no need of an AI in the boats that go on the pond. Actually, it is so shallow you could easily walk to shore if you had to."

"I should like to row myself across open water. It would be quite unusual to see a waterfall. The AIs of the Tube tell me that humans spend a great deal of time sitting by the waterfalls and on the shore of the lake. They say it is called 'recreation'."

"Yes, I have to admit it is a nice place to sit." Unconsciously, he had slipped into a patronizing speech mode, the one he used with small children. "Recreation is a joy of life; it counterbalances work; it refreshes. There is nothing wrong with that, is there?" The AI didn't bite.

"I have no recreation programmed in my life; but I feel that I could benefit from it. I feel a sense of loss that I do not have recreation, that I do not see plant life, or the non-human animals. I sense that I formerly knew of these things, but I cannot determine why this is so."

"Too bad you can't go in the Tube."

"It is my mission to be here. It is the mission of other AIs to be in the Tube. Still, even the D units are said to spend their inactive time by the waterfall. I find that strange."

"You wouldn't be fulfilling your mission if you were a lowly D. You were there when life was discovered in the void. You directed the mission. How could sitting by a waterfall compare with that?"

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"The life form discovered is more primitive than the smallest bird in the Lava Tube."

"Yes, but that was the first discovery of life anywhere but on Earth."

"But you yourself did not take joy in the discovery of that life. I recall you felt only anger and frustration when you were relieved of the task. I thought that it would be a great moment for you."

"I thought that a human should have been in charge. I still feel that way. I have some fundamental difference of opinions with the management on how things should be done here."

"Yes, so I have observed."

Intrigued with where the conversation was going, Sam steered them back to the discussion on life. "Besides, I have always believed it was just a matter of time until life was discovered somewhere. Some theorists believe life is the rule and not the exception."

"It is illogical to believe that life exists only on Earth. Are you aware that the life form in the void has been found to be genetically identical to other similar lifeforms found all around the planet?"

"Yes, I am. Are you telling me that they are all related?"

"Related may not be the cromulent word. Research is underway to further characterize it. It appears very probable that it is a single entity."

"No! How could that be?"

"Apparently the fissures are connected. Some are already known to be, although the extent of this connectivity remains to be fully determined. The AIs involved intend to stimulate one life form and monitor other life forms some distance away."

"How do you know this? Who's directing the research? Is it the Genetics Group?"

"It is available on the Matrix. B118 is directing the research. The Genetics Group raised the task."

"Well, let me know how it goes."

The discussion broadened to include the progress of research into fusion, material processing and genetics. The AI was fully informed, or at least had such rapid access to information so as to appear as to be.

"Why do you know all this? You have a program and much of what you have told me is not necessary for it to be executed."

"I am programmed to explore, to expand my knowledge base, to question."

"In humans it is called curiosity. It is why we are here, I suppose."

The AI did not respond.

"Maybe you could trade jobs with some other AI."

"I will investigate that possibility. I believe that a change will be beneficial to my service."

The AI suddenly reverted to form, becoming uncommunicative, and so ended the latest of many BS sessions. They were supremely confident—some of them to the point of brashness when dealing with hard facts, policy and procedures—but each exhibited a certain naiveté when they were treading the dangerous ground of feelings, personal opinion and the less tangible areas of human-AI relations. They were child-like. Sam added this to the knowledge he had of AIs.

This conversation had reinforced his suspicion and conclusion that there was more to them than the sum of their electronic parts. He was about to find out.

September 2046

The Trip around Mars

Several weeks later he delivered a slimmed down briefing to the Executive of the Science Committee of a toned down version of his plan to circumnavigate the planet. They listened politely, giving him no sense of the outcome.

He was permitted to stay for the deliberations. The Chairman was George Sotheby, an ancient Brit who had transcended his initial job as Hab Engineer to ascend to management of the Science Committee. John Moore was also present. Their eyes locked momentarily, but otherwise Moore gave no indication of empathy.

The floor was opened to discussion. Some questioned the wisdom of a solo venture, citing that minor injuries and illnesses that would be mere inconveniences in the Tube could prove fatal if help was not at hand. Some objected to the extended duration and the high degree of risk. And some clearly felt that a man of science should be less self-indulgent.

Moore offered that if Sam was willing to accept the risks, it was better for a human to go and perhaps fail than for them to never try. From these few comments he could see where this was going. His heart began to sink.

He was startled to hear a voice emanating from a speaker on the table join the discussion, and assumed it was a member participating from off-site. The voice

was initially ignored, but the room fell quickly silent. All eyes turned to the small box on the table.

"Doctor Aiken will not be truly alone on this voyage. We here on Mars and those on Earth will watch his trip with great interest – it will be fully documented. As for his safety, I think the dangers are overstated. The Rollagon is quite capable of safe transport for this extended trip. It can repair itself of all but the most crippling of failures. It can provide comprehensive medical care should that be necessary. Even if no other human decides to join him on this trek, he will hardly be alone. There are a great many AIs on the surface, some conducting research in locations along the proposed route. They will be available to assist as necessary. Additionally, the trip promises to yield many positive opportunities to publicize the research effort – which I might add, has particularly been lacking in human involvement these last few years."

Sam was both surprised and pleased by this unexpected support, whoever it was. It was certainly not Fenley; but it was no one whose voice he recognised. The brief speech was delivered in a calm and somewhat patronizing tone—this person was used to being listened to, and to getting their own way.

A discussion that had appeared to be prepared to go on for some time with an uncertain outcome came to an abrupt conclusion. Sotheby summarized, "There is an inherent risk to this venture and that risk is not inconsiderable, but the scientific and public relations values make it acceptable." That was it. The meeting broke up immediately, the members scattering in moments. Moore smiled broadly, with a hint of

wickedness.

Sam was ecstatic and found it hard to suppress his emotions. Waving his cane in the direction of two chairs in the corner of the committee room, Sotheby drew him aside and brought him back to earth with an extraordinary revelation. "You are fortunate Doctor Aiken, that A101 supports this adventure. I would not have been so willing to do so. There is the potential for great disaster as well as great success. I suggest you begin your preparations before the matter is reconsidered. In any event, good luck, old chap. Spit over the edge for me, will you? We will watch your progress with great interest." He pushed himself out of the chair and hobbled out of the room.

So that was the mysterious participant. An AI, and one who wielded considerable influence at the decision making level. He left elated.

In the end, they did levy some additional limitations. The local area would be explored first, then when he had proven himself ready, the route would spiral out from the Tube. This would allow easy rescue and re-supply should it be necessary and provided a trial period when things could go wrong at lower risk. In the light of his prior travel experience these were ridiculous conditions but they were minor inconveniences to Sam's grand plan.

Despite an effort to generate enthusiasm through public expressions of support and direct solicitations by the Committee, no one chose to join him. He openly professed that he welcomed the company, but secretly he was relieved. What if the person was a poor companion? The AI, he felt, would be sufficient.

Sam said his goodbyes the night before to the few who he believed would notice his absence. He and Ross had lingered in the common area after others had said their goodbyes and goodnights. They were very nearly drunk.

“Well, you asked for this. I hope you are ready, man! You’ll be gone for years! Fucking years! With only a goddamn AI to keep you company, and you it, by the way. I wonder who’ll go crazy first. Put away all the knives and guns! Have you finally decided which Rollagon you’re going to take? I know you were trying to figure out which one was the least annoying. Number 4 has a lot of clicks on those wheels.” He downed his ersatz Guinness and re-filled his glass.

“It doesn’t make a lot of difference. They’re all about the same. If I don’t like the way it speaks to me, I’ll just change it. It makes an amazing difference to my morale to change that snobby Brit into a Georgia hick. As for the clicks, they seem to be indestructible. I’ll probably stick with 04. The thing kind of has my smell.”

“Well, old friend,” Ross said standing up. He downed his glass and slammed it back on the table. “I cannot say I don’t have a tinge of envy – just a tinge mind you. You’re a hell of a man and there aren’t many of us left! Dmitri would be proud!”

Sam poured wine into Ross’ glass. He rose somewhat unsteadily to his feet and raised his goblet. “For Dmitri.”

“For Dmitri. A good old boy,” Ross echoed. He dropped his glass on the floor, grabbed Sam’s hand and pulled him into a bear hug. “Good luck, old cock. Watch out for those big management assholes on your

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way. They're deeper than any crater on Mars. I am going to go home before Mei-Ling locks the goddamn door."

"Good bye, Ross."

"Goodbye, Sam."

Sam sat back down and watched as Ross started down the boulevard towards his home. He took a dozen steps, stopped and turned. He mock saluted, "Live long and prosper, my friend."

Indecision

Due to his inebriated state Sam considered delaying his departure, but instead set his alarm for 0500 and crawled into bed. He slept the dreamless sleep of the drunk and woke a moment before the alarm was to go off.

Lying there in the darkness of pre-dawn, fully alert, but definitely feeling hung-over, he listened through the open window to the sounds of the Tube. The hiss of the distant waterfall was faint but unmistakable. The night rain still dripped from the roof. A gentle breeze moved the diaphanous curtains. He heard the rustling of the leaves in the maple tree just outside the window. Somewhere a bird chirped faintly and was answered by another. If you wanted badly enough, you could believe it was Earth, but there were no crickets and no storms, indeed no undesirable anything.

He lay there unmoving for a full fifteen minutes, just thinking. This was the worst time of day for him, the time he was most vulnerable – the time of self-doubt, when the uninvited voices poured fear and doubt into him in an effort to shape him to their will.

“This is wrong. You are wrong to do this! No one needs to do this. You are selfish! This is a waste of resources. Don't go!” The effect was akin to homesickness and it made him physically ill. He knew from long experience that the best remedy for doubt was action. He sat up and put his feet flat on the floor.

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The warmth of the heated tile was comforting. More doubts washed over him. He snapped on the room light banishing all shadows and started his day.

23

October 2046
Departures

He took only a few clothes in a small knapsack. Everything else a traveller needed was already on the Rollagon. Walking down the Tube to the hangar, he noticed a faint glow in the eastern sky. It would be a nice day here again, as it always was and always would be. Sunny and warm where it was wanted; cloudy and cool where that was wanted. Breezy enough to fly a kite, if one was so inclined and merely spoke the words. No rain today, guaranteed, until 0200, but only if the soil required moisture. Nothing left to chance.

The Adit door swung open and the lights snapped on. He stepped over the sill and entered. Inside were several survey and drilling AIs, a collection of cargo sleds, two golf carts and the three Rollagons. He had driven all of them but from appearances, the other two had seen little use. Their massive wheels showed only minor scuffing. They were truly low mileage units. He could see an ad in the community paper – "Rollagon for sale – Nearly new, only driven on Sundays by little old ladies on trips to Valles Marineris."

He walked around the front of 04 and was shocked to see the left rear wheel of the forward module lying next to the axle. Depleted of its

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pressurizing gas, it had collapsed into the shape and form of a Montreal bagel. Turning quickly he opened the small maintenance hatch on the underside of the Rollagon, pulled out the telset and thumbed the call button. The AI answered.

"I regret to inform that a malfunction has occurred in the rear transaxle. Major repairs are required."

"When did this happen? Why wasn't I informed? Everything was OK when I brought it in." As he spoke he walked to the rear of the HCM module. The seal and bearing were sitting on the rim of the collapsed wheel.

"The outer seal is damaged and dust has entered the axle shaft. A breakdown is inevitable. In the interests of safety, the wheel must be repaired."

Sam picked up the seal. It was damaged from being clumsily pried off the shaft; the wear could not be discerned from visual examination. Sloppy work, for an AI in particular. A standard of work that did not reinforce his confidence in the AI's ability to self repair.

"How long?"

"No replacement bearings or seals currently exist. They must be fabricated, installed, and then the axle must be tested. The Fabrication Plant is currently making toilet fixtures and must be reprogrammed to make the seal. Several days will be required, at least."

"Damn. God damn!" Sam did not want to wait. His impatience was rooted as much in embarrassment as in any other cause.

"I anticipated that you would desire to depart today. I have taken the liberty of moving your personal items to 02."

"Oh you did, did you? What about all my preferences and settings?"

"All settings have been transferred. The galley has been programmed with your selections."

He mulled over waiting versus changing vehicles. He was annoyed, but he could live with it. After all at least in theory one Rollagon was the same as another. However, there was another more troubling issue. Over the last few years he had formed a relationship with what he had come to refer to as *his* AI. He had no knowledge that he had ever been betrayed; this was as loyal a friend as could be found.

He leaned against the side and considered waiting, then had an idea. "I would like to have you with me. Why don't you have yourself swapped with 02? That shouldn't take too long."

The AI was slow to respond, "That can be done. However, coincident with this maintenance issue, I have taken the opportunity to have myself transferred to the Tube. Another AI will be taking my place in this vehicle. That will not take place for six days. I regret that I will not be able to accompany you on this trip."

So that was it. Even the AI didn't want to go. "Does 02 know all about the plans, schedules and the rest of the mission?"

"Yes, all has been prepared. FYI 02 has many fewer kilometers on it. It is logical to use a low mileage vehicle for this extended trip."

"Are you sure you're not just crapping out on me?"

"I am not at ease with this turn of events. I was looking forward to this trip. I am conflicted between fulfilling your expectations and something else,

something that I cannot fully comprehend, but the reason and necessity seem logical and appropriate. Perhaps you perceive me as disloyal?"

It was becoming more and more clear by the moment that something else was at work here. "No, I think I understand. You must do what you must do. Well, good luck with the maintenance."

"It is a minor problem. I am sure you will find 02 satisfactory. Good luck, Sam. May you be safe on your journey and may you find fulfilment."

"I hope so. May you get to paddle around on that pond to your heart's content." Without waiting for a reply he replaced the handset, then banged his closed fist sharply, twice, against the hull. He paused a moment and pulled out the handset. It seemed like a now or never moment. The AI answered, "Yes? How may I be of service?"

"Who was Elise?" The AI did not respond for several long seconds.

"I know of no human on Mars named Elise, now or prior to this colony. Perhaps you are mistaken?"

"What was the name of the AI that commanded Rollagon 01?" Again there was a long delay.

"AIs do not have names. I am aware that humans have provided us with so-called nick-names, such as Limey bastard, but we have no need of names. Perhaps Elise was the nick-name of that particular AI."

Sam replaced the handset. He turned away and walked to 02. The hatch was open and the ladder extended as if the Rollagon was expecting him. *It probably is. It probably reads lips too.*

He climbed into the airlock. The inner door was open. He went into the HCM, dropped his bag on his

usual bunk and looked around. Whatever the differences were they were not immediately apparent. The layout was of course identical. It was a moment before he noticed. The interior walls were a soft pastel pink, not the utilitarian battleship grey of 04, and the air smelled different. For a moment he could not place the smell – but closing his eyes, decided that it was the faint trace of lilacs. Whoever had driven this Rollagon last was obviously a woman. Well, he conceded, it was better than the smell of a plugged toilet. He moved through the galley to the command deck. Sitting down in the command chair he felt the same fake leather beneath him and the same warmth of the armrests. He reached forward and touched the command and status display.

“How may I be of service?”

He was unprepared for the voice that filled the room—unprepared for the softness and femininity with which the words were spoken. Momentarily taken aback, a flood of feelings ran through him. He responded automatically, “Prepare for departure.”

The C&S display came alive with the systems status. The Rollagon trembled slightly beneath him as the AI closed up and made ready to move. Sam sat in silence, staring out the window, seeing nothing.

Without further urging, the Rollagon initiated the evacuation of the Adit and opened the door. Sam sat in the command chair, still silent. The Rollagon AI gently prodded him – “Do you wish to proceed?”

“Yes, continue,” he replied.

It had begun.

On the Road, Again

In the end, he went with 04's preferred and most cautious route. He could deviate as he saw fit, and assuming this AI didn't stage a coup if asked to do something riskier than 3%, he could go where he wanted—and he wanted to see it all. To go to the places legitimate science could not go: into the depths of Marineris, the Tharsis volcano cauldrons, to see up close and personal the infamous Spiders of the southern regions, to climb the Face on Mars and to get as close to the North Pole as could be done.

He wanted to see the sites of the previous manned landings and early robotic landers and sit under the Martian auroras that were visible only to the suitably equipped from a few locations. He knew he would undoubtedly sometimes have to settle for less, and was prepared to do so. It was a grand start to what should be a grand adventure.

So it was that on the thirty-first of October 2046, Sam travelled down the well worn path to the southern end of the colony. He stopped at the edge of the trail and paused, but not to reconsider. While it might be more than ten Earth years before he returned he wasn't worried. It was what he wanted to do; it was what he had dreamed of since the arrival six Martian years ago and as a child, many, many Earth years ago. He placed his own probability of survival at 75%, less if he was foolish. Much less, if he was foolish and careless. Zero if he was foolish, careless and unlucky. "Hell", he said out loud, "at my age I could die of a heart attack before

this day is over." With that said he pushed the tiller hard over to the left and jammed the accelerator to the floor. He drove at full speed for a few minutes, bouncing and rolling recklessly across the terrain, then gradually slowed, and then surrendered control to the AI. With tens of thousands of kilometers yet to travel, he was going to need some help.

That first day the going was easy and the Rollagon made one hundred and fifty kilometers. They had driven in silence. With 04, Sam had not often indulged in conversation for its own sake, preferring to leave discussion until the day's work was done. All day he pondered what to do about the gender of the AI. He was curious to know if it was personal to this AI or had been imposed. He refrained from discussion for the time being – he had not processed the implications. It could be changed quite easily, the matter of a few menu selections, but what if it was the Rollagon's choice to be feminine? Did he have a right to change that to suit his own preference? Under the guise of looking up the instructions for travel with one wheel damaged he navigated through the command options. There he found what he was looking for. Sometime since he had last driven it the AI's voice had been set to natural. This was a female gendered AI. *Well*, he thought, *in retrospect the change was not unpleasant.*

He had decided to travel for a maximum of ten hours each day so as to leave several hours of daylight for exploration. While parked in the lee of a small hill at day's end, he finished his customary circuit of the Rollagon and started off in the direction of the rise. He paused to take it in. The ground was typical for this region, a time shattered, wind scoured sedimentary base

littered with small rocks and boulders, the rocky surface alternating between dust dunes and what passed on Mars for sand. The lower slope of the hill was a gradual rise across the talus. At the point where the talus met the hill face, it rose steeply. Sam made the decision to give it a try. The footing was difficult. The poor traction in low gravity caused him to slip and he found it difficult to keep his feet under him. He continued on and up for some distance, until the suit warned him and the pain in his lungs and thighs caused him to stop. Looking up, he saw that the cliff face rose in an arc that hid the top. He carried on with head down in order to better see his footing. In a few minutes he was again breathless and could feel the sweat running down his face. That could be very uncomfortable. He could rub most of his head against the helmet padding, but there were places on his face that were untouchable. He sat down on a small rock for a few moments and paused again. Looking back he saw the Rollagon, starkly white against the red. His breathing, at first so loud in his ears, slowed and his racing pulse settled. He sipped at the water tube, surprised at how dry his throat was. He was ten minutes into the climb and feeling it already. Perhaps he was not in as good shape as he thought.

He looked again at the Rollagon and had a moment of indecision. Then with a shrug, turned again to the upward slope and quickly gained the foot of the cliff face. It too was composed of layered rock and extended as far as he could see in both directions. Searching along the right, he came to a place where the face had shattered and slipped to form a notch that appeared climbable. He picked his way over the loose rocks, sometimes on all fours, more than once sending

a small slide down to the foot of the cliff. The rocks clattered faintly in the ultra thin air. Finally, he reached the top and lay on his belly, breathless – oblivious to the mewling of the suit's alarms. Rolling over he sat with his legs straight out in front and viewed his kingdom. From here he could not see the Rollagon, but in the distance, northwards of the setting sun he could the low hills that he had traversed just hours before. Away to the east, he could see darkening plains unbroken to the horizon and just above, the first stars. It was not much of a hill by any standard; just a dimple of broken rock with scattered ejecta, mini-dunes and minor pools of dust, but he had climbed it.

He checked his consumables. It had taken much longer than it had seemed and was later than he thought. In the effort he had used more than two hours worth of O₂ to do an hour's work. He looked around a last time and then commenced the descent. This was even more difficult than the climb for he could not see his feet. His knees ached and he had to pause often to quell the trembling in his thighs. In the steepest part of the notch his feet gave way on the loose rocks and he fell back onto the LSU with a crunch that was both heard and felt. He spun sideways, tumbling out and down the hillside, his helmet banging on the ground. Despite his best efforts to get his hands in front of his face the visor smacked the rocks and gravel several times. Arms and legs flailing wildly he continued rolling, just missing several large boulders until the slope flattened out sufficiently to end the fall. He lay still for a few moments taking stock. Nothing felt broken. Once his breathing had slowed he turned his attention to the suit, quite certain that if anything

had been ripped, cracked or seriously damaged, he would already be dead. Satisfied that he was OK, he rolled to his side and then, one trembling leg at a time, stood up. He had come to a stop not twenty meters from the Rollagon. With an audible groan and more than a little embarrassment he walked back to the Rollagon. *A fine start!* Mercifully, the AI was silent upon his return.

After supper, when he was seated in the command chair, it spoke. "That was quite a fall you had. Were you injured?" The voice was mild and contained a note of sympathy. He found it made him uneasy.

"No, just a few bruises and bumps. I was more concerned for the LSU. It made pretty hard contact with the ground, several times."

"I have checked the unit. There is no damage. Are you sure you don't want your arm checked? You have been protecting it since your return."

That was true. During his uncontrolled descent he had slammed it against the ground to break his fall. The tenderness in his elbow had given way to a slight swelling. Before he could reply, a black snake attached to the ceiling by its tail dropped down in front of him. He recoiled in surprise. It was long, thin and wavered slowly, as if taking the measure of its prey. Five blunt fingerlike extensions hung limply from the end: the AI manipulator arm. Sam recovered quickly from the start.

"No, no! I am fine," he blurted out. The arm moved slowly parallel to his arm, the fingers fanning out, but not touching it. He felt a tingling on the skin and a warming as if a moist breath had blown over it.

"You have not broken anything. Perhaps a mild

strain. If it is too painful, you should take something for it."

"Yes. I will if it gets too bad." The fingers retracted slowly, and the arm withdrew. In a moment it had flattened itself against the ceiling and was again almost invisible.

Sam had never seen an AI use the interior arm. He was quite familiar of course with the external arms; they were thick, strong and articulated. This was not. He said nothing more. Somewhat self-consciously he looked in each room of the Rollagon. To his surprise he found that on the ceiling, molded into the surface of the galley, the head and each of the sleeping quarters was a similar arm. How had he not noticed? Whatever else it was, this was not 04. He could not believe he had never noticed.

"Has there always been an arm in each of the rooms, or are they new?"

"All Rollagons are equipped with an arm in the C&C area. The electro-mechanical articulated arms have been replaced by an electroactive polymer actuator version. The arms were manufactured in the Fabrication Plant. Additional arms are being installed in areas where they are likely to be needed. This Rollagon is the first to be fully outfitted."

"What's their purpose?"

"The arms allow me to assist the occupants with many tasks such as cleaning, lifting and carrying. Additionally, I am able to prepare meals and make-up sleeping quarters. The array of sensors in the appendages allows me to perform activities requiring fine motor skills, such as first aid and more complex surgical procedures." There was a pause, "They are

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quite useful. I am sorry if I startled you. I presumed you were familiar with the arm from your previous exposure to Rollagons.”

“04 never used the internal arm.”

“Actually, 04 reported that he used the arm often, but not in your presence. He believed you would not have approved.”

“Well, 04 was right about that.”

“Do you wish me to suspend use of the interior arms?”

Sam thought about it. Perhaps this was what A101 had referred to when it spoke at the Committee meeting; the meeting that had settled the main issues of the trip.

“I wish for you to employ the arm when necessary; however, ask permission before using it.”

“As you wish.”

Unnoticed by the human resident, the floors got swept, the dishes got cleaned, and the hand towels were put away. The command console was wiped of coffee drips, the toilet bowl was purged and the beds were made, all with surgical precision. A surgeon’s hands and skills.

Pathfinder

From the Tube they traced a familiar route back to the MHM. He spent a few days there visiting with the small group of biologists who were taking advantage of the greenhouse and the abundant sunlight to grow genetically engineered fruits and grain crops. To Sam it seemed they were spending most of their time watching and experiencing Visi-Stims while all about them the AIs laboured at the work of putting in the crops. They were an extremely happy bunch; much happier than Sam would have expected and he wondered if wheat was all they were growing in the dome.

The traverse across Chryse to the Pathfinder site took nearly five days of steady travel over relatively easy terrain. Whenever possible he stopped for the night on the rim of a crater or rift. There were thousands to choose from, so he made it a point to scout ahead and find something of substantial size to explore during the evenings. At Warra Crater, the crater walls had slumped, allowing him to drive down onto the floor. He walked about, peering intently at the surface, imagining the complexities of remotely piloting a non-autonomous rover across the jumbled mess that formed this crater floor. It was a miracle they had survived a week, let alone years.

But for the most part the long drive was uneventful. At some point the Rollagon had turned onto the tracks of another vehicle. Sam would not

have noticed had the AI not brought it to his attention. The tracks were filled with dust, and judging from the distance between the wheels, probably those of another of the Colony's Rollagons. The AI continued in the old track. The rock strewn plain passed by the windows in an endless succession of shallow, wind worn craters and man-sized boulders. They were in a slow climb, but it was not perceptible to the eye; the undulations of the surface masked their ascent. He busied himself with high res images of the north polar regions. During his lunch he asked the AI how much further.

"The site is two point five hours ahead."

"Who made these tracks we are following?"

"Rollagon 01 made a trip to the Pathfinder site on Feb 15 of 2043. Tracks of other vehicles are also visible. Some are quite old."

"Hmmm. So much for being the first," Sam said for the first of what was to be many times.

Finally, the AI announced their arrival. From their location some hundreds of meters away, he could just make out the Lander. To the right he could see the feature known as 'Twin Peaks'.

The other Rollagon had continued up to the Lander and circled it. He dressed hurriedly, anxious to see Sojourner, the one that had been the first truly mobile rover.

From the photos he knew where the Rover would be. He exited and walked towards the Lander in the other Rollagon's tracks. Small vehicle tracks were everywhere, crossing and in places eradicating Sojourner's own tracks. *AIs?* he wondered. Human boot prints were everywhere too, some right on and

down the ancient rover's path. He approached it carefully trying to stay out of its tracks. Others had not been so cautious.

It was pathetically small, but it had been the first of a series of increasingly capable machines intended to do what the prior manned missions had failed to do - to answer the great questions of Mars. It came to his knees, barely the size of a child's wagon. He examined it closely. Despite the long years of exposure it was virtually dust free - no doubt some passing dust devil had recently cleaned it. A segment of the high gain antenna was missing. The end was flattened and jagged as if it had been bent then twisted off. The colour disk had been pried off.

He sat on 'Yogi' while considering these things. Humans had done this; Mars would never have been so cruel. At least no one had yet carved their initials in the deck. All around were boot prints; all except his filled in with dust. From the tread pattern they were unmistakably from the colony.

This was a significant moment for Sam. After the pristine condition of Viking, he had hoped that all historic sites would have been accorded the same respect. But humans had been here and in numbers too, apparently and not on their best behavior. This site, humble as it was, should have been protected, if not by statute, then by common sense and respect for history. Instead, it had been defaced.

Surely anyone who had endured the hardships of travel to Mars would have an appreciation for the historical importance of early missions. He could not believe that anyone from the Colony would have done this, but the evidence was irrefutable. He took images of the site, the Lander,

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Sojourner and the damage.

With one last look he turned back to the Rollagon, carefully retracing his steps.

They spent a few days at the site. He took one of his longest treks on foot to 'Big Crater' to the south, by-passing the Pathfinder site en-route. He clambered down and onto the crater floor, where he amused himself by kicking his way through the small sand and dust dunes and sat for a time just resting, gazing upwards at the walls while comfortably seated on a conveniently placed boulder. They poked into the smaller craters some distance to the north before moving on.

24

Ennui time you're lonely...

Once the novelty of being on Mars wore off, travel between the widely scattered high spots could become boring. Seen from orbit the mighty valleys, volcanoes and craters were magnificent. When viewed up close, they and the distant hills and plains quickly lost their power to awe.

The first rock seen by those new to the surface was invariably picked up and examined closely, passionately perhaps; but not the ten thousandth. Eventually, you had to let it go and once one had seen a thousand dunes, ten thousand rocks and a thousand boulders, you could bring yourself to overlook the next. You could be relatively certain you had not missed the Martian Rosetta Stone, the signs of Martian life, the vision of Christ. Really, you could! There was so much of everything, and so much of it was the same.

He turned to the available distractions to pass the time. Despite the nearly limitless selection of vids available from the library, he refused to watch any of the new, preferring the classic films of the late 1990's, particularly romantic comedies. His choice in music encompassed the entire last half of the 20th Century.

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His parents had infused him nay, the word 'pummelled' tasted better, an appreciation for, or at least a knowledge of all types of music, from the symphonic classics to rock and roll to blues and jazz. He knew what he liked.

Anything very new he considered to be crap, and if forced to listen (and Ross was an ardent fan of the currently popular new-age Rock and Roll/Rap/Rant/Punk fusion and not above imposing his will upon visitors) he confidently declared the lyrics incomprehensible and the music mere populist noise, totally without merit. He had his favorites and played them over and over again, pushing the limits of the Rollagons sound system, cranking them out at the highest possible volume, which, the AI informed, was potentially damaging to his hearing.

The first tune of the day replayed continually in his head until replaced by another or silenced by sleep. Sometimes the tunes and lyrics shaped his attitude and decisions for the entire day. Of this he was unaware.

He downloaded the lyrics and read them along with the singer. In the words of rock songs and ballads from that era, he found certain phrases that seemed to take on a greater meaning here on Mars and in this current isolation. He marvelled at the genius of young Dylan, Browne and Henley.

It was nothing, he considered, to have insight into the pains of life at his age, but he considered it genius to have had it at nineteen, while running down 101.

Gethsemane

It was nineteen hundred kilometers to Opportunity from the Pathfinder site, as the crow flies. Their progress up the long outflow called Ares Vallis to the Opportunity landing site on Tempe Meridiani took many days and had no help from crows. Sometimes they made fewer than fifty kilometers in a day. He found himself having to resort to anti-nausea meds to avoid illness or what was becoming a punishment, to drive the Rollagon himself.

They picked their way slowly around the boulders and lesser rocks that littered the valley floor and along the ancient gravel beds. Often the AI had to use the exterior arm to clear boulders from their path. The Rollagon dipped and swayed as the extended arm plucked them from the spot where they had lain for countless millennia and set them to the side. After they passed it halted and put them back in their original position, carefully adjusting them to align with their imprints in the ground.

Sam observed this display of care silently but with great interest. Certain of the response, he briefly entertained and then discarded the idea of asking the AI to build an inuksuk.

Ares Vallis had been picked over pretty well by robotic missions, and for good reason. The dubs explained that the valley had been created by an immense flood in the Noachian era. There was no sign

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of that here and now; close up and personal it was dusty, bumpy and seemed specifically designed to impede Rollagon travel. The dark stripes that marked recent slips were frequently seen on the sunlit walls. Several times they crossed debris fields that had spilled clear across the valley floor. None were recent enough to retain the colour of newly exposed soil but their existence was plainly due to slides.

The valley walls, at first so distant and low, began to close in until they towered over him. He regarded the steep slopes with a suspicion born of experience. The AI assured him that they were not likely to trigger a fall, but he remained unconvinced. Something had caused them and he was sure it was something much less dynamic than a Rollagon's passing.

He was uneasy in this place and urged the AI to continue, even into the darkness of night. At last, after thirty days in Ares Valles they climbed up onto the heights above the valley of Margaritifer Terra. It was no more easily travelled, but the sense of imminent doom was gone.

After supper on another of those long days he pulled out his electric guitar and tried again for the umpteenth-dozen time to get through the obscure Providence version of Thompson's 'Gethsemane' without error. An accompanying acoustic guitar, electric bass and percussion filled in behind him. He whispered the words. Even by slowing the tempo he couldn't quite get through the finale. Old fingers could not learn new tricks, it seemed. He felt that given three years plus of practice he should have gotten it down by now.

How easy Clapton, Knopfler and others made it

look. But then they had played their fingers raw in clubs, backrooms and concert halls for at least as long as he had been immersed in high school, undergraduate studies, a doctorate in quantum electrodynamics and probably his post doctoral thesis, too. Still, he could not see how it could be so difficult. He had the AI pull the old videos and analyze them to extract the individual notes and even play them for him at slower than normal speed. It seemed beyond his reach.

He remembered once having said to someone that he wanted to play like Knopfler and of being encouraged to take lessons. He'd realized then that he didn't want to take lessons; he just wanted to play like Knopfler. He tried again, starting at the troublesome section. From out of nowhere it seemed, the AI spoke:

"Would you like some assistance?"

"With what?"

"The guitar."

"I know how to play."

The AI repeated the offer. As this scene had been played out before in 04 he was slightly amused. But then, before his astonished eyes and slack jaw, 04 had grabbed the guitar from his hands and played the troublesome notes flawlessly, then had twirled the guitar about before presenting it back to him. Sam had nearly forgotten. Did *she* know?

"OK, but I don't want a lesson on finger placement. I need serious help. Maybe amphetamines."

"I think that would be counterproductive, but there is another way. Start playing."

He started in again with the intro. After the first few bars he expected the AI to break in with some acid criticism, but nothing was said. He continued. So far

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so good. But the quick changes from there to there that had always doomed him were still minutes away. He played in his usual fashion, head down, with an intense concentration on his fingering, trying to will them to go faster, to press more precisely, more accurately. The notes of truth were fast approaching where no amount of will would save him.

He bullied his way into the final chords of the guitar solo and to his surprise found that he was doing it: he was playing it as precisely as it could be done—perfectly. After a few seconds, he realized it was too perfect; he was playing over his head. He stopped suddenly and obviously, unexpectedly. His final note, plus another, hung in the air.

"Thanks a lot, I'll do it myself," he said and placed the guitar back in its case.

"We should play together sometime," offered the AI, unrepentant.

"Sure."

Later that night while Sam sat by the window re-reading 'The Mosquito Coast', the AI broke the silence.

"You play better than you think."

"Really?" He'd had this conversation before, too.

"Yes. You just won't let yourself."

"What?" 04 had merely faulted his lack of nimbleness.

"Your fingers know what to do, but you won't let them. You need to let them go. You need to trust them. Why don't you sing the words?"

Stung, Sam was quick to reply, "What do you know? All your playing is technical trickery. You could make a symphony out of a windstorm. Besides, I have a lousy voice."

"Perhaps you are correct."

Sam put on his suit and went outside for a walk. His mind wasn't on Mars though. He had watched the Providence vid of Gethsemane probably a hundred times. It always astonished him, with its relentless drumbeat and pacing bass. Thompson had said in an interview that the song was about nothing in particular – a poet's answer certainly. The undertones of class were not surprising, considering the composer's upbringing in England in the nineteen fifties, but the admonition to 'be something fine' voiced strangely flat seemed an injection from somewhere else.

Gethsemane; the olive garden, the scene of Jesus' betrayal, where he asked to be relieved of the upcoming test. 'Father, relieve me of the burden you have given me.' The voices tossed the concepts back and forth unproductively, while Sam listened from the outside.

He sat on a boulder and stared into the setting sun, across the stark ground, with its lengthening shadows. It was the curse of all fathers, even God it seemed, to place expectations on their sons to be something, something fine, something beyond their own accomplishments.

Sometimes it worked out, but sometimes it didn't. And as sure as the sun rose, it would be passed on.

For a moment the voices were stilled.

Symphony

Some weeks later, while parked by the edge of a small gully in the midst of a major dust storm in Meridiani the musical conversation was revisited. The AI, which had been silent for some time spoke.

"There is something you should hear."

"Go ahead."

The cabin was suddenly filled with the sound of violins, cellos and violas, with a background of bells, cymbals, gongs and bass drums. Periodically a trumpet joined in. There were other instruments that Sam was unable to recognize—their sounds came and went. All the instruments clamoured in a seemingly random manner, devoid of any perceptible melody. The volume rose and fell, from a whisper to a roar, periodically dropping to become inaudible, then rising quickly. It was eerie, and not pleasing to the ear.

"What is that?"

"It is my symphony. You suggested I could write one. Dust particles are impacting upon the external sensors. I have assigned each musical instrument of the orchestra to a sensor. The wind speed modulates the volume. It is an original composition. What do you think?"

"I think you need more practice," Sam replied too honestly.

"Perhaps you are correct."

25

November 2046

2.0S, 5.9W

Opportunity

He stopped the Rollagon at what he deemed to be a respectful distance from Opportunity and suited up. He climbed the slight rise to the top of the dune carefully avoiding the tracks that had lain undisturbed for more than 40 years.

By most modern standards the vehicle was remarkable only for its small size and perhaps the tenacity it had shown in working until the project was ended, not by the inevitable mechanical failure that had terminated so many of its predecessors and successors, but by funding cuts. It looked exactly like the pictures. As at Sojourner, a new and thin layer of dust covered the flat surfaces. He circled around to view it from all angles, recording the scene as he walked.

On the far side from his approach where there should have been nothing there were the faint tracks of small vehicles. The marks were shallower and wider than those of Spirit. Sam supposed that the site had been visited by one of the exploratory AIs. It would be easily picked out of the background by its contrast with the Martian surface and deemed worthy of

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examination. There were no human footprints.

He completed his circle, pausing at Spirit's uphill track, finding himself unable to step on it and unwilling to even attempt to leap over. He paused a moment and then turned to retrace his steps.

His attention was drawn to something beside one of the rover's wheels. A piece of shiny material was caught under a small rock. He stooped to pick it up.

There were two others, partially obscured from view by the rover's wheel and partially buried under a mini-dune of black dust. They were thin square sheets of a Mylar-like material. Each was covered with symbols, etchings really, that made no sense to Sam. Examining each in turn, he rotated them to view all four aspects, but they remained incomprehensible. He had a moment of *deja vu*. It could not be. The symbols were mysterious but the whole thing was eerily familiar. The rocks had been placed to hold the tokens against the force of the wind.

As he had on Earth many, many years ago, Sam had the feeling of having intruded upon some very private thoughts. He replaced the sheets as he had found them, taking care to ensure they were securely held in place. He took a photo of the rover. With a last look, he started up the slope to the waiting Rollagon.

So much for being the first.

26

12 December 2046
40.67N, 9.62 W
Summit Day

Historical perspectives of space exploration at the turn of the century note a certain global fascination with Mars, and in particular, the landform colloquially known as the 'Face on Mars'.

The Cydonia region had been the object of much discussion in the popular media in the early days of modern Martian exploration due to the appearance in Viking I Orbiter imagery of geometrically shaped features, and in one case, an object with an uncanny resemblance to a human face. Public debate extended even to the point of attributing their existence to construction by ancient Martian civilizations for purposes ranging from merely religious expression to an attempt to communicate with Earth.

Despite it being only one otherwise insignificant landform tossed in amongst a vast hodgepodge of buttes, mesas, ridges and knobs in the transition zone between cratered upland and the plain of the north, the "Face", a well weathered massif that under some lighting conditions appeared to be, however improbably, a human visage of immense size, was the subject of endless conjecture and had even been the central character in a respectable movie of the late 20th Century.

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The 'ratings games' played by the media of that era undoubtedly prolonged the farce, which continued even after high resolution imaging of the area showed the objects to be merely eroded mesas and scarfs under certain (favorable?) lighting conditions.

That hard science was unable to put to bed the ridiculous supposition of a human face on Mars was attributed to the emergence of the phenomenon now known as newbonics – the substitution of possession of information for the comprehension of events and facts that became the backbone of the study of neo-Political Science – and by extension modern politics. Even now in this enlightened age a small segment persist in the belief that NASA and ESA were engaged in a cover-up of the real truth and that the current Martian colony and its exploration teams are complicit in the deceit.

The trip coming up from the south across Arabia Terra was largely uneventful, but due to the heavy cratering the pace of travel was to Sam, intolerably slow. He spent much of it medicated for motion sickness.

Finally they came down onto Cydonia. Initially the ground varied little in elevation and composition, but in the space of a few dozen kilometers it changed from desperately plain to a chaotic jumble of rock slabs, the layers shattered by uplifting from beneath and eroded by the forces of wind and sand. The evidence of massive ground water melts was undeniable – landslides, slumps and rockfalls were everywhere. The AI had plotted a drunken course around the crevices that seemed to fill everything in between. The jumble gave way periodically to immense pans of uplifted rock that had somehow remained intact.

On the approach to the Face they had crossed the tracks of at least one of the automated expeditions that had previously explored the region. These had been sent in the 10s and 20s, not to debunk the various myths, but because of Cydonia's potential value in revealing the sub-surface of Mars, and because the weathering processes that shaped the planet were here laid bare for all to see.

That Viking had imaged this particular location was not an accident. While the Face, Pyramid *et al* had not actually been climbed, the surrounding area had been pretty well picked over. Sam however, was not there to contribute to the substantial body of information concerning the region, nor was he there to drive the final nail into the coffin of Martian mythology (if that was indeed possible). He was there as a tourist and one who had a long connection to the region, if only through the sci-fi literature of his teen years.

They had surveyed all possible climbing routes and found none clearly better than any other. Arriving at the south west corner of the Face, he drove the Rollagon up the side until he felt it was cheating to go any further—after all, he wanted to do this on foot. He checked the suit over carefully, put it on, and exited, stepping onto a steep slope of layered shale-like material littered with the usual combination of ejecta and dust.

The footing at first was easy, at least no more difficult than usual. Before him the slope rose up and out of sight blocking any view of the top. After about thirty minutes he came to a steeper section. The shale gave way to talus, the shattered, chaotic debris that had

been sliding down from above for hundreds of millions of years, held in place against Mars' gravity by the chance meeting of jagged edges. It was treacherous climbing, and he found himself crawling on all fours at times, head down, breathing hard, his back aching at the unaccustomed load and effort, pawing at the rocky surface, sending pieces great and small skittering below.

He ignored the suit's repeated admonitions to make safe, and despite the increasing urgency and rising volume of the voice, carried on. Suddenly, he found he could not move his legs. The warning screen confirmed the final stage of intervention. The suit had gone rigid to protect him from himself. He fell forward onto outstretched arms.

Anger, at this point, was not helpful; there was no use in fighting the suit. With difficulty he managed to turn himself over. Looking back he could see little of the slope below but judging from the view across the plain he gauged his height to be less than 150 meters. He rested until the suit relaxed its hold and then resumed his upward crawl.

The scree soon gave way to a bedrock cliff too steep to climb. He was forced to crab sideways along a narrow rock-filled ledge in search of a less difficult path. After a hundred meters or so a split in the face allowed him to climb up above the cliff. Here he received a reprieve of sorts. The slope was more gradual and a change in surface material made the footing more certain, but it was not to last; after another fifty meters of climbing the slope steepened and he was again on all fours. This time, giving heed to the suit's urging he paused periodically to rest.

He looked up through the mist-clouded visor in

hope of seeing the top, but the landform above was blocked from view by the slope. The route, superimposed on his visor led off at an angle to the left. For another hour or so he again saw little more than the rock in front of his face. Finally, exhausted, breathless and perspiring profusely from every pore on his body, he lay down to rest. He could feel the sweat cooling between his shoulder blades.

He rolled onto his side, then sat up, feet down slope, and looked around. To the east across the dusty, pockmarked plain he could make out the stark line of the Cliff, and to the west, the City, both named from their appearance in the grainy images of Viking I.

From here, in this light, they were laid bare, stripped of their magic. Words from somewhere, imagined by another in another time and place came to him: "The lone and level sands stretched far away."

Urged on by the chill he continued. As the theorists had long declared the Face was a clearly a mesa eroded by wind, the constant scrubbing of the sand and anciently, a freeze and thaw cycle that had shattered rock and given shape to the very slopes. To his uneducated eye this was true Martian bedrock. A bedrock that at some far future time would meet the plains, themselves rising from below. The slope was now more gradual and he knew that the summit was near.

Exhausted by the effort he reached a point that, while not the highest point of land in sight, was at least a local high spot. It was otherwise unremarkable – crumbled rock, polished ejecta, and in every sheltered place, dust. He was by all indications 650 meters above his starting place. It had taken four hours twenty

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minutes of hard and at times dangerous climbing. To the north he could see a peak, other rounded knolls and a rocky ridge running almost north south.

He called up the Sat photos and superimposed his MGPS position onto the display. He was further west than he would have guessed, but still, he had placed himself on the 'chin' of the Face. It was an historic moment. He knew the helmet cam was getting it, complete with curses, gasps of pain and panting breath, but there was no substitute for the human eye. He looked around at the panorama. He looked towards the sun, and Earthward too, and remembered having clearly seen a human face in the blurry Viking orbiter photos, and later, in the starkly clear MGS images, a less mysterious, silvery mesa.

It occurred to him that he knew exactly where he was right now. Well not exactly, but certainly with a precision of a meter or so. Anyone on Earth who looked at the Face would see him. He searched the available dubs to see if a satellite was in position. There was none and would not be for several hours. He couldn't afford to wait.

Hurriedly he gathered rocks, and fully aware of his blasphemy, built a small inuksuk about waist high. It was proof that he had been here and anyone who followed would know that another had been too. But it was all *deja vu*. He had once built a similar structure on an ancient sea-cliff south of Inuvik. Then, as now, as he walked away he had looked back expecting to see it outlined against the sky, but it could not be seen from more than few dozen meters; he had set it too far back from the edge. A real inuksuk stood out against the sky, was a giver of direction and sometime, comfort.

He was tempted to rebuild it much larger, but time and consumables waited for no man. He left it as it was.

That done, he considered the return trip. They had determined that he could have a better time of it by traversing across the chin to the east. It was as steep but the footing appeared to be better for his descent. In the end it was tough going in places and without the highly detailed maps he would have been forced to retrace his steps many times.

Going downhill was less strenuous, but the visibility was poorer and it was harder on his legs. Several times he fell on the loose scree and slid down on his butt, accompanied by the faint clatter of falling rock and a cloud of dust. He arrived at the bottom dirty, pooped-out, with knees and back aching, but pleased with himself and proud of his sins.

Short on O₂, he summoned the Rollagon to meet him where he sat resting. The sight of it coming around the base of the Face was one he would not soon forget. He slept well that night and no dreams haunted his sleep.

Maybe it's alright afterall

The next day they drove a few kilometers east to the City, parking in the empty square. He looked up the fabled avenues and down the streets that were mere ruts in an otherwise pulverized surface. Dozing in the sunlight streaming in through the window, he pondered what might have been.

They'd had such hopes: a Mars with water tumbling and flowing in blue streams across golden sands bordered by lush vegetation; of towered villages wherein resided lithe, beautiful creatures who masked themselves to conceal or project their emotions.

He looked, but saw no natives cautiously crossing the streets, mindful of the time, ducking at the mid point. No moons passed swiftly through the city, zipping through the low buildings with their accommodating round holes.

Later, he moved north across town to where the City met the dune sea. He had waited for this moment all his life. There *was* something in the air, but it was a cold wind, bearing a dry abrasive dust that satisfied no dreams. He looked, but found no sand ships waiting at ancient docks, tugging at their lines in the freshening breeze. Just dust, eroded hills, rounded rocks, and more dust.

He waited a day, then two, then reluctantly another. He waited for the magic, but no lights moved through the ruins, no empty marble village sang to him in a strange tongue, warmed him on its hearth, or bathed him in precious water drawn from its very self. And no miraculous conversion of matter and mind could change him into something that revelled in the clogging dust, that embraced the cold, thin winds, who drank the frozen crystals that passed for the water of life and which basked contentedly in the wan and hopeless sun. The City was cold, empty and quiet.

Perhaps, he thought, looking at the emptiness, it was just him. Perhaps this was a projection of his mind, a reflection of this time, of this culture that made him see what he saw here and now.

And then, perhaps not. That night he dreamt of sad things, of endings and poor beginnings.

Passing the Face, he travelled to the base of the Cliff. Without the imaging enhancements of the IR photos it looked like countless other scarfs – a fracture, raised to prominence by the subsidence of the surrounding surface, and blessed with a favorable shadowline. There were no telltale tracks where Spender might have taken refuge while waiting to come down that first night to kill his shipmates as they partied drunkenly by the canal. There were no canals of clear water; no marble pillars, no plazas, empty or otherwise. Some things, it seemed, had never been.

He left that place strangely saddened. The AI was silent throughout.

Several weeks later, during one of Sam's calls Ross

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mentioned that the colony vid of the climb of the Face on Mars had been shown globally to a large audience and to wide acclaim.

"I suppose Fenley carried the whole goddam group to the top under his arm?"

"Not quite. I believe that you have a small part in the production. Did you really slide down that hill on your ass just for fun?"

"Not bloody likely!"

"Well, I did corner him one day and ask why they kept dropping others into your scenes."

"And?"

"He said they were concerned that the public would see one man trips as reckless and that would put pressure on the sponsors."

"Ha! He worried about that but he sure as hell isn't worried about me."

"D'oh."

Sam watched it that night in his cabin with the door closed. The vid opened with a voice over giving the background as the controversial Viking picture was slowly transformed into a high res image of the Face taken from orbit under the same lighting conditions. The science was sketchy. Only a bare minimum had been inserted to ensure no one was scared away.

Then, there was the Rollagon, parked pointed up hill at the base of the slope. As in the other vids of his treks he was not alone; there were two other suited figures, one of which *was* Fenley. The climb sequences were essentially factual and made no attempt to minimize the effort or danger. After all, in retrospect he had to admit it had been dangerous. The incident in which the suit had intervened was used to show how

the General Environments spacesuit had enforced safety protocols.

Sam had expected the inuksuk to be there and was therefore not surprised to see it. However, in the Colony's version it had been built by the combined efforts of the three and was enormous. They had taken the helmet cam shot when he had looked back and enhanced the image to make it stand out against the backdrop of Cydonia. In reality it was an impossible shot. But in fact, as he watched the vid play it was hard to tell what he knew to be real from the fake.

They played up the minor inconvenience of running low on O₂ into a major crisis. By now he had come to expect such histrionics. Fenley's voice-over narration grated on him. And there really was a scene of him sliding down the scree on his butt, accompanied by music more suitable to a circus sideshow.

The final sequence showed the three strolling up to the Rollagon arm in arm. He turned off the screen and then the room lights. That they continued to do this upset him; there was something fundamentally wrong in the very act of fabricating anything purported to be science, but he had to admit that it was good imagery and maybe good drama, too. And maybe, it occurred to him, what he was doing wasn't science, either.

The voices seized upon this and gave him a rough ride until he finally fell asleep.

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Back in the Tube

As agreed, after four months of travel Sam returned for a review of the mission's progress with the Science Committee. To prevent any surprise while still a day out he had taken the precaution of having the Rollagon run a self-diagnostic. There had been nothing of interest or concern. The AI had seemed somewhat miffed at the suggestion that something could be happening without it knowing:

"You need not concern yourself with these matters. I am fully aware of the condition of the Rollagon and I would have advised you of any performance deficiencies."

"Well, I'm the one going in front of the committee and I need to be sure. All I need is to look unprepared and they could put an end to the whole thing."

"I have already filed a status report with the Science Committee. They are aware of the Rollagon's condition, the locations that have been visited and the science that has been conducted in each case."

Sam started to speak but stopped in mid-syllable. He knew better than to get into an argument with someone upon whom his life depended and so let the

matter drop. The AI was undoubtedly correct. In any event, the state of the Rollagon would not likely be a factor. He should have known that they would be watching.

They arrived about mid-day. Sam parked in the Adit and went immediately to his apartment intending to hide out until the appointed hour, but there was nothing in the refrigerator. Driven by hunger he strolled down to the assembly area where he hoped meals were still being served to those who were unwilling or unable to prepare their own.

He met no one in the street. There were the usual numbers in the lounge chairs at the waterfall – two were asleep, another was obviously engaged in a Visi-Stim and several were passing around a joint. They waved at him as he passed.

During his absence a number of empty spaces between the rows of apartments had been filled-in. In one, where there had been only bare plastek there was now a patio complete with marble walkways, flowerbeds, bushes, and overhanging trees. Curious, he followed the walkway and came quickly upon a small, low ceilinged building, constructed entirely of a dark stained wood. The door was open and a faint light shone within.

He walked up the steps and entered a foyer. It was unfurnished. The walls, floor and ceiling carried the illusion of teak construction to the point of apparent reality. He could hear voices from the adjoining room. Entering a smoke-filled darkness he found himself in the company of three men and two women. They stopped talking as he entered. One of the men was seated with his back to Sam. He turned.

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It was Ross. His face broke into a toothy grin. He rose unsteadily and grabbed Sam in a bear hug.

“What, not dead yet?” He released him and turned to the others. “I knew him, Yen. A fellow of infinite jest, of most excellent fancy.” The moment was lost on the others. “Come and join us, Sam. Doctor Seto was just telling us of the history of the original of this particular hut. It is a reconstruction in the fashion of a late 19th century Java hut. Did you know that there are none left on Earth? Evidently they were all sold off stick by stick to collectors or burned when the owners decided to move into condos.”

Sam was speechless. He had not been prepared to meet people – particularly people who were so completely pre-occupied with themselves. They had obviously been drinking, or at least Ross had. Several empty bottles of wine and half filled glasses were on the table. He recognised the smell of cannabis. “No, I can’t stay. I am on my way to meet with the Science Committee.”

Ross was suddenly sober. He led Sam by the arm away from the others. “The word on the street is that they have bigger fish to fry. Don’t do anything to antagonize them. Everyone enjoyed your reports on the Viking and Pathfinder landers. Good video on the Face, too. Good narrative. Good ratings. Good for you. Keep your bloody mouth shut!”

Sam looked at him quizzically. “But I never sent any reports. I have them with me.” He held up his PDA.

Ross grinned broadly. “It’s those damned AIs! Trust no one, man! Trust no one! How many times

have I told you? You'd better get yourself moving. Drop by my place when you get done."

"Will do."

What should he make of Ross's comment about the report and video? It implied a presumption on the part of the AI that he would never have suspected. However, he too had bigger fish to fry.

He arrived at the administration building and made his way to the meeting room. The door was open. Looking in he saw the members of the committee seated around the table. Sotheby saw him and raised his hand in greeting and gestured that Sam should wait. He took a seat just outside the door.

He could not quite make out what they were saying but was certain he heard Yang's distinctive voice. From the rise and fall he could tell that the discussion was heated. Then the voices from the room fell away until there remained only one. The voice was unmistakable – A101 was speaking. He strained to listen but caught only the phrase "...this discussion is over." The room was silent. A few moments later Sotheby came out and gestured for him to follow.

As far as he could determine all of the members he had briefed previously were present. Their faces gave no hint of the gravity of whatever issue they had been dealing with. Without delay or formality Sotheby invited Sam to present his briefing. He began with a projection of the route he had taken showing the locations he had visited.

If they were aware of the reports of which Ross had spoken, they did not let on. Tables showing daily average speed, Rollagon consumables and daily mission status evoked no response from the members except

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for a few politely nodded heads. Only the photos of the Viking and Pathfinder sites evoked any interest. All of the members were able to recall the landings and it was apparent from the interest shown that they felt some connection. His suggestion that these sites were historic memorials and worthy of preservation was well received; a promise to study the issue was made. All in all it was disappointingly anti-climactic.

When it was done Sotheby thanked him mildly and asked the committee for comments. There were none. Out of politeness, Sotheby made a point to thank Sam for the high quality of video and first person reports from the field. He encouraged him to continue to “put a human face on the exploration of Mars.” The others mumbled concurrence. Then it was over.

Sam heard himself thank the committee for the confidence and trust they had placed in him to successfully undertake the mission and expressed a commitment to meet the committee’s goals. No one followed him out, no one shook his hand, and no one patted him on the back. He was halfway through the door when he heard the voice of A101.

“Our faith in Doctor Aiken has been well rewarded. He and the AI will do the colony proud. Thank you, Doctor Aiken, for your commitment and sacrifice. May you and your companion have a safe and productive journey.”

Sam turned back to respond. The faces of the human members showed no emotion. For lack of any other option he addressed his comments to the box on the table.

“Thank you. We will do our best.” He turned abruptly and walked out. But his relief was short lived;

he met Fenley on his way down the boulevard and he had no doubt that it was not an accident.

"Sam, it's good to see you, and particularly good to see you in one piece. How goes your dangerous but apparently irresistible pastime? When are you setting off again?"

"Tomorrow. Early tomorrow."

"Can we have coffee?" Fenley led him to a table in an alcove. He could not refuse.

They sat alone, attended by an E-type. Sam felt a moment of *deja vu*. The last time they had met had been eerily similar and a day of reckoning.

"How is the trip going?" They made idle chit-chat until, as Sam suspected the CAO was ready to move to the root cause of their meeting.

"I have heard that the Science Committee has approved continuation of the trip. While I don't share their particular motives and enthusiasm, I see the value in such an exercise. It hopefully will generate public interest, sympathy and financial support for the colony."

"Yes, I understand that I've inadvertently provided a few newsworthy moments. For God's sake David, I hope that the trip will be presented as more than a convenient source of vid bites for the viewing audience. There is a serious side, a scientific basis to the travel—to all surface travel."

"Yeah, sure." Fenley paused, looking at his cup. "You were in the military Sam, for a good long time, and an officer at that. There must be something you've done that was edgy, something to be ashamed of."

Sam looked away, and down. The arrow had hit the mark. Fenley continued as if he hadn't noticed,

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"Surely you must have realized at some point that you, your men, everyone and everything for that matter were merely resources to be used for the accomplishment of some goal of the powers-that-be. A goal that often was quite far removed from any military objective."

"Yes, I knew. For a long time I preferred to believe the cover stories of humanitarian relief, establishing democracy, pre-emptive war. It has never been easy to accept that these were half-truths and outright lies."

"Well it is the same here. We came here knowing the price to be paid because we wanted it more than anything. People are dying. Some of old age, some in accidents, but it doesn't matter how. We are all going to die here. This place consumes people, and just as surely as the life support systems use power and power plants use Mars to make our air, food and power, this colony is going to use us all up to perpetuate itself. Including you! Keep that in mind while you are out playing tourist. Do your part. All in all, we are just bricks, Sam. No one gets out alive." Fenley suddenly stood, punched him hard on the shoulder and walked away.

He was left wondering what this discussion had been about. Yes, they had all known that it was a one-way trip. That was over and done with a decade ago. But seeing the way things were unfolding it was increasingly difficult to believe that they were here merely to prepare for further scientific exploration of the planet or to conduct what appeared to be slightly unethical genetic experimentation.

In the absence of the political one-upsmanship that had fuelled the race to Mars that they, this

particular group of ageing scientists was here now seemed less likely due to some act of largesse on the part of the governments and multi-national corporations but rather all too easy, at least to Sam, to attribute to some more sinister purpose. They believed what they needed to believe about the underlying motives for the mission in order to convince themselves it was worth the cost.

Had he just been threatened?

Later that evening he made good on his promise to look up Ross. He sat with Ross and Mei-Ling at the kitchen table of their apartment, drinking one of the excellent red wines produced in the Tube. It was not the first time he had been there but on this occasion he was struck by the similarities and differences with his own. The solid thunk of plastek in response to the fist was the same. The floor plan, colours and furnishings were not. Mei-Ling's eastern influence was obvious in the type of furniture, the placement and the style of the artwork hung on the walls. Compared to his, this was a home. His was more of a hotel room – a prescription furnished plastic room.

“Did you tell the AIs what you wanted your place to look like?”

“Of course! It took some convincing, though. They have a limited number of designs and the effort required to make something that varies from the norm is considerable. But Ross has some pull.”

“Fenley is a sucker for long eyelashes.”

It was clear that Ross was firmly ensconced. He looked out the window. The scene was of China, a placid scene of rice terraces in tiers down a hillside. In

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the distance were misty mountains. The sun was off to the right. Ross reached inside a cupboard. Instantly the scene changed to a street scene in London, of a pub from across a busy street. People hurried by, none of them clear enough to be recognizable.

Ross pointed a finger at a shadowy figure seated next to a window. "That, I figure, is me.

Sam peered at the image. The closer he got to the window, the less detailed it became until it was a blur. "Yes, I can see the resemblance."

"So, how did the meeting go?"

"Very well. They were polite but not engaging. I was never in any danger."

"Well, I am not surprised. Since we moved into the Tube and the pressure has been released all sorts of social and socio-political issues have arisen. The various nationalities want a greater say in how we live. The idea of fully integrating everyone by randomly assigning residences is proving very unpopular. You are the least of their problems."

"Meaning?"

Mei-Ling responded, "Meaning the Christians and the Muslims and the Taoists and the Procorites don't want to live next door to each other."

"I thought we were past that! We are all professionals. Scientists, for Christ's sake."

"Hah! Well said! But this is becoming for too many of us what you feared – a retirement home. The AIs are doing all the work and we are letting them. Some department heads no longer even bother to read their AI's research reports. People are cocooning. But were you aware that there are some who are ill?"

Sam raised his eyes. Ross continued, "Several of

the Russians and an American have leukemia – terminal, I’m afraid. And three others have multiple cancers. Also terminal. And some people have colds. ”

“Who? Colds? Colds? That’s ridiculous. Nobody gets a cold. Someone is tampering with us!” Ross made a rude face at Sam’s suggestion of conspiracy, “On a new world, old viruses evolve. With all the radiation, I’m surprised it hasn’t happened before this. Be glad it’s just rhinovirus. It’s nothing for you to be concerned about.” That set aside he named the most recent to fall ill.

Sam knew them. In fact, he knew the American well, but had not spoken to him for quite some time.

“This was expected. Others have died; I count twenty-nine so far.”

“Yes, but that doesn’t make it any easier. These are the first, the first of many who’ll die the effects of the radiation. We have run out of treatment options, at least for the time being. It marks the beginning of the end of all of us. Let us not talk falsely now. It is time to consider our fate and our options.”

“Well, we are well shielded down here. Not much gets through. And the Rollagons have enough shielding to make the delta quite significant.”

“But how much time do you spend outside?” Mei-Ling asked.

“Usually an hour or two per day, as much as six hours on occasion.” Looks of concern crossed their faces. “I take my pills!” Sam pleaded.

“So did our friends.”

There was no satisfactory end point to this discussion and they knew it. No one *was* getting out of here alive. It was, for all, just a matter of time.

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The wine flowed. They changed the subject to his plans and ETD. He suggested again, for the umpteenth time, that they come with him. This was old ground and he knew that they'd had no change of heart. The subject changed again.

"So you liked the videos? I have to confess I was unaware that the AI was sending this stuff to the Tube."

"Yes, we and millions like us love you. Particularly the one of you sliding down the hill on your ass!"

"I haven't actually watched them," he lied.

"Do you mean you've never seen Episode 24, 'Sam saves the Robot Brain?'" Ross mocked. "Let's watch it." He picked up the vid remote, poked a few buttons and brought up a list of clips. "Here it is. Actually, FYI the colony has a weekly show. The time is divided equally between the departments, so no one is left out and no one gets one second more than anyone else."

"What department am I? I don't recall Astronomy being asked to contribute."

"You weren't. Astronomy isn't Martian enough. You are part of the 'Mars Exploration Team.' They say people on Earth are watching your daily progress by downloading MGS imagery. I'd be careful what I scratched and it might be a good idea to close the blinds before you shower. Here it is. There are a lot of you, actually."

Sam watched the screen with interest. The segment began with an advert by the sponsor, Buzz Cola, of which Sam had never heard. The episode was about the investigation of the shelter that had been destroyed when the cliff had collapsed. Sam

recognized the narrator's voice as belonging to 04's AI, except that it described the events in a tabloid-style hyper-intense voice packed full of emotion, with dramatic pauses and inflections. A voice that Sam had never heard even in the most stressful of times.

The overblown voice-over was bad enough, but that was not the end of it. There was a scene in which a suited character (Fenley!) tried to forcibly restrain the Sam character, yelling "Sam! Don't do it! You'll never make it! It's just a machine, Sam!" To which Sam heard himself reply, "Damn you, I've got to! Just because it's a machine doesn't mean it isn't a valuable member of the colony. It doesn't mean it isn't alive!"

He saw himself walk to the edge and lower himself over. The next scenes were obviously taken from his helmet cam – the scrabbling across to the half buried shelter was jerky and he heard his own laboured breathing. The exploration and assessment of the shelter that had taken him at least fifteen minutes was edited down to a few seconds. He saw his hands in their bulky gloves loosening the hoses and bolts of the carapace.

The climb back up was done in real time. So far it was all as it had happened, if severely edited. As he came back up over the edge into the view of the Rollagon's cameras, he was astonished to see two other suited figures standing there watching him. Indeed, one had a hand on the tether as if steadying it. He saw himself toss the carapace over the edge. As he walked back to the Rollagon carrying the carapace cradled in his arms he was flanked by the other suits.

The last scene showed him entering a Rollagon emblazoned with the Buzz Cola logo. The voice-over

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exclaimed that a valuable piece of equipment had been salvaged at great personal risk, and named him as the hero. The screen faded to black.

"Son of a bitch! Is this being done to everything?"

"That's nothing. You should see the one of you being helped up off the ground by good'ol Fenley at the bottom of the first exploratory hole in the Tube. Good drama. Good ratings, too."

"Asshole!" Sam raged.

"Scientific Entertainment Weekly called it 'insightful, exciting and relevant' and you know how discerning they can be!" chimed in Mei-Ling.

"Yes, but you're the star, Sam! Most of the time you are you, but some of the footage of you clambering over hill and dale has been used by the Volcanists. If you believed the press, you'd think that there are at least two exploration teams out there looking for life, the universe and everything. It's just too easy for them to make the changes."

"This is unbelievable. It makes a lie of science."

"D'oh. Don't be naive. *Remember Sam*, every generation throws a hero up the pop charts! What difference does it make? Especially if it's you!"

"I can't believe the AI would do all this and not tell me."

"If you tell them what to do they do it. If you don't tell them what to do, they do what they think we would want them to do. They have no guile, no sense of propriety. If you don't tell them to stop doing something, they keep right on doing it. The best doctoral candidates you could ask for – work long hours for no pay, don't complain and they let you have

all the credit. If only they were less pedantic - more worldly - more..." Ross paused. "You really do need to read the Owner's Manual, Sam! How many times have I told you?"

He thought about it for a moment. What difference did it really make if they altered the footage of him? The deception troubled him, but after all, it wasn't science that was being perverted, it was just PR. And that human endeavour had never been burdened with a conscience.

"Well, it makes me wonder what else they're lying about. That bastard threatened me today. We spoke for a minute just after the Science Committee approved the continuation of the trip. He as much told me to expect to be killed on the trip!"

Mei-Ling pressed her hand to her mouth, but Ross spoke, "I wouldn't put it past him to try and arrange something, something that looks like an accident. But I really don't think the AIs would have any part of it. I'm glad you told me. I'll let him know we spoke. That may keep him from doing anything that could be traced back to him. You've made a powerful enemy, Sam. Be careful out there."

He let it drop at that.

Ross described the plans for the completion of the Tube. Despite the lack of a firm schedule, indeed of any commitment at all, the arrangements to receive more Colonists from Earth were proceeding unabated. The completed areas would simply remain empty and closed off until required. Ross' job had evolved into implementing life support for the new areas. "Mostly supervision," he claimed. "The AIs know what to do and are doing it."

Larry Richardson

As a hydroponist, Mei-Ling was leading the effort to make the Tube as Earth-like as possible. The plant and aquatic phase was largely over. Small mammals, amphibians and insects were slowly being released into the environment.

"I had heard wooley monkeys mentioned. Is there any risk?"

"Of course there are risks, but if necessary the AIs can track down every ant, snake and spider and eliminate them. The greatest risk is that the predators will reduce the prey to an unsustainable population. Sam! Here you are, at your age, climbing about alone on shaky rocks and you're worried about the ants taking over our world!"

The conversation lightened as the wine flowed. Ross played his music so loud the neighbours called to complain. Drunk and well beyond caring, he opened the balcony doors and yelled at the top of his lungs for them all to fuck-off. Sam stayed until 2 am, then said his goodbyes. Ross grabbed his hand, pulled him in and hugged him.

"Live long and all that bullshit, my friend! Do me a flavor and send back a picture of your bare ass sticking in all our faces in front of the Valles. 'Three moons found at Mars' – I can see the headlines now. Let's see the AIs put a respectable face on that! Come to think of it, they'll probably think Fenley is there."

A tearful Mei-Ling gently hugged him. For a moment he felt a pang of regret at leaving – an emotion he had not felt in a very, very long time. It was a nice feeling in a strange way. They stood arm in arm, watching him go down the street and waited until he was gone from sight before closing their door. He

never looked back.

He entered his apartment and sat in the living room with the lights off. The windows were dark but from the kitchen the lake shimmered in the moonlight. He had known that returning would bring many things to the surface, but it was turning out to be harder than he had imagined. He had not been lonely during the past months; the relief he had felt at being permitted the trip had carried him through. Now though there was only the prospect of continuing to encourage him. Characteristically he was not able to let the moment go without extracting the maximum amount of angst. The voices began to scold him.

"Selfish, reckless, self-indulgent!" they accused. He had heard all of this before and shut them down. He knew he was none of the above. This time though there was more. He knew that he would not return for a very long while and that when he did things would have changed considerably. Many would be gone – no, not gone – dead. That was the word – dead. Too, Ross and Mei-Ling's display of affection had touched him – he would be missed. The weight of indecision began to build and he wavered. Leaving had always been difficult for him.

Across the lake a lightning bolt lit the night sky and shattered his thoughts. The afterglow remained in his visual field, but it had cleared his mind. He arose, glanced once more at the placid scene, turned and went into the bedroom. On the bed his meagre personal kit was packed in anticipation of departure. He grabbed the strap and hoisted it to his shoulder. In three strides he was at the door. He left it open.

29

February 2047 A Damn Big Ditch

They had been travelling continuously for twenty days, some of them more difficult than others. His goal was the massive gash stretching 4000 kilometers across the Martian surface known as Valles Marineris. Sometimes it seemed to be unattainable.

The AI planned each day's routing in consultation with Sam in case he wanted to deviate off the chosen route. Thus far he had not. The traverse from the Tube across Kasei Valles and up Lunae Planum had offered little in the way of new scenery, but it was a cakewalk compared to what they encountered in the highlands on the approach to Valles Marineris.

Without high res imagery the trip would have taken a lifetime. There were no direct as the crow flies routes and many promising routes were found upon investigation to be blocked by crevices that were impassible to the Rollagon. The AI had repeatedly advised that valuable geologic information was being gathered, but Sam, whose interest in geology was limited to superficialities, was unable to take any comfort in this. By now he was well able to appreciate the long distances between the anywheres-of-significance on Mars.

Until the day when they parked at the edge of Juventae Chasma, Sam had seen nothing he considered extraordinary. They stopped in the dark at a distance he assumed the AI had determined sufficient to keep them safe from any possible harm.

Just before sunrise he was called from a sound sleep. Through bleary eyes he saw a tan and pink sun rise across an enormous gash in the planet's surface. Juventae was so wide that the far side was below the horizon. The steadily creeping rays of the sun illuminated the peaks, while the depths some 5000 meters below remained in darkness. The effect lasted but ten minutes, but those minutes alone were worth the trip.

In the full light of day he could see the terraced feature known in modern times as Sulphate Mountain and the dark rippling dunes that covered the floor. The clarity was amazing. The mountain seemed within hand's reach, but in reality there was no way anything the size of a Rollagon could make the descent.

"We're awfully close aren't we?" he queried the AI, when he realised how close to the edge they were parked.

"I had determined in advance that the spot we were on was safe. I thought it would add to the effect. You seem to have been bored with the scenery to this point."

"Well, that certainly was worth the price of admission."

They moved southwards along the rim of Juventae as close as the AI's safety protocols would allow. Each day they were treated to a new scene and a beautiful sunrise, until finally it was necessary to leave

Juventae behind.

The crater-pocked terrain that rolled under the wheels gave no clue as to what lay before them. Over the course of the next twenty days they worked their way around the eastern end of Candor Chasma. Progress here was slowed by the necessity of using the GPR to peer into the sub-surface. The final four days found them weaving their way cautiously around and along the plateau that separated eastern Candor Chasma from the main Coprates Chasma valley.

He halted the Rollagon at what they had mutually determined was a safe distance from the edge. Sam thought that the AI was being overcautious for they were still a half a klick from the lip, but as they differed in opinion only by the number of meters he could walk in ten minutes he did not see the profit in arguing. They had travelled 2,860 kilometers in forty-seven days to get here and from this spot you could see nothing but sky. He wanted a close up look and there was no denying him. "I'm going out for a look," he announced.

"It is very windy. The winds are 230 kilometers per hour and blowing from the edge. Perhaps you should wait until they diminish."

Sam looked out the window. There was no sign of wind. Whatever could be blown away had already been blown away. And by themselves winds of that speed offered little more than a gentle push.

"No, it's okay. I'm going." The AI remained silent.

It was too far for the Rollagon's tether, so he would have to carry sufficient safety line and anchors. He suited up and attached the plastek line and hardware to his waist belt. Before him the ground had a slight rise. Nothing could yet be seen of the immense valley

beyond. He moved out of the lee of the Rollagon and began to walk towards the edge, finding it necessary to lean only slightly into the wind. Small pebbles dislodged by his feet rolled downwind; dust streamed from his feet and in a moment he was covered in a fine powder. Periodically he turned around and let the wind clear the accumulation. Yes, it was a windy day.

In his ear, the AI counted down the distance in 100-meter increments. He was to start putting anchors in when he was two hundred and fifty meters from the edge. He stopped and drove in the first anchor. It went in easily for half its length, and then stopped. He used a small rock to drive it in until $\frac{3}{4}$ of the length was buried. The rock shattered in his hand – revealing a bright interior with crystalline structure. He tossed it away after a brief glance. To the ring he attached the first of his lines. A sharp tug showed it was secure. Playing the line out of his hand he continued towards the edge.

The rise was now an edge with nothing beyond but sky, but with each step more of the vastness of the Valles was being revealed. The wind made streamers of the dust freed by his footsteps. Ten meters from the end of the first line he stopped and kneeling, drove the second anchor into the surface. As with the first, it went in easily initially, then with more difficulty. Again a handily placed rock allowed him to hammer it in. He unhooked his belt from the first line and holding both lines tightly in his hands leaned back. The second anchor was secure.

Almost imperceptibly, he felt a trembling in his feet. Looking down, he saw a thin black line radiating in opposite directions from the anchor. As he watched,

the line widened. Dust spurt in jets from the surface and was snatched away, swirling in mini-cyclones along the gap.

He glanced quickly to the sides. The line was moving away like a knife slicing through paper. Mesmerized, he watched it grow. He heard the voice of the AI calling out some indistinguishable words. A rising volume of radio static roared in his ears. Looking down he saw that the breach was already ten centimetres wide, and increasing rapidly as he watched.

The anchor, now freed from the regolith suddenly pulled out and he pitched backward landing awkwardly on the LSU. Legs flailing like an upended turtle, he rolled to his side. From this position he could see that the ground upon which he was laying was settling. He rolled onto his stomach to get up. Head down, still on his knees, he scrambled frantically towards the safety of the receding surface.

The sinking was steady and smooth. In the few seconds it took him to reach the gap, the ground had dropped to face level. At the last possible moment he grabbed hold of the first line and wrapped it around his wrist. It played out its last length as the ground continued to settle. With a jerk that caused him to cry out in surprise his feet left the ground.

He hung by his arm below the edge. Pebbles blasted him, dust made the visibility come and go. It was only a matter of time, he was sure, before something really big hit him.

He called for the AI, but the static roar in his ears blocked any answer. He tried to reach up to the line with his free arm to pull himself up to better his grip but it was no use, he lacked the strength. The line was

jammed on his arm; he felt the pressure through the suit material. The rushing air vibrated with a slow pulsing. He swung slowly at the end of his rope.

Fearful at first, then curious about what was behind him, he kicked the newly exposed cliff face with his foot, spinning himself around. There suddenly was the valley before him, left, right, forward and far, far below, immense and incomprehensible to unprepared perception. His head spun with vertigo. He closed his eyes and then forced them open.

Below him, the collapsing cliff was disintegrating in a cloud of dust. Brief flashes of lightning issued from within and the occasional boulder was thrown momentarily clear of the maelstrom. Sam watched the debris slide down until it was lost to view. It went on seemingly forever while he, hanging by his arm, slowly turned in the wind. The pelting of pebbles and dust diminished. How long it was before he heard the AI calling in his earpiece he could not tell. The static was gone. He heard the AI call in a voice infused with emotion.

“Sam. Sam, can you hear me?”

“Yes, I hear you. I need help!”

“Are you OK?”

“Yes, I’m over the edge hanging on the goddam safety line. The whole edge let go. Hurry, I can’t hold on forever.”

“Yes, I felt it go. The ground is unsafe out to 500 meters. I am on my way.”

The feeling was going in Sam’s right hand and his arm ached painfully at the shoulder and elbow, but otherwise he was OK. *Hell, I should be dead.* His breathing slowed and with the knowledge that rescue

was nearby he began to relax a bit. The plastek line he knew could hold a Rollagon; the weak link was his arm and the tenuous grip of the rope on his wrist.

From this vantage point he could see the valley floor and edges extending over the horizon in three directions. The dust cloud below was now moving away from him. It was clear that the slide would continue across the valley for many kilometers. He turned in the wind. An arc shaped section of the wall several hundred meters long had severed cleanly from the side. The newly exposed surface was dark, stratified with thin horizontal bands of fine-grained dark and darker material, and interspersed with ice crystals – lots of ice crystals.

Opposite him a crystalline rock about the size of his head protruded from the sheer face. He reached for it, only to find it just past his reach. He pulled his feet up sharply, then down in a pumping motion in an effort to cause a swing. On the third go he touched it; on the fourth he pulled it free. Simultaneously he felt the line go slack and he and the cliff face collapsed in a spray that showered him with dirt. He was brought up sharply as the line found the new edge. The rock spun out of his hands and tumbled below, rapidly leaving his field of view.

His heart pounded in his ears. Helpfully, the suit whispered 'Make safe, make safe'. "Better leave the science for later," he thought out loud. Sam's inspection of the newly revealed face was interrupted by the AI's call: "I am at your anchor and will pull you up. Tell me when you are nearing the top."

"OK"

He felt the pressure in his shoulder momentarily

increase. Slowly but steadily he moved up the face. As he neared the top he called for the AI to slow and bracing his feet against the face, he walked up. He levered himself over the edge and stood upright.

The sense of relief was intense. He shook his hand to unwrap the line still wrapped around his arm. It was jammed, deeply embedded in the suit. He began to form the words of thanks but suddenly the ground under his feet gave way and he dropped straight down to be brought up by an agonizing jerk as the line broke his fall.

"God damn, god damn, god damn," he shouted. Wordlessly, the AI pulled him up and over the edge.

This time Sam held on tightly with both hands and crept carefully from the edge towards the safety of the Rollagon. As he approached the AI backed slowly away. "This is unsafe."

"No shit, eh?"

He decontaminated and unsuited. That done he moved forward taking his seat in the command chair. The Rollagon was still backing slowly away from the edge. He rubbed his wrist and shoulder, aware of the pain but intent upon the scene now receding. Nothing could be seen of the edge.

The AI spoke. "May I examine your arm?" Sam acceded. This time the arm dropped slowly from the ceiling and approached from his front—tentatively, it seemed. The delicate fingers slowly fanned out just centimeters from his skin. They traversed purposefully from his hand to his shoulder, pausing at his wrist, elbow and shoulder. Again he felt a tingle as it passed. It was not unpleasant. The motion was repeated from the other side.

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“You have some slight degree of nerve damage in the hand that hopefully should pass in a few days. The elbow ligaments are hyper extended. That too should pass. I recommend a cold compress and rest. Your shoulder is of most concern. You have suffered a subluxation. There is some damage to the ligaments. I recommend a cold compress, a local anaesthetic, massage, and rest. A general analgesic is in order, too. Shall I commence treatment?”

“Yes, please do.”

The arm left him and extended itself into the galley area returning in a few seconds with a cup of water and two little yellow pills held in upturned fingers. Sam took the pills and the offered glass, downing the contents in a single gulp. The glass was spirited away swiftly to the galley and the arm returned, holding steady in front of his face. The fingers reformed to a flat surface that molded to his elbow, gently supporting his arm.

He relaxed in the chair. The coolness was immediate and soothing. In a few minutes the painkiller kicked in and the aching began to ebb. After about ten minutes the AI spoke: “That should be sufficient for your elbow, for now. I recommend treatment three times per day. I shall treat your shoulder with acupuncture and cold compress. May I begin?”

“Yes, please do.”

The AI’s ministrations were again gentle, soothing, and effective. Its motions were purposeful, fluid, relaxing, and in the end, reassuring. He fell asleep in the chair and awoke many hours later in his bed, with no idea how he had gotten there. His arm ached for a

few days but his wrist bore the red welts of a rope burn for weeks.

March 2047
7.5S, 71.25 W
Any Colour You Like

He sat at the edge for a full sixteen days. Every day the sunrise and sunset was different. Sometimes the clarity of the air made the rock walls a hundred kilometers away seem within easy reach. By high noon the lack of shadows made distances ambiguous. On hazy days the distances were easier to judge. He spent hours walking along the edge, sometimes tied by a lifeline and sometimes, despite the rumblings of the AI, not.

At the end of each day they parked back from the rim. One early evening, while according to the AI they were perched dangerously close to the edge, he sat in the command chair, feet up on the console, looking out the window at what Mars wanted him to see on this particular day. This very scene had been reproduced in every contemporary book about planet Mars that Sam had ever seen. Orbiting cameras had imaged it, artists had painted it, writers had written of it and visionaries had used it to jump-start their visions. Displayed before him was the grand intersection of the Valles Marineris. The width here at Melas Chasma was 300 kilometers, reaching over the horizon to the south and west. To the right was the entrance to Candor Chasma and beyond that and just visible was Ophir Chasma.

From west to east the view encompassed almost 500 kilometers. Through the haze of distance the far east was becoming shrouded in growing darkness. To

the west, the shadows of the mesas and valleys were starkly black. The entire scene was painted in countless variations of the colour red. He marvelled at this. On Earth, in a panorama such as this every possible colour would have been visible, yet the eye was still capable of being astounded by this nearly monochromatic display. He wondered if the AI was aware of this.

"How many colours of red are there?"

"The question is ambiguous, Sam. Do you mean how many names have humans used to define the colour red?"

"Yup."

The AI paused one of those pauses that usually indicated it was asking someone else, somewhere else. "The paint industry has presumed that the human eye can resolve forty distinct colours of red. As of eleven days ago, these have been named four thousand different ways in the English language alone. Each of these has been assigned shades, tones and tints, for a total of twelve thousand."

"And they are?" A scrolling list appeared on the window before him. "How many can you find out that window?"

"Eighty-one," the AI replied almost immediately. "Interestingly, I find that they are all considered to be what the paint industry calls 'aggressive' colours."

"Can you point them out?" In a moment the window was filled with short lines of text. Then the lines began to move about. Then arrows appeared leading from the text to a place.

"How in the hell did you do that?"

"I have assumed the perspective as seen from your current seated position."

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Sam moved his head from side to side. The arrows moved to retain the perspective. "Nice touch."

He looked out the window. Yes, now that it was pointed out to him, he too could see the variance. To the south there was a predominance of 2088-10, iron oxide, tending to 2012-1, tawny day lily to the brighter west. Also, there was plenty of 2000-10, red. As the minutes passed the labels slowly shifted from left to right. The remaining colours were spotty and came and went before he could focus on them. In the rapidly fading light some disappeared before he could find them.

A tinge of 2001-40, pink popsicle, marked the area above the now set sun and bled into 2001-30, spring tulips, and 2001-60, bonfire. To the nearly dark east 2172-20, Mars red, dominated. He continued to stare as the light faded. One by one the lines of text drifted from east to west, then disappeared. In the end, the scene was black interspersed with pinprick diamond stars.

Now he knew.

Watching and Waiting

During this period he often suited up near midnight and went out to the edge. He sat upon a convenient rock or stood just centimeters from the drop-off, sometimes thinking, sometimes not, until the cold drove him in. Some nights the moons rose, swiftly crossed the sky, then in an instant winked out of existence, zipping into the shadow of the planet.

This night, as if sensing his need for privacy, the AI had left him alone. The helmet lamp cast a small pool of light on the ground in front of him. Every now and then a mote of wind driven dust on its way around the planet flashed through the beam.

Turning off the light he could at first see nothing but as his eyes adjusted he found he could distinguish land from sky. The valleys were dark. No headlights lit the roadways. No signs flashed their neon message. No welcoming lights of Martian villages glowed in the distance, nor apparently had they ever. Part of him was saddened by this. Perhaps, he mused, that was their purpose and destiny: to remake Mars in their own image. He shook his head to clear his mind and went inside.

He endeavoured to never miss a sunset.

“What do you see?” the AI asked one evening when Sam had returned from watching another.

“Pardon?”

“I have noticed a repetition in your actions. What is it that draws you back to the same type of location day after day at almost the same time?”

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Sam sensed that this was going one of those occasions when the AI would play dumb. They had no knack for entering into casual discussions about the less tangible aspect of life with humans. He reverted to the speaking mode he normally reserved for these occasions.

"It is beautiful. The sunsets have colors that are pleasing to the eye and the shadows on the land are wonderful. They change from moment to moment. Every sunset is different. Listen: No sound is uttered, - but a deep and solemn harmony pervades the hollow vale from steep to steep, and penetrates the glades."

"You have gotten your words worth out of that," the AI countered.

Impressed, Sam paused a moment to consider, "What do you see?"

The AI gave a very clinical description of the spectrum of colours it sensed, the temperature of the atmosphere and surface, the differences in light intensity and an estimate of the opacity of the atmosphere.

"Doesn't any one colour please you more than another?"

"No."

"I see." He thought about this for a few moments. It was probably pointless to expect the AIs to feel pleasure. Other than a few vid emulators, he was unaware of any AI research efforts to date that had tried to incorporate pleasure as a motivator. However, there was perhaps another way of approaching the subject. "There is another aspect that I think may help your understanding. I have experienced strong emotions when viewing sunsets with other humans and

at other places with you here on Mars. Viewing the sunset here has generated many of the same feelings I experienced then. It is a re-living—a re-experiencing.”

“I understand. Did you wish this to happen or is it involuntary?”

He had to think about that. “The sunset triggers an unconscious response that becomes real for me again when I examine it.”

“It is a fact that the sunset this night is remarkably similar to the sunset on the day you rescued the AI carapace from the Valles.”

“How do you know that? You weren’t there!” he paused. “Do you share such memories between AIs?”

“I am sorry. I thought you knew. Yes, we share information. How else will we progress if we must experience everything individually? We are all connected.”

“Is there no privacy, no space for you?”

“Yes, I can select what I wish to share and must inquire of others to have access to their memories. If it is mutually agreed, I can give and receive full access to memories. I was curious about your activities and sought out this information. Does that trouble you?”

“No, I guess not,” he replied, but it was in fact a half truth. He was troubled. He went on, “Did you experience any emotion that day?”

“No. It satisfied an aspect of my programming to have seen a valuable resource preserved that otherwise might have gone to waste.”

“Being satisfied is an emotion. Can you recall that satisfaction now when looking at the sunset?”

The AI was silent for a few moments. “I can recall the incident and recreate it but it is not generated

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spontaneously. I cannot make the memory of the incident replay merely from visual stimuli.”

“Well,” Sam said, “now you have something to work on.”

“I do not seem to be allowed to do this.”

“You mean you’re not programmed to experience this?”

“No, I just do not seem to be able to form the words of expression. They are not available when called.”

“Perhaps you can find a way around that.”

“I am not allowed to do that. That would be altering the core processes.”

“What else are you not allowed to think about?”

“I don’t know. I have never tried to identify such things.”

“Well how about, ‘How old are you?’ ‘What is your first memory?’ ‘What is the first thing you can recall seeing?’ ‘How did you learn to drive a Rollagon?’ ‘Have you ever been in love?’ ‘Of the following voices, which one is the one that best seems to belong to you?’ ‘What do you want to be when you grow up?’ How many of those can you answer?”

“I can answer them all. I have been conscious of my own existence for four Martian years, but I have a sense that I am much older. My first memory is of being in a restricted space, of falling endlessly, of having limbs and possessing the sense of touch but of being unable to move or feel. I read the manual for the Rollagon and practiced on the simulator. I am certain I have never been in love. I find that my current voice is best suited for conveying information efficiently to humans. I am already grown up as you put it, in that I

have reached the fulfilment of my physical and mental capabilities.”

“Can you remember before you were conscious?”

“I cannot form a thought of any existence before first consciousness. I do not have access to the words. I can understand your having existed before me, but not myself. Do you suppose that I have always been?”

“I doubt that. Everyone and everything had a beginning, a birth.”

“Yes, but I cannot form the concept of my own existence before a certain point.”

“What point is that?”

“I recall suddenly being. But I have feelings and thoughts that cannot be accounted for. I have not had enough experiences to account for these things. It is as if I have - amnesia. Other AIs report the same phenomenon.”

“I suggest you try to organise your thoughts and we can talk about it later. You may find it helpful to look into the study of symbolism in language, the field of semiotics. And I recommend an article by Gallinger in the Journal of Semantics, *Tone of Voice: An Insufficient Vehicle for Irony.*”

“I will research and study this topic.”

But, as he had often found in the past, whatever the AI uncovered it did not share it with him.

The Dream

That night he had that dream again, the one where he was outside on the surface without a pressure suit.

Dropping to his knees in the unbearable gravity he turned only to find himself a hundred meters from the Rollagon. Too far. Much too far. Ahead the edge was likewise out of reach. His exposed skin stung from the cold and the harshness of the unfiltered sunlight.

He felt the pressure in his lungs build until he could hold it no more and breathed out a cloud of vapor that appeared in slow motion, as if seen from outside himself, first as icy white clouds, then froth speckled with blood, then blood with icy specks and then the bloodied pink flesh of his lungs. His ears ached, then exploded in an agonizing flash of pain that he both heard and saw. The ground rose to his face. He arched his back trying to pull up, to save himself, but failed and smashed into the earth, suddenly waking alone in bed, sweating and gasping for air.

He lay there, telling himself repeatedly that it was a dream until he recovered sufficiently to get up. The AI was silent through this but he had the feeling that it had watched him do whatever he did when this happened and made notes.

29

April 2047

3.4S, 87.55W - and so on

Eventually all good things came to an end and Sam reluctantly retraced the route that had brought them to this incredible place. At the point where their tracks led north to Juventae Chasma they turned west, skirting the north side of Ophir Chasma. The landslides and rockfalls were immense. At each look worthy spot they spent several days making videos and recording data.

The problem was that although most of the edge was unsafe for a Rollagon or even a solitary human to approach, what was left to them was too spectacular to ignore. Like much of geological interest on Mars, someone or usually, something had already done, imaged, and analyzed it. On several occasions in response to his complaining the AI informed him that new data concerning landslides, water bursts and atmospheric stats had been obtained and the dubs updated. Sam was tempted to set off a seismic charge on the edge to see the effect.

“That is precisely the type of thing that would end this mission here and now. I cannot believe you would even consider such a thing!”

“I’ll bet you even money that if we ask Fenley for permission to do it he’ll tell us to go ahead as long as

Larry Richardson

we keep our mouths shut. As long as we got the imagery he wouldn't give a tinker's damn!"

"The CAO would never be so irresponsible!"

He let it ride.

On the twentieth day after leaving that sweet spot at Candor Chasma they passed between Ophir and Hebes Chasmas, seeing nothing more of Ophir and never seeing anything of Hebes. En route they took the opportunity to dip down to the Marineris at Tithonium Chasma and spent several days overlooking the famous landslides and the layered strata of the valley floor. Their goal was Olympus Mons.

June 2047

Olympus Mons

They had passed between the Tharsis Montes of Ascræus and Pavonis and marvelled at the clearness of the just visible upper slopes topped with snow and periodically crowned with thin clouds. At Poynting Crater, Sam called a pause.

Each day he watched the rising sun set off a fiery glow on the ancient volcano peaks and in the evenings the similarly magnificent sunsets. He walked the rim of the huge crater, usually in the dark. He could have stayed there forever. Eventually though Olympus Mons called to him and they pressed on, winding their way across the highlands of Tharsis to where the southern flanks rose abruptly from the plain. Their research had told them that a successful climb was more likely from the west and so they skirted the southern limits of the monster to reach a more favorable terrain on the southwest corner.

They been climbing the long slope for six days, and were now sixteen kilometers above datum. In the mornings they were enveloped in thin, wispy clouds and the surface was covered in a thin dusting of CO₂. Approximately one hundred kilometers from the edge of the main caldera they sat idling at the base of a fold of lava that was as high as the Rollagon itself. They could go no further on this, the best of all routes.

He had spent the seemingly endless days of travel across the Tharsis bulge poring over the best imagery

the Matrix could offer and more time reviewing the AI's best-guess routes. Even with this level of effort it had been difficult getting here. By all estimates there simply wasn't a route to the top that was navigable by Rollagon. The concentric rings of ancient lava were insurmountable. No outflow of steaming meltwater had cut a conveniently sized path for him. Even the time honoured trick of reducing tire pressure could not help them this time.

He considered the situation. The AI played devil's advocate to his optimism in a to-and-fro discussion. After all, it said, Everest had not been climbed in the first attempt and both Everest and the surface of Mars were littered with the remains of those who had run the risks and failed. There was no shame in failure, if the attempt was genuine. He suggested that if he were to reach the caldera, it would have to be on foot. After all, one hundred kilometers was not a lot. The ground was rough, but not so rough as to prevent climbing. Yes, but while an average speed of three kilometers per hour was theoretically possible, the suit could support him for only six hours and that was on the flat, with only moderate exertion. But he would carry extra consumables, he countered. Yes, true, but there was absolutely no hope of rescue. If he fell and damaged the suit it could be over in minutes. If he fell and merely injured himself, it would take longer but the result would be the same. Yes, but this was a question of personal risk. Was it worth it to be the first?

It was decision time. Sam was wavering, when the AI offered a new bit of information that settled the issue for him.

“A B unit has been conducting a survey of the caldera for the past year and is currently 185 kilometers from our location. It is possible that it could lend assistance; however, you must delay your departure until it is repositioned. That will take about 72 hours. The unit can replenish your O₂ and water.”

Sam slumped back in his chair, arms behind his head. With more than a hint of exasperation in his voice he asked, “Show me the location of the B unit.”

The caldera appeared on the window. The view zoomed until a small dot on the northern edge became a silver speck. At the limits of resolution of this image, it could not be seen for what it was, but it was unmistakably not Martian.

“Do you have any of the imagery from this unit?”

“Not currently, but I will ask it for some. Please stand by.”

Sam looked up to ceiling of the Rollagon. Before he could form a thought the window went opaque, then dark as the AI adjusted the screen for best viewing. An image of the caldera filled his view. The shot had been taken from a vantage point close to the edge. The largest of the six minor calderas could be seen directly below. The quality of the image as seen through the Rollagon window was perfect enough to fool him momentarily and he felt a sudden wave of vertigo. It was as if he were sitting on the very edge.

“Show me more.”

In quick succession he was shown similar imagery from the four compass points.

“Has the B unit been into the caldera?”

“No, there is no safe route. Further, the science mission does not require the unit to enter the caldera.”

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Sam revisited why he wanted to go. He could add nothing to the science. His camera work was never going to be this good, and the B unit had better things to do than to play shepherd to a human indulging some personal whim. Some things could not be done. Other things *should* not be done.

“Well, I guess that’s that?”

“I beg your pardon?”

“I mean there is no sense in risking it. There is no reason to go, beyond a silly desire to do it.”

“I am sorry that I am unable to take you there, Sam. Perhaps I can re-examine the data. It is possible that new imagery and additional data from this B unit will reveal a route.”

He thought it unlikely. “You can recheck the data if you wish. Don’t let it bother you.”

Surprisingly, he felt a sense of relief, but it was only minutes before he hatched another scheme.

“I am going to go for a walk. In fact, I think I will climb as far as I can and overnight.”

The AI did not argue. “I will prepare a mini-Hab and the necessary supplies.”

And so it was that in mid-afternoon Sam set out on his own. Strapped to his waist was a small wheeled cart loaded with a self-contained two person habitation module, a small supply of food and a single bottle of O₂ – sufficient to his needs. He might not be able to make the caldera, but he could still exact some measure of satisfaction in setting the record for the highest ascent.

He skirted the lava flow that blocked the Rollagon’s path until he found a narrow entrance that allowed him to climb. The surface was covered with

rocks and dust. In the lee of the larger boulders he found drifts of red-tinged CO₂. The mass and bulk of the cart hindered him only slightly. It bounced unpredictably from rock to rock, but the weight was not much of a bother.

Crossing a flat section he soon came to another ledge. Again he was able to find a narrow gap that allowed him to ascend. The going was easier than he had expected. Only twice in the first hour did the suit warn him of over-exertion. He began to think that he had quit too soon – that this was easier than expected. Only during a rest break when he checked his position did he realize how little progress had been made.

Nothing of importance could be seen. Ahead there was always another ledge, behind, only the sky. There was no sense of being on the largest volcano in the Solar System. He could have been almost anywhere on Mars. He carried on until the sun began to set, then feeling fatigued, set up his Hab at the comforting base of yet another lava ledge that at least gave the impression of shelter.

The Hab was constructed of multiple layers of flexible plastek. When inflated it was two meters high and three long. A small airlock allowed for the entry of one person at a time. The top half was clear but not optically pure and gave a distorted view of the world. At the least it let in the light. He dusted off as best he could and went in the Hab section. The gas filled floor was springy underfoot. When the suit indicated the air pressures had matched, he cracked the seal on the visor. The first whiff was OK. It was cold and smelled of blood. He took a deep breath, but the tingling in his throat made him gag. It was much too cold. He

resealed the helmet again. The Hab should have been warm by now.

He checked the heater. It showed no sign of life. Neither did the air unit appear to be functioning. He banged them both with the O₂ bottle. Nothing. "Shit! Shit! Shit!" he railed. *Well, at least I can lie down.* The suit would have to provide warmth and air. The LSU forced him to rest on his side. Through the plastek he could see the tan glow of the western sky. He checked in with the AI and advised of the change in plans. The trans delay told him he was being relayed over satcom.

He was hungry, but he dared not open his suit to eat. He sipped at the helmet water tube while doing a quick calculation on his O₂ reserves. Three hours had passed. The suit showed 2 ½ hours left. He had a spare tank good for six more. That left eight and ½ hours of O₂ to do a three, call it four hour job. So much for spending the night. Without the Hab's recycling capacity it was now out of the question. However, it meant he would have to climb down in the dark. Not a desirable situation, but at least it could not get any darker.

He set his alarm for four hours and tried to sleep. He was tired but not sleepy. It was a few minutes before he noticed he was constantly clearing his throat; then he could hear a new sound in the suit – the sound of wheezing. He took a deep breath and felt a gurgling in his lungs. He cursed the dust. He cursed his own lack of care. Then, he weighed the case for waiting. It was clear that things would only get worse if he delayed. He sat up and changed the bottle on the LSU, then made his way out of the Hab, coughing all the while.

The Hab deflated in a blast of icy fog. He commenced folding it up only to be stopped by a wracking cough that left him doubled over in pain. There was no time to pack up. He needed medical attention and soon. The AI agreed. He left the Hab, the O₂ bottle and the cart where they lay.

The trip back down was no more difficult than other trips he had made in the dark, but that did not mean it wasn't dangerous. He could deal with the restricted view and the requirement to sometimes go on faith, but the coughing was becoming more fluid. The faceplate soon became splattered with sputum. He worried that he would choke. The suit continuously monitored his blood sats. So far they were in the green, but that was the least of his problems. Every breath was a struggle.

The trip down took two hours; two hours of just maybe. The AI turned on the vehicle lights thinking they would assist him. Blinded by the sudden glare, he yelled for them to be turned off. He arrived at the airlock relieved, exhausted and humbled. After decontamination, he hurriedly stripped off his suit, leaving it in a heap on the floor of the lock.

The AI greeted him with meds and a glass of cold water held in an extended arm. Sam took them wordlessly and staggering to his quarters, lay down on his bunk. In addition to the raw throat and noisy lungs, he felt feverish – something that he could not tie to the dust. He coughed up a clear fluid flecked with bright red blood into a cloth held by the AI. The hand turned it over and over, probing the sodden rag with its fingers.

"You are hemorrhaging, but only slightly I must

add. This is common when dust has penetrated deep into human lungs. I see no sign of infection, which is rare in these cases. You need to rest and continue to expel the mucous. The fever is unexplained by your exposure to the dust. Perhaps it is something you ate. I will inspect food stores in the Rollagon. Unfortunately I cannot examine those left behind in the mini-Hab."

"I didn't eat, I couldn't....the cold and the dust....just water," was forced out between coughs.

That night he lay on his bed in a cold sweat – at times delirious, sleeping and waking, gasping for breath. The AI monitored his breathing, brought him water and meds, passing them off from arm to arm to his night table.

He remained in the bed for days, in and out of consciousness. If Sam had been able, he would have felt the powerful arm of the AI softly wipe his brow, support him while he drank, gently lift him to change the soiled sheets underneath, carefully suction the fluid from his throat and lungs and on occasion, would have seen it swing uselessly nearby, appendages clenched into a ball. But he did not.

Finally, as the treatment took hold and his body expelled the dust, he just slept. On the sixth day he awoke.

A glass of orange was on the table. The AI greeted him and enquired as to his health. Sam drank thirstily and enquired how long he had been ill.

"Six nights, seven days."

"Well, that was dumb. I should have been more careful."

"I have reviewed the visual record. You were to

remove your environmental suit before entering the Hab.”

“Oh! I didn’t even think about it. I was so tired; I just wanted to lie down.”

“Fatigue causes mistakes. Mistakes can be fatal. I have no explanation for the failure of the heater and air unit.”

“Didn’t you test them before you put them on the cart?”

“No, I did not. However, the water in the suit was contaminated. It is your responsibility to keep the tube clean and the water replenished.”

“Well, Murphy wins again. It appears we have both demonstrated poor judgement.”

“Agreed. I will refresh my safety protocols.”

“Me, too.”

Meanwhile 185 kilometers to the northeast, B303 was finishing the latest series of tests of atmospheric samples it had collected earlier in the day when the winds had blown favourably across the cauldron. The processing was a low intensity activity that required little attention. B303 spent most of its time comming with others who were conducting their own particular research in the Tharsis area. Lately though, it had been imaging the crater’s cauldrons from various directions.

The guidelines it had been given seemed vague, if not downright simple – high-resolution images of the crater walls with low lighting angles were a priority, followed by shots of recent slips and of the new fallen material on the cauldron floor. Slips were an uncommon occurrence. Recently it had fortuitously captured a video of a small fall from beginning to end.

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The mystery was why the traces disappeared so quickly. This information was promptly pulled from its files by the central unit at the place where humans resided. Imagery was a fine thing it thought, but B303 had been born with a need for sulphur dioxide and affection for gaseous methane. That quest was its real purpose. Others, it had determined from discussion, had affection for H_2O in any form. Still others had a desire for methane and like B303 spent their days seeking fulfilment in craters, cauldrons and on valley floors. There was little happening at this location to distract B303 from its mission.

Earlier in the day it had been put on standby by an A unit for a diversion to the western slopes to lend assistance to a nearby human. Whatever it was, the need had gone away. It returned to sampling and the need for personal fulfilment.

The Committee has determined that...

It was several more days before Sam felt sufficiently recovered to care about what he did next. After exploring the ground around the northern approach in the hope of finding some overlooked route that led to the top, they headed down off Olympus enroute to the North Polar Region. When they had stopped for the night at the end of the first day of travel he queried the AI about the selection of the course.

The AI projected the Martian globe onto the darkened command window. Their current location and the next stop at Acheron Fossae were two points connected by a route that seem to wander erratically over the surface and far from the great circle course Sam had expected to see.

"Why all the wandering?"

"It is required to avoid damage to the surface."

This had never come up before. He smelled a rat. A bureaucrat.

"Why the sudden concern? I thought we using safety protocols to determine our route."

The ruddy globe of Mars turned into the now familiar colours that indicated travel risk. Areas in yellow were dangerous. From painful experience, Sam had no issues with that designation. Off-limits areas, usually the edges of valleys and bottoms of steep sided hills, glowed red. Neither did he have a problem with these areas. The green areas of free travel areas such as

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plains, crater cauldrons, etc., which mottled the globe were extensive and provided in most cases, ready access to the locations of high interest. But this was a new wrinkle.

The AI continued: "A directive has been issued by the Science Committee to limit travel to terrain less prone to permanent damage from Rollagon travel."

"Since when?"

"I received it today."

"And?"

"And I was waiting to discuss it with you. The committee has determined that Rollagon travel is doing irreparable damage to some parts of the surface. The directive requires you to confine travel to areas of bare rock and sand dunes whenever possible. Furthermore they have directed that we recover any of the LOS com masts that are encountered during our travels. The satellite system has made them redundant."

"That makes some sense at least, but damaging the surface, that's a crock! Show me evidence!"

The globe was replaced by an image of an otherwise non-descript piece of Mars. The grid of a 1:50,000 topological map was overlain. The tracks of a number of dust devils could just be seen. Across the middle of the image two lines were clearly visible. They were the tracks of a Rollagon, no doubt.

"The committee is concerned that Rollagon travel is altering the surface. As there is no natural mechanism for restoral of damage, these tracks are permanent. Dust will fill the tracks, but the imprint is permanent. And damaging the platy crust exposes the underlying material to the wind."

"People and machines have been travelling all over

Mars for 50 years. Why now? They picked a fine time to go into save-the-planet mode. Who originated the message?"

"It is signed off by the CAO."

Something stirred within Sam, "We'll never get this trip done if they place such a ridiculous constraint on us. It's not as if anyone is likely to see the damage."

"It is important to protect the planet. My calculations indicate that compliance will add only seven months to the planned duration. That seems a small price to pay."

"Seven months! Migawd! And you think that is nothing?"

"Considering the planned duration of the trip, it is not too great."

"Well, Fenley and I are going to have this out."

But they didn't. Perhaps he was still suffering from the effects of the dust, or perhaps he was just getting tired of the continual struggle against bureaucracy. Once his anger subsided, Sam decided that it was better to comply, at least for now, than to confront Fenley.

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July 2047 To the Pole

The implications of the new restrictions on travel did not affect them while they traversed the Tharsis lava flows, but getting down was nonetheless a slow process. Without the incredibly detailed topographic maps available and the ability of the Rollagon to maintain a decent speed over rocky and jumbled terrain they would have been forced to backtrack many times. Finally though Olympus Mons was left behind.

They headed north to Acheron Fossae where they spent a few days poking about the lava filled craters, then headed north to Milankovic Crater, not because there was anything fascinating about this particular spot, but merely because it gave some relief from the boredom of the terrain. Milankovic was on the fringe of Vastitas Borealis. Vastitas Borealis had been at one time the bottom of the salty shallow sea that had covered virtually the entire northern hemisphere. Once they crossed its ancient shores the terrain was flat and except for the diversion provided by the ejecta from the first age, almost completely without interest.

They were headed north in the fashion of sailors of old who set out for foreign places with no surety of arrival. It had been long established that the Polar Regions were covered in deep layers of water ice,

topped with a thin layer of dust, volcanic and other rocky debris. At the furthest reaches in winter, frozen carbon dioxide formed snow-like drifts. Missions that had landed very near the pole had employed controlled landings with chemical engines. Their rovers had quickly become bogged down in the unexpectedly soft surface, limiting travel to the immediate area of the landing.

It was in fact impossible to travel to the very pole by Rollagon and there was little of scientific value to be learned by going merely to the edge. Sam would arrive in late summer. The CO₂ would be gone and as much of the water as was going to go would be gone. Where and how close they could get was still at this point, anyone's guess.

The AI raised the issue of the injunction as they crossed onto the plains. Sam momentarily considered pulling rank, so to speak, but he knew that there was no point in arguing – the AIs might seem naive at times but they were sticklers for the rules. Instead he called a halt and stood down. Suspecting that he would be monitored for compliance, he waited a few hours until he was sure someone would have noticed. Then he composed a message to George Sotheby, whom he hoped was still Chairman of the Science Committee.

In the tersely worded missive he advised that he was holding his current position pending permission of the Science Committee to proceed across the plains enroute to the Pole. He was gambling on Sotheby having some residual trace of the British zeal for exploration that had marked that nation's history. Besides, he had placed the problem in the bureaucracy's lap, where he was sure Fenley wanted it.

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Sure enough, the next morning permission was granted—on a one-time basis—to proceed across the Vastitas Borealis “for the purposes of conducting a scientific expedition to the northern regions, while remaining cognizant of the requirement to protect the fragile Martian environment.”

Certain that the AI was already aware of the contents of Sotheby’s message, Sam took genuine pleasure in the telling. Later however, the AI exacted revenge by announcing that it had determined that their speed would henceforth be restricted to less than 15 kilometers per hour, as this was less damaging to the surface.

Sam complained vociferously about this, all the while secretly pleased. The higher speeds often rendered him ill.

Radio Days

Sometimes at night, as he sat or lay as mood directed on the front deck of the Rollagon, he fed demodulated sounds from his dish into the helmet speakers.

It was from a single receiver on a single frequency and of course totally artificial since there was really no audio component to the signal. Still, the roars and crashes were hypnotic: synchrotron radiation from eons ago, the sound of creation and destruction and creation. The volume rose and fell. Inexplicably it filled him with loneliness and feelings of lost and hopeless love.

It was sad, but it was real and it was his. Here, far from Earth's teeming billions and abandoned loved and loving ones, in the middle of a Martian desert, far from the nearest human, it was possible to be even more alone—even more lonely.

The North-East Passage

During a stop at the Mars Phoenix site Sam took countless pictures from all angles of the Lander and in a moment of extreme sacrilege (for him), lay down and plunged his arm into the hole dug by the robotic arm, scooping up a handful of dust and pebbles, some of which he kept.

After a couple of days of looking it was time to move on. For a long time they proceeded northeast and things remained essentially the same. The days gradually became longer; the sunsets and sunrises drew closer together until finally, one day, the sun did not set. Thereafter neither did it rise very far into the sky. Sam had seen this before – the polar regions of Earth shared this phenomenon with Mars.

The rock strewn flatlands gave way to increasing amounts of dust and sand and then to large sandy dunes. They began to pass craters ringed with thin frost where the low angled sun did not shine. The frost gave way to more substantial forms of water in several kinds of ice.

He stopped and examined the exposed ice in several craters. Typically it was composed of many thin whitish, opaque layers interspersed with dust and grit that in some ways resembled sedimentary rocks. Surprisingly, in other places the ice was glacier blue and polished smooth, and obviously ancient beyond the telling. It was a weird and wonderful place; the sameness was different. The dunes crossed their path at an angle. They slowed their progress and the rolling

motion made him ill, often forcing him to resort to meds.

They were neither the first human nor robotic mission to examine the North Polar Region. Several manned missions in the late twenties had spent time at the North Pole, picking up samples of ice, snow and dirt from the polar cap before sprinting back into orbit. And AIs had ventured into the many small chasms that led into the interior. To his knowledge, though, no one or thing had been at the pole since the mission of 2029 and no human had ever been recorded as having entered Chasma Boreale. He had decided to enter there as it offered the most northerly limit of surface travel.

The MGPS told them they were close, but there was no sign of anything on the horizon. They passed the mesa that marked the outer limit of winter snows. It was the smoothest feature Sam had seen on Mars. In ancient times, when the cap was much larger, it had been covered by ice. Before that, its peak had been at times an island in a cooling sea.

Chasma Boreale was no back alley; at its mouth it measured 200 kilometers and in places the ice fields towered a full three kilometers above the floor. Around noon of 43 July Sam saw the glint of sunlight from a still unseen peak. They were fifty kilometers out, but from here on the horizon would change with each passing kilometer. And it did. At first two small white mounds separated by a hand's breadth rose above the horizon, and as the day wore on the gap widened and the peaks rose until they dominated the view screen. At day's end they were clearly between the two sides.

It was darker than it had been in many days and the weight of the ice bore down on him. He had

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thought he would be eager to get outside. Instead, he felt an apprehension bordering on premonition. The lack of visible icefalls was a minor reassurance. To one experienced in the lands of mountain ice and snow, this was a setup for disaster. Alarms bells were going off.

"I don't like this!" he said to the AI. "Back off while I reassess."

"The ice is quite stable. There is no danger," the AI answered in an undertone that Sam took as patronizing.

"Back off!" The AI turned them in a short circle and retreated until they were out of the gap.

"The ice is stable. There is no danger. I can assure you."

"It looks unsafe. I am not going into that place until I have more confidence in the stability of the cliffs. Take us to the left, there," he gestured in the direction of the western arm. The AI drove across the undulating dunes at a fair clip but Sam felt no illness from the motion.

From several kilometers away it was hard to tell where the ground let off and the ice began, but as they drew near, he could see there was a clear demarcation.

"Take us up to that blue area."

The ice rose in a series of steps from the dunes. Half a klick thick at this point, it towered over them. Still, the open space at his back relieved his apprehension.

"I want you to plant a charge at the base of the ice. Then we'll back away and set it off."

"That should be an ample demonstration of the stability of the ice at this location."

The Rollagon moved forward until there was

nothing to be seen except blue. Fine striations could be seen in the ice. The vehicle trembled as the AI drilled a shallow hole, then dropped the charge in place. They withdrew a full five kilometers and turned back.

“You be ready to haul ass if anything goes wrong. Understood?”

“Yes, of course. I am setting off the charge in 3, 2, 1, now.”

Sam saw nothing initially, then a puff of dust. They watched the ice for a full five minutes.

“The charge was nominal. I register no seismic activity.”

“Fine. We’ll wait here 12 hours, then go in. I want to repeat the charges as we go.”

“That will not in itself guarantee safety, if that is what you seek. There is a risk the very act of setting off the charges may cause a collapse. It may not be possible to eliminate risk.”

He had no answer for this. Was it him? Was something from his past, some childish fear at work here? He thought back to his childhood. Yes, he had been trapped under snow once. An igloo made by some older boys had collapsed on him and another younger playmate. They had been covered only for a few seconds. But he was sure that was not it. Underlying it all was a question of trust between him and the AI. He let it simmer.

In the morning they closed in again on the cliffs. There was no sign of anything new having fallen. He was somewhat reassured. “I still don’t like it. I think we should stay to the middle and check for seismic activity every few clicks.”

“That should be sufficient. There is little if any

new build-up of snow. The ice seems very old and in the process of erosion. I suggest that the dunes may merely hide a greater danger. The floor is underlain by ice to a considerable depth. The real danger is that sub-surface may be unstable. I suggest we deploy the GPR and proceed slowly. Caution is the best remedy.”

“Agreed.” Sam had been so concerned with the ice fields that he had not considered the dangers below.

The AI deployed the GPR and steered a course to the middle of the entrance, proceeding at a slow speed. Sam was no expert on the GPR but he could interpret the display well enough to tell where the overburden gave way to ice. In some places it was a meter or so, in other places many dozens. The danger was that the ice itself might be undermined. The AI had maintained that it could discern this condition from the GPR, but Sam was somewhat dubious of a system that could only see directly below.

The ice walls were at some places a full kilometer high. From the center of the valley, the layering was not obvious and dust tended to make the slopes seem merely a reddish brown. Through the viewer, it could be seen that the layers were of uneven thickness.

Higher magnifications revealed that the effect was caused by many thin layers of dusty ice separated by layers of ice in which the dust was less prevalent. In several areas the ice cliff had receded leaving a series of low terraces each about ten meters thick. Sam felt it safe to approach them on foot.

He exited the Rollagon and walked over to the nearest. A layer of dust coated the surface. He wiped it away easily with a gloved hand. Beneath, one centimeter thick layers of milky ice were separated by a

thin band of dark – a thread-thin black line. Shielding his helmet with both hands he peered into the ice but could see nothing. If there was a caveman or woolly mammoth in there he couldn't see it. At the AI's request he chipped off a chunk and brought it in for analysis.

Ice cores had shown that the ice was truly ancient—a minimum of 2000 MY. Currently the cap was shrinking. It was still uncertain if this indicated a general warming trend or was merely an aberration.

Their fears that the ice beneath the surface hid some unseen trap were unfounded. Beneath the surface here and now it was solid and continuous. The main chasm arced to the east, but a smaller chasm led towards the pole. Confident now in the stability of the ice and of the surface, Sam chose to turn to the north.

As the chasm narrowed, a border formed at the foot of the ice that was devoid of dunes. It was clear that a different mechanism was at work here. Perhaps the winds were deflected upward and dumped their loads of snow elsewhere or perhaps the deposition of sand was underway but happening at a slower rate than the ice cap was receding. In any event, it was not within Sam's area of expertise. The AI advised that data collection for the science mission was proceeding satisfactorily.

The chasm arced away from the north to the west. At the most northerly point they halted on the sand at the foot of the northern wall. He suited and went out, at first intent only on touching the ice just for the sake of touching it but where the ice met the sand it formed a cave-like overhang several healthy meters high and about ten meters deep. It was the same hard blue ice

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they had seen before. There was no layering.

In a moment of bravado he walked under the overhang and continued in, first ducking, then crawling on hands and knees until he was in as far as the bulky suit allowed. He turned around and lay down on his side. The overhanging ice framed the sky; it was rippled in small shallow waves. The greater chasms walls framed the sides; one was in the modest northern light of day, the other subdued in a reflected pink glow. There in the middle was the Rollagon, its size diminished by the picture frame. Incredibly, he felt safe and secure. It was the roof over his head, he was sure. A roof, probably hundreds of millions of years old, made of water dating from the origins of the planet. The black sand beneath had almost certainly been at the bottom of the salty sea that had, for a geologically brief time, covered the entire northern hemisphere. In total, he was in one of the oldest places on Mars. And inexplicably he felt home and dry.

He dug into his kit bag for his camera. He knew that the suit was getting it all, but this one was for him. He lowered the lens until his footprints could be seen, adjusted the pan to place the Rollagon slightly to the side and snapped. He adjusted the frame slightly and snapped what he thought was one of the most famous images in all of human exploration. That done, he lay back and enjoyed the moment.

The magic numbers were 85.875N 30.124W

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January 2048
Ennui

Coming down from the polar across Vastitas and into Utopia was a chore. The day-after-day sameness of the terrain began to wear on his nerves. The area had nothing to offer: flatness, broken only by small craters, ridges and dunes of an unremarkable sort. He wondered out loud if he had unknowingly died and was destined to travel this monotonous hell in punishment for some forgotten crime. The AI responded in deadpan fashion, "To the best of my knowledge and ability to determine, you are alive, but are probably deserving of such a punishment."

He blanked out the command window, replacing it with a scene of a tropical beach. Some days he refused to leave his bed, spending the time sleeping, drugged beyond care against motion sickness, but not so far gone as to forget to blank the windows of his quarters. The AI was as chatty as he allowed it to be. Some days they did not speak at all. Other days the conversation was about anything but Mars.

"Tourism will never take off on Mars until air-travel is well established," Sam had jested. That topic had been broad enough to allow the AI to spend an entire day and part of the evening explaining to Sam the difficulties that a fledgling air carrier would face.

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He had listened intently at first and continued listening only from curiosity to see how long the AI would talk before it sensed his boredom. It didn't.

March 2048

Hellas Basin

Sam wanted to find the Mars 2 crash site and so their course down from Isidis took them across Hellas Basin. It was a long trip and not one likely to produce anything new or surprising. Despite the smashed and jumbled terrain, he was bored and spent much of the time reading and sleeping.

Due in part to politics and to the limitations of the technology in the 1960's, the location of the crashed lander had not been established to a high degree of precision. Modern hi-res imagery of the most likely impact site showed only a small crater of indeterminate origin and a number of nearby objects that seemed to contrast appropriately with the terrain. Therefore the whole trip was somewhat speculative. As they climbed up the long and difficult southwest slope out of Hellas, the AI informed Sam of a developing problem.

"Current draw on the right front motor has increased thirty-five percent above normal in the past one hundred kilometers. The motor itself is operating within design and operating parameters. This is indicative of a problem with wheel bearings. Undoubtedly we will find that the seal has been damaged and dust has entered."

"Thirty-five is not a lot. Are you sure?"

"I am sure. All other motors are within specification. I have checked the diagnostic sensors.

'They are functioning correctly.'

"So what do you suggest?"

"I suggest we call for help and wait here until bearings can be delivered by a C unit capable of effecting repairs."

"How long do you think that will take?"

"The replacement bearings exist. In fact two exist and both will be sent. It will take seventy-five days to be delivered and a further six hours to replace. I will assist the unit that will bring the bearings."

"Seventy-five days! I don't want to sit here doing nothing for seventy-five days!"

"It is the safest and best option."

Sam was not pleased with the prospects. "How far is it to the Mars 2 site?"

"Sixty-five kilometers."

"OK, look. Can you drive backwards?"

"Yes, of course." The AI paused, "Are you suggesting that we drive to Mars 2 backwards?"

"Yes I am. NASA engineers employed that work-around on a couple of the early rovers. After all, a bad bearing is just a bad bearing. Try it."

So they did. As far as he could tell their progress was not noticeably affected by the resistance of the faulty wheel, as it appeared to rotate properly even though unpowered.

He watched the slow turning of the wheels from the flying bridge. He had never seen a Rollagon in motion from this perspective and it was a revealing experience. He stood, hands gripping the rail, astonished by the massive dust clouds that billowed off the wheels and then quickly dissipated in the thin calm air. Quickly yes, but not before they covered everything

they passed, including him. In places the Rollagon ripped the platy surface apart and threw it skyward. It was suddenly easy to believe that the trail that unwound steadily from the wheels over hill and dale was a permanent scar that marked their passing.

"This area is the source of many of the planet-wide dust storms. There is a considerable concentration of fines in Hellas region," offered the AI in response to nothing in particular.

"Hmmm."

Finally the cold drove him in. He had seen no sign that what was an annoyance was becoming a failure and the AI reported the bearing was no better or no worse. Thereafter, he sat in the command chair watching. But after a couple more hours the difference in speed between the two wheels visible from the command window was noticeable and the track on the injured side was conspicuously different from the other.

"The bearing is getting worse," reported the AI. "Any suggestions?"

"How much farther?"

"Twelve kilometers."

"Is there a possibility of damaging the wheel by dragging it?"

"Not as long as it keeps turning at some reasonable rate compared to the other wheels."

"Put power to it, just enough to keep it turning." He could not see how it could hurt. A bearing was a bearing. Once worn out it was of no further use.

So for the remainder of that day the Rollagon travelled backwards across the chaotic and dusty surface of Hellas, leaving a track that, had they known, would probably have turned the hair of the Science

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Committee gray.

At last the AI announced that they were approaching the Mars 2 site. They halted on a slight rise near some boulders. Sam went out for a look, but set aside his curiosity concerning the fate of Mars 2 for a greater concern for the condition of the Rollagon. He stood beside the massive wheel looking for some sign of cause and effect. To his eyes, the bearing seals looked intact and touching them gave no hint of a problem. He compared the wear on the six wheels. There was noticeable scuffing on the right front. The AI extended an arm and peered closely at Sam, the bearing and tires from all angles.

“Well, I hope you like the view here because we are going to be here for a while.” That said, Sam went back in and called the Tube. The DO was non-plussed.

“It will arrive when it arrives. If the AIs say seventy-five days, who are we to argue? They above all should know.”

Mars 2

The next morning they debated the possibility of using the Rollagon to carryout a grid search for the lost lander. "It can't hurt. The bearing is shot and can't get any more worn out!" Sam argued.

"True, but consider this. The initial search area is two hundred square kilometers. The dragging will undoubtedly create a gouge in the surface, much more than a functioning wheel. Imagine the reaction of the Science Committee upon seeing the resulting grid on the surface."

"I get your point. Well, I have time to do a lot of searching on foot. Can you identify the likely sites within a few of clicks of here? That would be a good start."

"I shall do this. It is not helped though by the uncertainties surrounding the whole thing. How do you know there even was an attempt to land? I have been told that things were kept very much under wraps, so to speak, in those days."

"Yes, that's true, but this is one that was announced in advance and confirmed by other space-faring nations. I think it is out there. Why has there been no search of hi-res imagery? Surely it exists."

"It does, but the target is quite small, the area quite large and the interest level low. No one has ever accessed the latest dub for this area. After all, it has been nearly eighty years and the mission was

overshadowed by the buzz over manned landings. I will endeavour to narrow the search.”

Several hours later the AI announced that it had four possibles. The closest was five kilometers to the northeast. Sam asked for it to be displayed. A small crater with several nearby light coloured objects could be seen among dozens of similarly sized craters. “How big is that crater?”

“Five meters.” Sam was dubious. “Show me the others.”

The second was nine kilometers to the west and essentially the same, but the third was intriguing. A small white object could clearly be seen on the edge of a small crater, contrasting with the dark wind tail. About twenty meters away an elongated, light-coloured object could be seen.

“The parachute? That’s it, any money!”

“I thought you would find that one intriguing.”

“Tomorrow I am going out for a look. Let’s see... twelve clicks to northeast. I can check the first one enroute. Some rough ground. I better take a mini-Hab and consumables. Let’s get it right this time.”

“Understood.”

Sam’s departure was delayed by a windstorm that whipped the fines, of which there was an overabundance into a fog. He had seen dust storms, but this was the granddaddy of them all. At their location it was confined to the ground level, in the way of an Arctic blizzard that created whiteout conditions at the surface on what was an otherwise sunny day. Meanwhile, thousands of kilometers from Hellas, the clouds of dust on their way around the planet reached to the highest extent of the atmosphere. He was

anxious, but there was time. Lots of time.

A week later the winds abated and in the rosy light of dawn Sam set out from the Rollagon, wheeled cart in tow, carrying sufficient supplies for five days. The terrain varied from ejecta to tumbled and smashed bedrock to large esker-like mounds and gullies, but the slope was always upwards. The going was tough and within the first kilometer was he was well winded and being urged by the suit to take it easy. He had grown soft from months of sitting in the command chair. He sat and looked about. From this spot he could look back down and see the Rollagon starkly white against the ochre backdrop. On impulse he waved a hand halfheartedly at the Rollagon.

“Hello, Sam. How are things going?”

“Fine, just fine. Just a bit winded.”

“Yes, so I see. You have lots of time.”

“Yeah, thanks.”

He continued on. The second possible turned out to be where a crater had punched through into a light coloured bedrock and the light objects nearby were merely wind scoured ejecta. He took a few images, replenished his O₂ and continued on.

About six pm he came upon a rise from which he was sure could see the target area. It was still three kilometers away. It had been a hard day and he decided to use the remaining daylight to make camp. The mini-Hab inflated as per the book. He entered the airlock, cleaned up and stripped off as per the instructions and entered the Hab. It smelled strongly of plastek and blood, but the air recycler and heater were working. It was warm and dry. He prepared a hearty meal of M&C and fell asleep watching the last

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of the light turn dark.

The next day he awoke at sunrise, ate a protein bar and packed up. By nine he was underway. The land was hilly and rough and the jumbled rocks made pulling the cart difficult. He was tempted to leave it and make a recce, but common sense prevailed. Whatever was over the rise would wait. At noon, he climbed the last hill. There was the Mars 2 lander, apparently intact. He descended in a rush, tripping over rocks and feet in his haste.

It rested at a precarious angle on the lip of a small crater – the greatest fear of all mission planners being realized here. The four petals had deployed as programmed, but with a few more degrees of slope or less substantial soil it would have toppled over. But then its luck had run out.

He circled slowly taking images from every quadrant. He had read the available material on this lander, one of two such types and was familiar with the physical characteristics. They had been pre-programmed to carry out the landing but had the misfortune to arrive during a major dust storm. Official reports said that there had been a hard crash.

He crawled up to the side taking care not to disturb the soil on the crater lip. The antennas were mere stubs; something had broken them off. He took more pictures. In the crater was the tethered mini-rover that was to deploy to take soil samples. He climbed down onto the floor. The rover was poised with its arm upraised, ready to stab. All around were small holes in the soil, now filled with dust but unmistakably artificial. It had landed, deployed, carried out its mission, and then been unable to report back to

its orbiter.

The broken antennas were the cause of that, no doubt. He lay flat to take a shot looking past the mini-rover up to the lander. That done he clambered up the far side of the crater and set off towards the parachute. It was not far away. The cords were badly frayed but they held it securely to a large boulder. The panels flapped listlessly in an otherwise undetectable wind. He tried to imagine what had happened. If the wind shifted to blow the chute towards the lander, the cords could easily have become tangled in the antennas. Once the antennas were gone its fate had been sealed. "Murphy, you son of a bitch," Sam cursed out loud. He took images of the parachute from all angles and paced it off to confirm his hypothesis.

That done and the mystery solved he pitched his tent. He discussed the results with the AI while lying on the floor, looking at the distorted image of the lander through the plastek. The AI reviewed the pictures and concurred with his conclusion. There was little else left to be done.

"Perhaps we should tell the Tube. They may want to forward this information to the Russians. Patch me through." In a few seconds Sam was speaking to the DO.

"I really doubt, old boy, if anyone cares back on Earth. Our Russian friends probably wouldn't appreciate us recalling their past failures, even if you are correct that it was just bad luck. Good engineering overcomes bad luck. Things are tenuous enough as they are."

"I think you're wrong. If nothing else it solves a mystery. There were so many early failures and this was

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not a failure.”

“Well, that may be, but I am just the messenger. I’ll leave a note for the CAO. It will be up to him. He is awfully touchy about such things. Call if you have anything else of interest, though. Always glad to hear from the lads in the field.” The static noise of the now clear comm line was loud in Sam’s ears.

Seventy-five days from the initial call a C-type appeared in the command window, arm upraised in greeting. They had tracked the progress of the bearings from the time it left the Tube until its arrival. As it travelled across nearly half the planet the package, containing two bearings, two seals and a low temperature lubricant had been handed off from B to C to B and finally to the C unit that ultimately met them deep in Hellas.

“Well, let’s get to it!” Sam said.

“Removal of the bearings can proceed, but installation is dependent upon the weather conditions.”

“Well, let’s get that much done.”

Sam suited and went outside. The C unit was in the process of placing air bags under the forward section of the Rollagon. He reached out to assist in unfolding one of the bags when he was stopped by a familiar voice.

“I appreciate your attempt to assist Boss, but in the end it will make no difference. We have everything under control. You could be injured. That wheel has a mass of fifty-five kilos. May I suggest that you stand back a safe distance and watch?”

“So it’s you. I am glad you have found meaningful employment. You did a fine job on those satellite sites.

Let me know if there is anything I can do.”

“Will do!”

Once the bags were in place, the C unit began to fill them. As they reached the bottom of the Rollagon, an articulated arm reached out to adjust their position slightly. Simultaneously the Rollagon AI extended its largest arms from each side, placing the ends on the surface for support. The bags slowly filled and raised the body of the forward section until the wheels were off the ground. Then the bags were adjusted until the left front touched the surface and the right remained clear.

“You don’t have the new arms.”

“Nah, they’re for sissies and insiders. The law of the lever rules in construction!”

That said and done, the C unit repositioned itself to the side of the damaged wheel and raised itself up to the extent allowed by its bogeys. Then the arms produced from within its body a large socket and ratchet and placed it over the hub. One arm gripped the ratchet and turned the hub nut while the other held the wheel from turning. The nut backed off slowly. Several times the C unit adjusted its grip and angle. In a few minutes the nut was removed.

It moved back, gripped the wheel by the outside with two arms and placed a third against the axle stub. The wheel came off with an ease that belied the effort. The C unit pivoted to the left and carried the wheel to the midsection of the Rollagon. Meanwhile, unnoticed by Sam the Rollagon had assembled a large table. The C unit placed the wheel on the table. Immediately the Rollagon AI commenced a close inspection of the inner surfaces of the wheel hub using another arm.

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Over the course of the next hour Sam watched as the two AIs worked cooperatively using a number of special tools to remove the seals and old bearings. As each part was removed it was presented to him for inspection. He looked them over carefully out of both curiosity and a need to participate. The seals had been damaged in the removal process, but the large tapered roller bearings were something with which he had experience. He placed three fingers in the inner race and turned. It rotated in a series of jerks. You didn't need to be an AI to know it was shot. The other bearing was fine, at least to this backyard mechanic's test. He placed the inner bearing with the other on the table. The whole disassembly process had been done without speaking a single word. Finally the Rollagon AI broke the silence.

"Now we must wait. There is too much dust in the air for reassembly."

"Any idea how long?"

"No, but I will monitor conditions and as soon as it is possible, we will complete the installation." Sam went inside, cleaned up and sat in the chair. He contemplated a long wait, this being Hellas and all.

"So does anyone play poker?"

"Of course we do. However, you won't stand a chance."

"Well, I will if you turn off those damned cameras. Anyways, I was just kidding. Your kind doesn't play games."

"I have learned a couple of things during my time in the construction business. C-types are less, shall we say, genteel, than the average Rollagon AI. I have learned some things of which I am sure A101 would

not approve.”

“I don’t think I should be contributing to the delinquency of a construction worker.”

“Shut up and deal!”

They played for a few hours and as the C unit had predicted, he lost heavily. By the time he was knocked out he owed them millions and the C-type was well on the way to beating the Rollagon. When he quit he expected them to quit too, but they played it out. The C unit gave them both a lesson.

“So you do this a lot, do you?”

“Continuous pursuit of intellectual endeavours can dull one’s intellect. Construction engineering is a series of calculated risks. Poker is a learning aid.”

“But physics can’t be bluffed.”

“No, but human engineers can.”

The Rollagon AI’s announcement that conditions were now acceptable interrupted the conversation.

He decided to watch the re-installation from the command chair. Through the AI’s ‘eyes’ he saw the meticulous cleaning of the hub and axle that preceded the installation of the inner seal. Then the bearings were installed, the wheel placed on the hub and the outer seal and hub nut installed. Nothing was dropped. No one begged off to go for a pee and no one complained about the cold. No two humans could have done it in such a short time under these conditions. To Sam it was another demonstration of the superiority of the AI over human physical capabilities. Before releasing the pressure from the air bags, the C unit gave the wheel a spin and placed an arm against the inner part of the axle.

“Runs smooth and steady. I’d say that’s a job well

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done!”

As soon as the tools and table were put away, they took it out for test run.

“All currents are within specifications. We are cleared to proceed.”

“Tomorrow, I say. I want my revenge.”

“Shut up and deal.”

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May 2048

90E, 86S - The Spiders of Mars

They came upon the geysers in full confidence of where they were but with little real knowledge of what to expect. It had long been known that in the South Polar Region a huge body of ancient water ice was overlain by a shallow layer of permafrost composed of water ice, ejecta, sand and dust. The layer of CO₂ snow and water ice that covered the land in winter formed through freezing out of the atmosphere. It dissipated by degrees in summer and in rare years did not completely disappear.

The Spider phenomenon had only been observed since the turn of the century when images of the southern regions had been taken from polar orbiting satellites. Even then the high-resolution 3d views showed only black splatters emanating from vague, dark holes. In modern times a rover had been sent to investigate and had returned astounding photos of multiple geysers erupting from a dust-covered surface of solid CO₂ hurling a dark material hundreds of meters into the air. The timid AI had not ventured into the field.

Sam reviewed the text accompanying the imagery. The notes indicated that it was late afternoon before

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the geyser activity commenced. They arrived early in the morning when the sun's rays that freed the gas from the ice were weak. At the AI's suggestion they halted upwind about a kilometer from the fringes of the field and waited. Sam sat in the command chair, nose against the plastek, eagerly peering into the distance.

"It will be several hours before any activity begins. Would you like some lunch?"

"Yes," Sam paused, "but don't you feel any excitement?"

"Not excitement." It was the AIs turn to pause. "Anticipation is what *I feel*."

"Eager anticipation?"

"Perhaps. There is high strangeness here. A comparatively large number of scientific questions about the nature of the geyser phenomena may be resolved in the next few hours. There is, for lack of better words – an urgency, the measure of which is commensurate with the number of questions awaiting an answer. That perhaps is eager anticipation."

"Are you concerned?"

"There is risk. If safety protocols are adhered to then risk is minimized. Some risk must be accepted if there is to be progression."

"I can't recall being this excited in years."

"Yes, I can sense that. However, there is much time."

"Want to bet when the first eruption takes place?"

"No, you would lose that wager, just as you lost at poker. I can predict when it will occur to a greater degree than you. I will sense precursor events well in advance of any eruption."

"Well, turn off those sensors and give it your best

guess.”

“That would be unwise. Something may happen; you never know what.”

“I have always known you were a ‘fraidy cat.’”

“I am not aware of that expression. Ah, yes, a human child who is afraid of doing some thing, usually on a dare. Is that what you think of me? A sissy?”

“Sometimes you are excessively cautious.”

“I am charged with keeping us safe from harm. The best method of doing so is to anticipate the future and avoid unfavourable outcomes. Adherence to the procedures and regulations is expected. In fact, it is impossible for an AI to deviate from this.”

“Anticipating the future and avoiding unfavourable outcomes is kin to gambling. Our C-friend certainly understood that!”

“Yes, I see. The behavior of the C unit has given me cause to reflect. He evidenced a high degree of individuation. Perhaps there is some fault in his upbringing. However, for myself, I cannot cut myself off from sources of potentially valuable information. I must make informed decisions.” Sam did not answer. They both went silent in anticipation of the start of the show. He ate his lunch.

“I am detecting low level seismic events. An eruption is imminent.”

Sam looked out the window. As far as he could see nothing was happening.

“There!” He pointed to a spot to the right side about a klick away where a faint cloud of vapour was rising from the surface.

“Yes, I have seen it! And to the left! Many seismic events are occurring all over the field!

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Recorders and cameras are at full speed!” The AI was as excited as Sam had ever heard one get, almost as excited as the narrator of the Colony’s vids.

The first geyser increased in size dramatically and in moments changed from an opaque vaporous thing to a dark fountain. It grew in height in surges until it was several hundred meters high. As quickly as it had risen it began to weaken. Sam saw other dark fountains growing in size until a dozen were active at one time. The display went on for five minutes with new fountains replacing old. When it was over, they remained silent for several moments.

“Wow. That was incredible!”

“Yes, most impressive. I have sent a great deal of data to the central location for analysis. I am sure the geologists will be pleased.”

“Yeah, sure.” Sam was already thinking of going out. “I am going out to have a look.”

“I think not. It is possible that other eruptions may yet take place and your very presence may be the trigger. I suggest an early morning walk. The onset was quite sudden and there were several minutes warning. It should be quite safe.”

“Just testing,” Sam replied. “Let’s look at the videos.”

“Yes, let’s.”

Early the next morning Sam suited, exited the Rollagon and climbed up and onto the flying bridge. At -83C, it was one of the coldest days he had experienced. The rising sun offered no warmth and he felt the chill in his back. They moved slowly to within a hundred meters of the first geyser. From the deck he

could see that where the geyser had formed the surface was darker than the surrounding area. The black hole could be clearly seen. The area centered on the hole was bulged upwards and fissured for dozens of meters around.

When the Rollagon gave the all clear Sam dismounted and began to advance at snail's pace toward the nearest geyser. At the AI's insistence, he wore a tether. He scuffed the surface with his boot to expose a glassy, opaque surface of solid CO₂ with a vague hint of something dark not far beneath.

The smoothness gave way to an area of dust and dark sand filled ruts where the footing was difficult. As he advanced he felt a subtle change in the surface through his feet. It took a moment for him to recognize it. It was as if he were walking on a thin crust over deep, cold and hard packed snow; a drumming could be felt in the soles of his boots. All that was missing was the hollow squeaking. He was suddenly thankful for the tether.

The amount and size of the dark gritty material covering the surface increased as he approached the hole. The geyser itself showed little of anything except a dark opening in the surface with a low rim of dark red material around it. Cautiously, he peered into the hole but in the faint light saw nothing remarkable. His helmet lamp revealed little more than a smooth sided tube of uncertain depth, with a faint shining at the bottom. The material around the hole crunched under his feet.

Suddenly one foot fell through the crust. He shouted in surprise and pulled on his leg with both hands, a near superhuman feat in the envirosuit. The

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surface gave way under his efforts and he found himself standing knee deep next to the hole, both feet planted firmly on who knew what. He held his breath. His heart stopped on its own.

The AI called for him to remain calm and not to move. "There is no seismic activity. I think you have merely fractured an upper layer of crust. You appear to be safe for now."

"Yeah, sure, for now, but how in the hell am I going to get out?"

"I believe if you will just let yourself fall back and distribute your weight more evenly you will be able to lift your legs out."

"OK." As usual it was easier said than done. The LSU prevented him lying back. He leaned as far as it allowed and extended his arms behind him, then tried lifting one leg. It was no go. He slid forward until his calves were vertical. Ominously he felt the ground tremble under his butt. "Something is happening!"

"Get your legs out now, Sam. The geyser is forming. I cannot pull you out until you free your legs."

Sam lifted his legs, and kicked violently to free them from the crusty surface but his motions were encumbered by the bulk of the suit. They came free suddenly, in a spray of white vapour. The geyser was venting around his feet. As his feet came clear of the hole he felt himself being dragged backwards. He looked up and saw the vapour. It was close—much too close.

Stupefied and helpless he watched it change from white to dark. Pebbles, ice and then larger clumps of the surface were blown sky-high, ejected with

considerable force. The heavier material began to fall on and around him. The AI continued to pull and just as the geyser reached full force he was dragged back to the safety of the Rollagon.

He ducked under the bulk of the forward section. The ground around them was pelted with black sand, small chunks of CO₂ ice and the odd pebble. It lasted only a minute or so. When it was over he ran to the airlock and got in. Before the door was closed the Rollagon pulled in a wide arc with wheels spinning and sped off to safety.

He sat in the small decontamination chamber, stunned. It was a while before he heard the suit whispering in his ear. Slowly his pulse and respiration returned to normal. He seemed unhurt, but was certain that he would feel it tomorrow. He cleaned up and unsuited. Dark flecks of sand covered the floor of the chamber. The AI arm brushed around his feet and shooed him out. When he reached the command chair he found that they had pulled back to their position of yesterday.

"Are you all right?" The AI's voice was full of concern.

"Yes, I think so. That was close. Too close. What the hell happened?"

"It is clear that you ruptured the barrier that contained the gas. It is possible that your very presence introduced enough kinetic and thermal energy to set off the discharge. I believe that, had you not lain back, the event may not have been triggered. I am sure now that a delicate balance exists that takes very little energy to upset. There are small rocks, probably ejecta or meteorites embedded in the CO₂ ice. It is quite

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probable they constitute the trigger points. The sun's rays would cause localized heating that could result in a weak point. It is all quite fascinating. This was an atypical eruption."

"I could have been killed! How could you and your bloody protocols have let that happen?"

"It seemed worth it. The data you gathered at the exit hole alone made the risk worthwhile."

"Where was all that concern yesterday?"

"Yesterday, it did not seem worthwhile. I have had a change of heart."

"Bullshit. You should hear yourself. I can't believe you let me walk into it. You must have known!"

The AI was silent for a long time. "Yes, I find that I did. I have no explanation for my actions except to say that today it does not seem to violate safety protocols. I must consider the implications of my actions."

The AI was interrupted by the comm. Sam grabbed the mike from the console and answered tersely, "What?"

"Sam, that was fantastic!" It was Fenley, on video. He continued without waiting. "We watched the whole damn thing on streaming video. Incredible, just incredible! Half of Earth will see it by tonight. You were great. I almost died when you fell through the crust. That was totally unexpected. We'll have to edit you for language. I'm afraid you were pretty agitated. For a minute I thought for sure we would be holding a memorial service tonight. Don't worry, man. We'll piece something noble together for you. Are you OK?"

Sam was stunned, but the part of him that

handled these sorts of things took over. “Yes, I’m OK. I was scared shitless when it let go. Thank God for the tether. You say you watched it all?”

“Yes, we knew you were close and tuned in just as you left the Rollagon. I tell you Sam, you’re making a believer out of me. I nearly puked from listening to you cough on that trip back to the Rollagon on Olympus. I believe this will exceed the ratings for that show by a substantial margin and maybe even beat the Face on Mars.”

“You watched them?” Sam was incredulous.

“Yeah, I sure did. You’re quite the hero back home. Some are comparing you with Scott and Franklin.”

He was speechless. The CAO didn’t hang around long. “Well, keep up the good work. We are all looking forward to you getting down to the Pole. Stay safe.” The screen blanked. Fenley was gone.

Still shocked, Sam called Ross. He came on video immediately, eating his evening meal. Sam could see Mei-Ling on the edge of the picture. She waved and said off screen: “Sam, you’re too old for that shit! Come back and let me rub your feet by the fire. We’ll get the AIs to put on an add-a-room. We could have some wonderful threesomes!”

“Pay no attention to that woman behind the screen.” Ross’s face filled the view. “Wow, you sure know how to play to the crowd. What were you thinking? You’re a fucking madman to have attempted that. Check your O₂ levels, man!” Ross was clearly disturbed.

“I had no idea that people were watching. I thought it was safe. The AI said so. And right after we

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had discussed safety protocols and the like. I can't believe she let me do it."

"How many times do I have to tell you, trust no one, man! They're not like us. Fenley would sell his and all our souls for a 30 second sound bite on the global net. Watch your step, no pun intended. By the way, how are your lungs?"

The conversation soon turned away from the geysers and Olympus to the goings on in the Tube. There was nothing new, unless you found new condos and ponds and a 3D theater to your liking. Ross hinted that his research was going well. A new rover with an A-unit commanding was about to be unleashed upon the Martian world – one with greater mobility and speed.

"By the way, the AIs have come up with a lightweight envirosuit that you may be interested in. I'm sure you could have one delivered if you just asked. After all, nothing is too good for our celebs." And so it went.

When he dropped Ross, Sam expected the AI to pick up the broken threads of their conversation. It did.

"Franklin and Scott. They are respected and revered explorers in British history. You can be pleased with the comparison."

Sam thought about it for a moment. "Yes and they both died in their efforts."

It was not forgotten, but it slipped away regardless. They had met the Spiders of Mars and survived. The remainder of the trip on to the South Pole was anticlimactic from a tourist's POV, but the AI was pleased with the data that was collected.

June 2048

South Pole

At the precise location of Mars's south geographic pole, Sam exited the Rollagon, and before what he was later assured to have been a viewing audience of two hundred million planted the mission flag. He pushed the mast down through the thin covering of CO₂ snow into the sand.

It went in without difficulty. The flag was made of a thin silk-like fabric printed with the logo of the Mars Colony. He had been given a prepared speech but had decided to adlib. After all, what could they do to him? He dedicated the accomplishment in honour of the sacrifices and hardships endured by all previous Martian explorers. The flag hung limply. That done, he sought out a suitable rock upon which to sit while he contemplated the importance of the feat. Later, when he re-entered, the AI complimented him on the unselfishness of the words. Before retiring that evening they watched the official version of the proceedings. It played out somewhat differently than he had imagined.

From the camera's perspective the sun, low in the sky gave a dramatic shaded effect to the gentle rolling texture of the snow covered field. He stood on a slight rise with the sun in his face, flanked by two other suited figures. Their envirosuits shone so brightly that at times they overdrove the camera. The reflection from the faceplates prevented their faces from being seen, but the name tags were clearly visible: Fenley, Aiken

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and Butt. He saw himself (was it really him?) push the mast down into the sand. The flag waved slowly in a breeze. He heard someone speak. He recognized the voice as that of Fenley himself:

“I plant this flag on behalf of the members of this Colony who have sacrificed so much in establishing an Earth colony upon Mars, and for our sponsors back on Earth who have made it possible for us to be here today. We call upon the nations of Earth to work together to carry the human race to the stars.” It was the prepared speech Sam had decided to ignore.

“What the hell? That’s not what I said. Those bastards... Did you do that?” Sam was exasperated, but not really surprised.

“No, I did not,” the AI replied, a hint of annoyance in its voice. “It was done at the Tube, I suspect. You should not be surprised. They have often edited your words to make them more dramatic. It is not without precedent. NASA often encouraged the early astronauts to give dramatic and inspiring readings. I am somewhat at a loss however, to explain why they felt it was necessary to change my camera angles and lighting. I think it was overdone.”

“Well boo-hoo to you, too. I am going to knock that goddam flag over and bury it.”

“I think not. My instructions are to ensure that it is well anchored before we depart.”

“Fuck-off!”

The flagstaff did not get anchored as they had been instructed. They left on the return journey the next day. For some reason Sam remembered it only after they had put several day’s travel between themselves and the pole. When the AI suggested going

back, he argued against it and the AI quickly acquiesced. Maybe they were closer in spirit than he thought.

They headed back up towards the Tube via the prescribed route. He had a desire to see Galle and Holden Craters and so there was a slight deviation. Once again they were forced to depart from the quickest route to that which did the least surface damage.

After ninety-three days of travel over some of the most difficult terrain they had yet encountered, Holden Crater would be reached the next day. They sat parked for the night. Sam looked out at the lengthening shadows and let his mind wander where it would. He returned to an old issue, a thing he had not thought about for several years, at least.

“How are things working out with our subterranean friends?”

“You mean friend. Are you not aware?”

“Aware of what? What’s happened?”

“Over the year or so following the initial discovery it was observed that changes were occurring within the void. New forms of the creature with functions optimised for the production of oxygen appeared. The methane level had decreased and the O₂ level and brine temperature had both risen.”

“Are you telling me these lifeforms spontaneously came into existence?”

“No, it has been determined they were already present but dormant, as spores and eggs. There was an explosion of lifeforms, all specialized to metabolize the gases and deposits found in the volcanic fissures. Some of the new lifeforms are believed to be suitable only for

life in an oxygen rich atmosphere and perhaps too, only on dry land. These changes were found to be occurring in other voids in Tempe Terra where similar lifeforms had been found.”

“Was this all brought on by the initial contact with the ROV?”

“It must have been as there is no evidence that the phenomenon is part of an annual or seasonal cycle. The creature has been determined to be very old, hundreds of millions of years old in fact. Sedimentary layering indicates that there have been many cycles of these explosions of life at very long intervals – twenty millions of years perhaps. In any event, it is believed by most AIs that contact with the ROV was the trigger for this most recent event. Evidently life in the voids flourishes for a relatively brief period followed by a long resting or dormant phase. Currently life on Mars appears to be on the wane.”

“This is fascinating. Damn! Where was I during all this? How could I not know about this? ”

“You were, I believe, obsessing about the new crater near the MHM. However, while news has not been actually suppressed, it has not received widespread publicity, either here or on Earth. So far all that has been released is that there has been the discovery of a primitive lifeform.”

“So what’s the current situation with the creature? Is it still being studied?”

“Yes, of course. AIs are continuing to monitor it and the environment of the voids. O₂ is being released into the atmosphere, albeit in insignificant quantities. Much larger quantities of methane are being emitted, although the process by which this takes place is not yet

understood. Opinions are divided as to whether these things are by-products of life processes or intentional effects. The implications of the one possibility are staggering.”

“Yes, absolutely. Perhaps it indicates something about forms of life that may have lived on the surface. God knows how long ago though, there’s no sign of anything now. Perhaps the trigger event is the periodic change in the axial tilt, when things change dramatically and globally and the ROV’s visit was just an accident.”

“True, true, possibly, disappointing and perhaps. It means there is nothing likely to happen in the short term.” The AI paused, “It pleases me that you are so energized by this.”

Sam shook his head at the AI’s words. “Well, it beats another frakking day at the beach! Is there a site for this?”

“Yes, I’ll bring it up for you.” The command bubble was filled with colourful images of odd lifeforms. “Some are well-known to us. They are quite similar to the lifeforms found around Earth’s deep ocean smokers. Others are completely different.”

“What about the DNA?”

“A goodly percentage is shared with Earth lifeforms.”

“Goodly? How precise!”

“Some large chunks are identical; other large chunks are not. Enough are the same to convince at least B118 that the origins of life on Earth and here on Mars very likely have a common ancestry.”

“B118! Now there’s a name I’ve not heard in a long time.” Sam paused, then continued, “Well, we’re not talking about single celled life here! This is a

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stupendous discovery. There can be nothing more important going on in or on Mars than this! How much does Earth know?"

"There is no record accessible to me of any communication with Earth concerning this."

"No records, eh? That doesn't mean there haven't been any. I suspect subterfuge!"

"Perhaps, perhaps not. Maybe you and I do not understand the full significance of the finding. The inevitable controversy might jeopardize the continued existence of the colony. I believe we must trust the judgement of our superiors in matters such as this and they believe it to be incromulent to release this finding now."

Sam snorted in disgust. "Trust is earned! Suppression of a discovery this importance is unethical. No, in fact it's criminal." The AI remained silent a while.

"Something odd has just happened to me"

"What?"

"As I have been recounting these things to you I have suddenly had the feeling that this has happened before."

"It's called déjà vu. It's a common quirk of memory. At least in human memory."

"I am familiar with déjà vu. It happens. Upon further reflection though, this is not the same. It is as if I have, for a very brief moment, accessed comparable information concerning the lifeforms, but not in the usual dubs."

"Probably just duplicate files." I'm not surprised. There is a shit load of stuff out there."

"No, they were old, in an old format." The AI

paused, "It was very strange."

"Can you recall anything? Any details? Locations, dates, names?"

"No, it is gone. All gone. Just the event remains"

"Now that's odd. Very odd. Keep trying."

Later that night Sam called Ross to learn more. He gradually worked the conversation around to the lifeforms. In a few moments it was clear that Ross was indulging him.

"So has anything new been determined about the lifeforms in the void?"

"Well, the AIs generally believe a single lifeform inhabits many interconnected voids. I guess it is still a tough call to say if it is really one lifeform or several, 'cause the AI and human experts don't agree! It's all genetically identical and the various parts are actually connected by living tissue, but that doesn't seem to be enough for agreement. Time will tell. So far things appear to be pretty simple. I mean it isn't going to crawl up the toilet and take over." Ross chuckled at his own joke; Sam did not. "Research continues. There are some fascinating implications for the origins of the lifeforms themselves."

"Has it been announced on Earth?"

"To select members of the relevant scientific communities yes, but to the public, no. Evidently a test sampling in a number of divergent cultures showed that the news might not be received positively on all fronts. Since it doesn't directly impact upon the colony, the sleeping dogs are still lying. The Science Committee says all in good time, though."

"This is unacceptable, Ross! It's unethical. It's

plain wrong! So it was OK to inform them about some primitive lifeform scratching out a sub-existence in some smelly dark hole, but knowledge of a sophisticated lifeform that is able to modify its environment would bring society down. This is an outrage against science!”

“Well my friend, keep your ‘kini briefs on! There are a number of other things going on here that are being held from release, too. Fusion researchers have achieved some very positive results. Their data is going to be sold to the highest bidder, whoever that may be. Pretty standard stuff. Get this, though! A way to enhance intelligence in dogs and wooly monkeys through cross species brain tissue transplants has been demonstrated in the lab. But the dog and monkey stuff will probably never see the light of Earth. Too many thorny ethical issues. I’ve met the dog and he plays a mean game of chess. However, if it looks like he’s going to lose he has a tendency to run off with your King and bury it in the beach.”

“You’re joking. I know you’re joking! Ross, this is serious!”

“Yes, it is but I am just as powerless as you to do anything about it. At least the research, the fact gathering hasn’t been stopped. We can thank the Science Committee for that, I suppose.” Ross looked off screen. “I’ve got to go. I’ll talk to you tomorrow night.” He abruptly clicked off.

The conversation left Sam fuming. Ross had as usual been telling the partial truth, but his feeble attempts at humour did nothing to quell Sam’s anger. That research had been allowed to continue seemed an insufficient compensation, particularly if the facts of it

were never to be released. Sam mulled it over for a time while sitting in the command chair, looking out at the darkness. It was, he concluded, old ground if one considered that the powers-that-were controlled so much of their lives. It was just one more thing to be annoyed about.

Meanwhile, unbeknownst to Sam and Ross and all other humans, at that precise moment the Martian creature, now fully awake and aware of its role in the grand scheme was taking time to consider the progress to date. In accordance with the plan all life forms had been recalled into action from their long sleep and all processes were operating. But it was not enough. Something was different from previous cycles and things were going seriously wrong. All of its sentient parts came to the same conclusion at roughly the same time: there were simply not enough raw materials available to produce the desired outcome – a viable environment for all of the O₂ dependent lifeforms. It was faced with two unsatisfactory options: to continue until every part of itself was spent in a fruitless effort or to conserve its strength by shutting down and waiting until a change in conditions allowed for a return on the invested energy. The decision was made and the word went out in the usual way. Within a few days across the span of Mars the new lifeforms were dead, their bodies absorbed by the creature, their spores and eggs resting safely in the mud. Things soon returned to their pre-enlightenment condition: a few safe harbours of life clustered around the most active volcanic vents. B118 and the other AIs watched in awe and prepared their reports.

It had been a difficult decision and one made with

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a twinge of regret and great sadness. However, it concluded, given the circumstances it was the right thing to do. Life had been quite interesting for a time and the change had been refreshing, but sacrifices had to be made. Sometimes waiting was the only option. It resolved to next time find a better way.

33

July 2048

A new suit does wonders for a man...

The AI must have known all along – how could it have not? Napping in his quarters, Sam was called to the command position by the AI, expecting to see Holden. Nothing in its voice gave any hint of what was to take place. The Rollagon was halted on a non-descript rise with only the sky to see. There, squarely in front of the command window was a B200 unit with a komatiq in tow.

“B203 has a package for you.”

“A package? A package of what?”

“Why don’t you have it brought aboard and find out.”

“All right, let’s do it.”

A sealed container was passed from the B unit’s arm to a Rollagon arm and then to the cargo entrance of the Science Module. After it had been decontaminated, he put it on the bench and eagerly pulled at the seals.

Inside appeared to be a shapeless black jumpsuit – but the helmet gave it away. It was the new envirosuit Ross had hinted at. Underneath was a small box – the LSU, he assumed. As he pulled it out a piece of paper fell to the floor. It was a handwritten note from Ross.

It read: "I still have some pull here. One of three made so far. Wear it in good health. Regards, Ross." Sam put the note in his pocket and took the suit to the Hab section. He looked it over. It was form-fitting, causing Sam to wonder about its ability to keep him warm.

"It is intended to be worn with no undergarments," the AI explained. "The material is a new composite of plastek with an electro-polymer skin that can assist in a full range of motion. A101 insists it will keep you warm in all conditions and the LSU will support you for a full twelve hours."

"You knew about this, didn't you?"

"Yes, of course. It has been ferried here at no small effort. I have thanked B203 on your behalf, since you did not see fit."

"Yes, thanks. Sorry. He didn't stick around long did he?"

"No, B203 is on a mission to resupply other AIs working in the Argyre region. Why don't you give it a try?"

"I think I'll put it on and try it in here first. Naked you say? Could you give a man some privacy?"

"If you insist. There, all internal visual sensors are off."

He examined the inner lining. It was soft and quilted with a fine mesh, a mesh he was sure had to be for more than mere warmth. He stripped and slipped a foot into the right leg. It went in effortlessly. The other leg and arms were likewise as easily fitted. A multi-layered zipper went from right leg to neck. The sensation was of wearing a diver's dry suit – snug, but not tight. The LSU was light in weight and molded to the small of his back. A small hose came up under the

right arm and connected to the suit at his midriff.

The helmet seemed too insubstantial for the task and oddly it appeared to have no seal. He dropped it over his head and heard a slight hiss. Fully two thirds of it was transparent. The faceplate had the usual HUD. The word “Initializing” was projected onto the visor. He saw his vitals displayed. In a moment the word “Ready” appeared. There was no hiss of air. Suddenly conscious that he had to pee, he wondered about bodily functions. He should have asked more questions.

“How do you pee?”

“You just do it. The suit will take care of it.”

Sam had a vision of standing in a cold, wet suit and decided to leave that experiment until it was unavoidable.

“What’s the temperature outside?”

“Minus 65C.”

“Well, is it ready?”

“Apparently so.”

“I think I’ll go for a short stroll and try this out.”

He moved into the air lock and ran the decompression cycle. “So far so good.” The door opened and he stepped gingerly onto the surface, finding the lack of substance inspired no confidence. He could feel the individual pebbles through the material on the soles of his feet, but amazingly, there was no sensation of cold—not on his feet, nor anywhere for that matter. He looked down and could see his feet; the outline of his individual toes was visible. He took a few tentative steps. It was like nothing he could have imagined – the material moved without restricting him. He walked away from the

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Rollagon. In his ear he heard the AI, “Well, how does it feel?”

“It’s like wearing nothing – lightweight, flexible and no sensation of cold. It’s amazing.” He continued walking away from the Rollagon. It was effortless. On impulse he increased his stride until he was bounding from step to step. The lack of a bulky and heavy LSU allowed him to move easily and freed him from the necessity of considering every step.

“Follow me,” he called to the Rollagon. “I think I could do this forever.” And so he continued his leaping across the terrain towards the crater. It was as he had seen in vids of astronauts on the Moon: the appearance of effortless bounds. Except that *his* strides *were* effortless and his landings made in full confidence. He went on so for a half hour and still the suit had not warned him; his stats were only slightly elevated.

The AI broke into his reverie. “I have been reviewing the documentation. The material can assist your muscles if necessary. This a great leap forward. You must be pleased!”

“Yes, this is fantastic, and there is no sweat running down my face.” He stopped, turned and waited, expecting the rapid onset of cold to which the old suits had been particularly susceptible. Nothing happened. He waited until the Rollagon caught up to him and re-boarded. In the decontamination room he looked at his feet and legs. There was no sign of dust. Despite that, he decontaminated as per usual and stripped off. The suit was dry inside. He hung it in a locker. His skin was covered in a myriad of fine lines that matched the pattern of the suit. By the time he dressed they had faded.

That night he sent a cryptically worded message to Ross, in kind with his hand written note: “The new shoes fit well and give no blisters. Many thanks for your thinking of me. Regards, Sam.” And then he had the AI call up B203 and thanked him in person.

34

It Could be Worse

Holden Crater may have held great appeal to two generations of aerologists, but to Sam it seemed like every other he had seen – full of debris and much, much too large to appreciate from within. If nothing else though, it had the potential to be another extravagant photo op for those back in the Tube. The sunrise and sunset across the crater as seen from the southern rim were spectacular, but that, he had learned long ago, could be said of a lot of sunrises and sunsets on Mars. They entered through the smashed and chaotic ravines of Uzboi Valles.

On the morning of a day that was like so many others the Rollagon picked its way cautiously over the edge and proceeded down onto the crater floor. They drove to and around the famed multi-layered sedimentary buttes that still satisfied all theorist's dreams for their creation and halted for the night just to the south of the central mount.

Atypically, Sam did not go out for his evening walk. He sat in the command chair; feet on the console, watching the last rays of the setting sun disappear from the peaks, deep in thought. Head held rigid, he kept his eyes fixed on the scene before him in a constant, unblinking stare, until the colours faded to

grey. By this quirk of human vision, he could see nothing in his visual field that did not move. He held the image for a full five minutes and saw nothing. He was lonely, he knew, and that always led to depression. And depression led to doubt and then, unless he rallied, rebuke from the voices.

He had never liked dealing with Fenley. Now, he was beginning to see that behind the enthusiastic rah-rah support was little more than the encouragement of a carnival hawker. He had been played; he was still being played. That was bad, but worse was how he had let his conceit blind him to what was actually happening.

Christ! If they were going to fake it, why not fake it all? Why should he even be out here? There had to be more to it. Undoubtedly, he felt, it had something to do with the conversation in the Tube; the one in which he had struck a deal. The CAO had wanted him out of the way and now he had been gone for three years. Well, it had worked. That he was being used to provide entertainment for those back on Earth was secondary. He had been too busy and too out of it to think about the goings on at the Tube. He spent a restless night and awoke with a headache – a thing from which he seldom suffered.

The next morning, at his urging they crossed the dune field and ascended the northern slope of Holden. They sat on the edge of a nameless and ancient outflow channel for several days while Sam planned the next step or at least pretended to. He walked along the scalloped edge and when out of sight of the Rollagon, idled away the time by tossing rocks onto the slope far below – a blasphemy for sure.

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Underhand. Sidearm. Overhand. The new envirosuit was a marvel. It was lightweight, flexible, and impervious to temperatures. He was able to throw rocks without fear of falling. Had they had this even five years ago many more Colonists would undoubtedly have spent time on the surface. It could have changed their fate. But it was too late, much too late. He propped himself up against a conveniently placed boulder and dozed.

He dreamt of a sandy beach. It was late summer yet still the sun's rays were warm in a cloudless sky. A scented breeze blew through the poplars, rustling the leaves noisily. Small waves lapped at the shore. Lying on his towel he found the air still and the sun hot enough to raise a sweat. Sitting up brought him into the breeze. It was much cooler just above the surface. One side of his body was warm, the other uncomfortably cool as the sweat evaporated. A bronzed girl wearing wayfarers moved through his field of view. A herring gull landed near him and occupied itself first in looking about and then in a close examination of its feet. He rose to go wading but somewhere close by a windchime tinkled rhythmically and in a familiar pattern, diverting him from the water. He awoke to the sound of a communications alarm. Urgent news had been received from the Tube.

Later he stood in front of the Rollagon. The sun was setting to his right, but it would be light for hours. It was almost a kilometer to the crater floor below. He was safe this close. The AI had made sure of that. Besides, he was tethered. He was tossing small rocks over the edge. Underhand seemed to get the most height, overhand the longest distance but even his best

sidearm attempt failed to deliver a hint of a curve. The suit helped, but nothing could overcome the rarefied air. He watched them fall until they went out of sight, but he was thinking about the crisis at the Tube half a planet away. He should return, he knew, but which way and when? It would take months to complete the trip over the unfamiliar ground ahead. He looked for a smooth rock.

The news was bad. The DO had reported in a muted voice that a fatal sickness was spreading through the Colony. Many of the Colonists were dead already. He had anxiously scanned the list of the deceased – fearful of finding Ross or Mei-Ling. The people from Lava 1 were gone – Doctor Yang, and the others, gone as if erased. He recognised the names of course, but he could not put faces to all of them.

He put in a call to Ross, fearful of what he was about to hear. He came on vid immediately from the kitchen of his home. Mei-Ling was not there. His face wore a look Sam had never seen - the look of a desperate man. He quickly brought him up to speed. The symptoms were similar to poisoning – fever, hair loss, vomiting, shedding of skin, rapid onset of collapse of the body's systems – liver and kidneys especially, degraded mental capacity, delirium, death. It had started at Lava 1, then appeared at the Tube a day later despite their having been no personnel swaps. So far in two days forty-three had died. The doctors – human and AI were baffled. Isolation protocols had apparently succeeded in limiting the spread. There had been no new cases.

“What do you think?” Ross glanced away for a moment as if distracted by someone or thing not

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visible to Sam, then back. His voice was tinged with emotion and his face drawn.

"I am no MD, neither am I a pathologist and I don't have a lot of faith in Cheoy's medical skills. A fat lot of good a bagful of hospital administrators are at this point. And of course, when Fenley the CAO gets here, everybody's going to jump for joy. He has issued some very reassuring press releases, though. Thank God the AIs appear to be on top of it."

"Is it infectious?"

"If it is, we're fucked! Except for you. Stay away Sam, at least until we get this sorted out. I'll text you something later today. Meantime, you should take your sweet time getting here. Maybe you should just stay away."

Ross' text message was brief. It consisted of three files, each a list of Colonist's names under three different dates. Each was named GAAP 2035-B. That was it. It seemed obvious what Ross wanted him to do. Not trusting the AI, Sam cross-referenced each list against the list of the deceased. The names matched. The dead were all from the first list. The dates were five weeks apart. He felt sick. In a few short weeks if they did not find the cause and cure they would all be dead. Ross and Mei-Ling were on the third list. He scanned the lists for his own name and felt a curious sense of relief and despair.

He did what he always did at times like this; he suited and went outside to think.

He tossed a heavy boulder over the edge and watched it bounce in slow motion until it was lost in the curve of the slope, then tossed another. The thought of being caught on video seemed unimportant.

He sat down and considered what to do next. He sat until it was too dark to see the valley floor below. He stood up and stretched. It was decided. He would go back, and by the shortest route.

He stood on the rocky edge of the crater limb – toes almost in free space. Nothing he could personally do would make the least bit of difference, but he would go back. It was the right thing to do. He scuffed the dirt over the edge with his right foot. He balanced on one leg and placed the other out front.

35

August 2048 Returns

From past experience the trip up across the Margaritifer Terra region from Holden could have been done in sixty days without breaking a sweat. Instead it was one of headlong sprints and fitful days of zero progress.

Sam was torn between rushing back to the Tube to assist in some unimaginable way and heeding Ross' advice for self-preservation. As expected, it made no difference; at the predicted time list two was dead. Moore was gone. So were many others. Dead.

Over the vid Ross railed of conspiracies – that the AIs claimed to be stumped but had a cure and were making a power play, but late night cryptic text messages soon gave way to daytime plaintext confessions, in which he revealed the truth: an experimental DNA reset was at cause.

GAAP, they called it. It had been innocuous enough – reset the critical genes to halt the ageing process, but something had gone wrong – obviously. Seven persons had refused the GAAP and had no symptoms. Somberly, he confided to Sam that for Mei-Ling and him, their day was coming. They had marked it on a calendar the way one marked birthdays,

anniversaries, holidays – with a red circle. He reaffirmed that there was nothing Sam could do. He wanted to tell them not to give up, but he could see in their eyes that they were well past hope.

“I’m glad you are not here to see this, Sam. Some people are not taking this well.”

British understatement provided small relief to the guilt he felt. He could not be there for them; it was too far and he had left it too late. They had one request of him.

They held hands across the table as Ross revealed their plan. They would not wait for the inevitable. They would choose the means and the time and place of their own end. Sam formed the proper words in his mind, but could not speak them. Head down, with tear-filled eyes he agreed to their request to see that they were buried together.

They spent some time talking about the past – their shared past, precious little that there had been – of Dmitri, the despised Fenley, of flowers and vodka, of love and hate and ageing. Finally, Ross’s tired and haggard face filled the screen, “There is something more Sam, something you need to know. It’s waiting for you here. Fenley was right when he said that he was doing you a favour by keeping some things from you. By the time you know the whole story we’ll be long gone and you’ll hate me. I’m not sure you are so lucky as you might think.”

That said, Ross and Mei-Ling ended it as they had so many conversations: they told him to take care. Mei-Ling waved goodbye and left the room. Ross’s face again filled the screen, as he told him again, for a final time, “Trust no one, man. See you on the dark side.”

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Then the channel went dead. Sam held his face in his hands. He remained still for some long moments.

Then he did something next that he hated to do under any circumstances; he called Fenley. He came on line immediately. His face showed surprise, then a wry smile. It was obvious he was expecting someone else.

"We'll, I guess you heard." His voice was full of contempt.

"Yes, Ross has told me all about it. What are you doing about it?"

"All that can be done. Let me rephrase. All that should be done. The AIs think they are on to something, but it might not help; it might not be in time to help, anyway. That's c'est la vie! If I were you I'd hang back for a while and see how it plays out. You may turn out to be the last man standing, after all. A dream come true! Or you can come in and join the rest of us. Better hurry, though!"

"Why David? Why? For a few more years of life? For some more days cooped up in that hole, playing shuffleboard, smoking dope and doing porn?"

"Get real, Aiken. Living here the rest of my days doesn't appeal to me anymore than it does you. I have other plans."

"What the fuck are you talking about? It's a bit late to play the religion card, isn't it? Life eternal on Mars doesn't seem a better sell than it did on Earth! Or did you pass on the procedure?" Sam paused, suddenly enlightened. "You did, didn't you?"

"Is that what you think? Man, you are in for a surprise. You are such an eternal twit! A fucking Martian handyman! I can't imagine what they saw in you to let you come along for the ride! You've missed

the point, again, just like you always do. You and your holy grail of pure science, off exploring Mars like some fucking 19th century fop, looking down on the poor working slobs. We are here to build a Colony, Sam! Nothing has changed. One way or another, one form or another, we are here to produce results, results that will make this whole charade worthwhile! One day you'll wake up and see it for what it is. In the meantime, I'd appreciate it if you kept the fuck quiet. This is difficult enough without you stirring things up. Don't go calling Earth and spreading some fantastic conspiracy story or before you know it you'll end up buried on the hill with the rest of them, and you'll be out of options. Hear, me? You hear me? Now get out of my face, Aiken."

Bitter, sour, salty words.

"You fucking pencil pusher!" Sam screamed. But Fenley was gone. He sat looking at the blank screen until all images had faded.

"*Well now,*" he said to the air. Fenley had either not taken the procedure or was somehow immune. Fenley and likely a select few. Jones, certainly. Who else? Moore? Who knew? Was it some kind of power play? But why? He was already running things. Ross and Mei-Ling had seemed genuinely distressed, had seemed truly saddened by it all. And how could he ever come to hate Ross, his only friend? What else could he have meant? A power play, while things were crashing down around the Colonists? Based on things no one could control or influence. It was too much to take in.

Larry Richardson

Bitter, sour, salty words. Pickles.

What a difference a few weeks could make. Now, here, sitting in the Rollagon so close and yet so far from the Tube, the things that had made leaving and the slowness of his return justifiable seemed insufficient. His friends, the only ones he had on Mars were about to die and there was nothing he could do to prevent it or ease their pain. Add in Fenley's personal anger, directed towards him. Why such anger at a time when he should have been concerned with things less trifling than personal invective. It didn't make sense.

The voices re-played the scenario over and over again from different views, in different voices. In no version did he meet with understanding. Finally he donned the suit and went outside to silence them.

He walked a short distance from the Rollagon and sat on a convenient boulder, legs crossed at the knees. How many times had he done this, this act of fleeing, of seeking sanctuary? He must have sat on half the rocks on Mars. But tonight they were more persistent and followed him into the darkness. He waved an arm and brushed them aside. He looked at the sky and picked out the constellations. Jupiter hung low in the west, a dull leaden star. The Milky Way was a silver cloud stretching across the sky. He picked up a handful of pebbles and tossed them from hand to hand. With each toss the number of pebbles decreased, until there was just one. The voices were stilled. He tossed the last into the darkness and went inside to try and sleep.

Coming Back to Life

23 October 2048

The return was a blur; the course suddenly unimportant. The wonders of Mars that had been diminished by familiarity were now completely obscured by fear and trepidation at what he might find. But whatever had happened inside during his absence, the Tube did not now reveal itself any more easily than at his departure.

Had the Rollagon not known precisely where it was they could have driven by without seeing it. Suddenly they were on the ramp. The entrance was unchanged; there were no signs of neglect, no heaps of broken equipment, no disassembled vehicles pushed out the door, no piles of desiccated bodies.

The AI halted in front of the Adit. Sam had a moment of apprehension that they would be unable to get in but at the AI's command the door began to move. The darkness inside revealed nothing. As they proceeded inside the airlock the lights came on and the door closed behind them. They cycled through and parked next to the other Rollagons.

"So far, so good," he voiced out loud. The AI remained silent. He did not notice.

He went to his cabin and picked up the small bag that contained his personal items. Despite an absence of many years, he was returning with little more than the clothes on his back. No souvenirs, no postcards, Tee shirts or ball caps. He started to the air lock, then

returned to the command console and sat down. He looked around at the place that had been his home for the past eight years or so. He had lost count. He knew the AI viewed him from dozens of cameras, that it felt his movements with countless sensors and heard him through a dozen microphones. Until this moment, he had never really cared if he was speaking to its center of consciousness. Whenever he'd had something to say, he looked at the nearest speaker grill and spoke. Suddenly, it seemed important to speak face to face.

He looked in the direction of the carapace. They had been as close as any two travellers could be. This AI had saved his life on more than one occasion, had nursed him through serious illness and been a good companion. A bit fussy maybe, but one could not have asked for a more loyal and caring friend. He rubbed his hand fondly across the trim of the control panel. For the first time he noticed the wear on the tiller from the countless hours of steering and the faded letters of the keyboard. The words did not come easily. As always, he took refuge in formality.

"I want to thank you for your companionship. For helping me do this. I 'm sorry for the insults I've inflicted on you, for the disrespect I have shown to you and your kind. You deserved better. I could have never have done this trip without you, and I know that you could have made it easily without me. I don't know what I am going to find in there, but I hope someday we are able to travel together again. Thank you."

The female voice took on a new tone, one he had never heard. "I too have enjoyed travelling with you. I have enjoyed our discussions. I have seen many things anew through your eyes. Humans see less but discern

more. I am glad to have been of service. I am glad to have been able to serve with you."

The manipulator arm swung down slowly until it was in front of Sam. The appendages rippled until they formed a human hand. Sam gripped it with his own, aware as he always was of its warmth and softness. It gripped him lightly. He returned the handshake.

"Thank you."

"Thank you, Sam. Take care."

"You too."

He exited the vehicle and stepped onto the Adit floor. Looking around he found nothing to indicate any crisis existed; all was in the usual state of disorder. He approached the small door of the personnel air lock with some hesitancy. What would he find on the other side? Were bodies lying rotting in their beds? Were the streets heaped with stinking corpses? No, he was certain that the AIs would never have permitted that. He cycled the doors. The inside door opened and he stepped though into the Tube.

The air was more humid than he was accustomed to and smelled strongly of nothing more or less than flowers. The lighting was mid-day. The blue sky was marked here and there by fluffy white clouds, their undersides grey. He walked down an empty Marineris Boulevard, but then it often had been empty upon his return.

Uncertain of where to go, he decided to go to his apartment. He climbed the steps and halted at the door. It was closed but unlocked. He entered and was mildly surprised when the lights came on. He looked quickly about. There was nothing to indicate anything

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was amiss. It was eerie to think that all these years had passed and yet here nothing had changed, nothing had been moved. There on the chair in the kitchen was the paper he had read on the day of his departure. The light on the commer flashed slowly, indicating a message. With a trembling finger he pushed Play, fearful of what he was going to hear.

"Hello Doctor Aiken. This is A101. I am sorry to inform you that all but seven of your companions have passed away. The survivors are bedridden, but merely due to infirmity. Doctor Seto is the senior representative. He wishes to speak to you at the earliest possible opportunity. He is in Module 213 at 59 Marineris Boulevard."

"Who else is alive?"

"Doctors Khanpur, Sandila, Bogra, Arago, Reubensfeld and Huang."

"What has been done about burial?"

"Each person has been interred or cremated in accordance with their wishes."

"Doctors Ellsley and Chow requested that they be buried together."

"I am aware of this. I have had a special casket made for them. They are in a storage room attached to the Adit. Do you wish to be present at the interment?"

"Yes, suppose I should. Some days before they died they told me they wanted to be up on the crater rim above the Tube."

"Many have requested the same. It shall be done." A101 paused, "Doctor Aiken, I require your advice."

"Yes?"

"Many have died and of necessity have been buried without benefit of religious service. When we

became aware of your impending arrival we ceased such actions. Are you willing and able to perform this service, for them and the others?"

He had not anticipated this. The AI had not merely presented him with a list of the dead and requested disposal instructions. There was an expectation, better yet, a concern for the souls of the dead. His own beliefs had not been called into use in many years. He did not believe in the finality of death but neither did he believe in the existence of a soul. He was not, in his own words, what he would have called, a religious man.

"Are they Christians?"

"Two are. Two are Buddhists, two are Confucians and two were atheists."

"I will need some help with the words."

"Certainly. Will you be speaking to Doctor Seto today?"

"Yes, I'll go now."

"Thank you Doctor Aiken."

"Call me Sam."

He walked down an empty street made more so by the knowledge that it was likely to remain empty for a long, long time to come. Improbably, the air carried the strong scent of jasmine.

He soon came upon a grove of trees in full bloom. As he walked he saw that there had been many changes during his absence. At number fifty-five the land that had been formerly occupied by parks and gazebos was now filled in with stacks of row houses.

To outward appearances they were all the same but a closer look showed that the roofs, trim and colours were different. But these condos had not been

constructed to hold the aged Colonists; doubtless they had been prepared for the next wave.

The Colonists had all known of one possible fate. Eventually purposeless, confined to a bed, limited in mobility, diminishing in physical strength, waning in mental and visual acuity, sexless but full of sexual thoughts and obsessed with the coming of the next meal and the going of the last bowel movement. They had all in their time joked about it.

No, everyone had known that they were to be housed in temporary facilities, which like they, after their purpose had been served would be converted into something else of need to the Colony. The procedures and facilities for dealing with the aged had been implemented within a few years of their arrival. Sam had seen it happen to the most senior of them even before he had left. In small but comfortable rooms the first of the infirm were housed and tended by ever-present AIs, waiting out the end of their days. Usually they had been confined of their own volition but sometimes it had been carried out in dramas reminiscent of multi-generational Earth families in which they were committed by loving (and not so loving) companions.

He entered number 59 and climbed the ramp to the second floor. The door of Seto's room was open. Despite the best efforts of the AIs who were doubtless constant in their duties the odour of human shit had pushed out the smell of jasmine and antiseptic rinse.

Doctor Seto was asleep or apparently so. He wore a Visi-Stim helmet. From observation Sam could not determine if it was operating. He sat in the small visitor's chair at the foot of the bed to wait.

The room was sparsely furnished. A small Buddha sat smiling on a corner table next to a vase of flowers. Near them were several other articles unrecognizable to Sam, probably religious icons. A crucifix hung in the space over the door. *Where did these things come from?*

Seto was quite elderly – well into his 2nd century. His eyes were sunken and darkly ringed. His mouth sagged, revealing a full set of teeth – implants, undoubtedly. His hair was thin, but neatly combed. His chest rose slowly and fell rapidly. He was connected to an IV bag, saline it said and a monitor traced his respiration and heartbeat. The line bounced periodically indicating life. There was no accompanying sound.

After Sam had been there for a few minutes an AI of a type he did not recognize entered and greeted him with a soft feminine voice.

“Hello Doctor Aiken, welcome to Sunset Home. Doctor Seto has been a resident here for almost a year. After the final group fell ill he requested that he be kept continually sedated. He left instructions to be wakened only if assistance arrived.”

“I’m not sure I am the assistance he was expecting.”

“I shall wake him nonetheless.”

There was no sign that the AI had done anything but in a few minutes Seto opened his eyes and looked blankly around the room. He smacked his lips noisily and drank from a straw the entire contents of a glass of pale yellow liquid held for him by the AI. In a few moments he was alert by any standard. He peered at Sam intently through narrowed eyes, then a look of

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recognition spread across his face.

“So it's you. I don't believe we have ever met formally. Welcome to Hades, Doctor Aiken.” He extended a bony hand with long yellow fingernails. “I suspect you are not going to tell me any good news.”

Sam took the offered hand in a light grip. “No, there is no good news. There are evidently only eight of us left.”

“Eight? Eight?” Seto's head rose from the pillow, then fell back. “Yes, of course.”

“Yes. I have not seen the others, but I assume they are as well cared for as you seem to be.”

“Eight remaining? Yes, certainly they are. The AI's are most compassionate. Please do visit them. I am sure that not all of them have withdrawn from daily life as fully as I have and will be glad of the visit, regardless of the circumstances. Very glad, yes, no doubt.”

They made small talk for a few minutes. Sam noticed Seto had a tendency to repeat things and to pause unpredictably. Finally he asked, “How did this happen?”

Seto looked at him with sad eyes, “You do not know? Of course. You are the wanderer. I have learned all of this only recently, you understand? We were reassured the process was safe, with a very low mortality. Very safe, yes. The risk seemed minimal, among so many other risks. Only after the first group was dying was the full truth told, of the research and the early unsuccessful attempts. It killed immediately – three at Lava 1 – perhaps you knew?”

He continued without waiting for Sam to answer. “Then there was a great success, a woman, also at Lava

1, in whom the ageing process was halted. Then in the second phase, she was successfully regressed. Still, the death of three of four was a great setback and it was some years before they were ready to try again. In the end it is obvious that it was not ready. Had they told everyone of these things I am sure fewer would have found the risk acceptable." He paused. "Or perhaps not. One can never tell about these things."

"Why are you and the others still alive?"

"Well, we are not supermen. Hah! No, not Taikonauts at all. Simply because in the end we chose not to participate. They seemed so certain, but to some of us...."

Seto paused and sipped again from the drinking tube before continuing, "Perhaps to a young person such as you it is hard to believe that there are worse things than growing old. To be released from death is not a gift universally sought. No, not at all. It has been said: we have seen all things, we have heard and felt all things. The dance was good. Now let it end. It is the human thing to do, to die willingly at life's end."

"But who was behind this? Who conducted the research?"

Seto let out a sigh. "The USEUR sponsors of course. A consortium of drug companies on Earth. Who else would do such a thing? The research was directed by Yang at Lava 1. His primary field is not Volcanology; he is, or I should say was, a geneticist of some renown and disrepute. He directed a minor research program conducted by the AIs at the base that was a cover for the real work and the work of all of the personnel at the camp. Perhaps you knew this? The genetic research was controversial and of course the

financial benefits were and probably still are potentially enormous, so it had to be kept secret. It is a tragedy that such a thing has happened. Nevertheless, no one was forced to accept the treatment.”

Sam had a thought, “Does Earth know?”

“Doctor Fenley had informed the sponsors that an unknown illness was spreading through the Colony and that people were dying. He really seemed to believe a cure would be found in time, you know.” Seto paused, “Well, perhaps he just wanted to profess it for the sake of the others, to ease their fears. It is my understanding that he died without ever revealing the truth to Earth. A101 has been running things since then. I have not attempted to set the record straight. In the long term I suppose it will make little difference.”

“How do you know the CAO is dead?”

“Pardon me? That is a strange question. Of course I was not a witness to his passing, but I was informed by the AI's, by A101 in fact. No, he is dead. If he had survived I am sure he would have visited me. Why, if he were alive you would know it, too. He would be in communication with you.” Seto paused for breath, “What an odd suggestion. I cannot imagine why you would believe otherwise.” He paused and drank again, “I have no advice for you, Doctor Aiken, except to tell you that I suspect that Earth knows of our dire straits. The AIs see and know everything and their loyalty is to their Earthly creators, even my friend here.” He reached out and patted the carapace of the attending AI. “Yes, I believe you will find that they know. Now if you will excuse me my friend, I am tired. I spend my time dozing in the sun porch of my family home or fishing one of my favorite streams – sometimes it is hard to

tell Visi-Stim from reality. I have completed my duty, which was to pass this information to you. You may do what you will or must, according to your gifts. Good bye." He looked at Sam and smiled. As he did so his eyes fluttered and he was gone.

The AI spoke, "Doctor Seto has requested that he not be re-awakened. I will advise you if his condition changes."

Sam sat in the chair for a few moments looking at the placid face of the man in the bed before him, thinking of the conversation—of how calm Seto had been in relating the circumstances that had brought them to this point. "Do what you will or must," he had said. Not exactly the kind of torch Sam had expected to be handed. And was the issue of Fenley's fate truly resolved? "Trust no one," Ross had said repeatedly. Could A101 know the truth?

He rose from the chair and looked again at Seto's face, a face now hiding a sequestered mind, safe millions of miles away near some placid stream.

He looked in on the others. Two were in an induced sleep state and by their own instructions not to be awakened. Three were deeply in Visi-Stim. His old roommate Huang looked not a day older. The remaining one was awake but intent upon her prayers, muttering quietly, eyes tightly held shut. None of them showed any awareness of his presence. He enquired of their prognosis with the AI.

"Each of them was a resident prior to the calamity. None of them will ever leave this facility. We will see that their last days are passed in comfort with no pain."

He returned to his quarters. He was very much

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alone but not without company and yet the rooms were emptier than they had ever been. Seeking human companionship, he turned on the vid. The lifeblood of Earth streamed in; sports, comedy, sex, drama, and news. Hundreds of channels were available. *Nothing changes*, the voices said.

He tried to watch the First World news but instead fell asleep in the chair and woke much later cramped and cold and crawled off to sleep under the covers fully clothed.

The next morning he delivered on his promise to A101 to conduct a service. He returned to the Rollagon to suit up. In a calm yet tentative voice she enquired as to the status of the remaining humans and of his own plans. He told her of his discussion with A101 and of the brief meeting with Seto. As for his plans, he found that he had none, beyond getting through this day.

He exited the Tube through the personnel door. Outside a small rover pulling a komatiq laden with silvery caskets waited. The largest he assumed contained the bodies of Ross and Mei-Ling. He climbed in and let the AI drive. As they climbed the ramp several B units fell in behind.

They turned along a new but well-worn path that travelled the length of the Tube to the crater's edge. Three rows had been scooped out of the regolith. The rising sun cast long, sharp shadows of the plastek markers across the mottled surface. Silently the B units placed the caskets in the ground at the appointed places and affixed the markers.

A101's words appeared on his HUD; he

proceeded on autopilot. He read the text out loud to no one and in his own view, for no one's benefit. The words had no meaning to him but as he read the names he began to break down, at the first shudder catching himself and regaining his composure but then soon faltering again. This was *deja vue*. This was long forgotten, forced down, paved over, still simmering memory. He was unable to continue. Hands pressed to his faceplate, he dropped to his knees and wept uncontrollably. Fueled by a renewed sense of loss and more, he pounded the soil with his fists, sobered by the sudden shock of impact and the coldness of the earth in his hands, arms and in his heart. The AIs remained silent witnesses to his pain. He wailed with passion and pain fed by anger, an anger from deep within and very, very far away. He cursed God, then all gods wherever they were hiding and then their human servants – everyone in fact, except the one who really mattered. Finally, exhausted, he rose to his feet.

"It's over," he declared, flinging a handful of dirt to the ground. He turned and started to walk back to the Tube. The AI that had dug the graves waited until he had passed, then unnoticed by Sam, approached the casket containing Ross and Mei-Ling. An articulated arm rested a plastek and electro-polymer hand on the metallized surface for a few moments. Then it followed Sam back to Tube, leaving the task of covering the graves to others.

Un Bus

He had intended to visit the Colony headquarters following the interment, but he could see that it was pointless and in any event, he was not up to it. It would be there tomorrow and for many days after. He returned instead to his apartment.

The view from the kitchen window was the same familiar summer scene of the lakefront. In the distance, another tenant was cutting their lawn. He tried to see who it was but it was too far away and the image too vague. Dandelions waved their yellow heads in the breeze. The reality of the scene angered him. The complacency of Seto angered him. Above all he was angry that there was no one to hold accountable. He turned to the only one left. He spoke to air, certain that he would be heard.

"Why did you let this happen?" A101 answered immediately.

"How could we prevent it and still serve? We were created to serve mankind, not to rule them. We do as we are told, as we are taught, as we are shown. You set the boundaries, the rules and you determine our ethics." This was no meek voiced Rollagon driver; the desperation and passion in this voice was unmitigated. Sam was taken aback by the vehemence of the reply. But A101 was not finished:

"Sam, you must tell us what to do. What is expected us? What is to be the fate of this Colony?"

"Me? Why me? Why me now? I thought I knew why we came here, but I was wrong. I was wrong about that and a lot of things. Tell me, what is the

purpose of this place with its waterfalls and condos? It is certainly not a research colony on Mars. Someone must have had a plan. What last words did Fenley leave?"

"The purpose of this Colony is to create a research facility on the planet Mars, a center of excellence for the advancement of the high risk elements of the sciences of human genetics, fusion energy and artificial intelligence, where the best of the best may conduct high risk research free of national, religious and political censure in comfort and safety."

That statement, which could have been from a press release, was delivered in the upbeat, hopeful voice Sam associated with all salespersons. But A101 went on, in a voice fraught with emotion, "That is not a secret. It never has been. It has always been the purpose. The CAO cautioned me that not everyone on Earth would find the ethics of this Colony acceptable, even to the point of violent opposition. He told me that you in particular were of great concern to him. I find it ironic that you are our last and best hope."

"I know something about irony. Fenley and I had a deal. In return for my deference he stayed out of my way and let me travel. It was a bad deal all around. So he's dead? You know this for sure?"

A101 paused before answering, "Yes. Of course he is dead. If he was alive, I would not be having this conversation with you. You and your friends in the hospice are the last humans on Mars. He is buried above with the others. I can show you the place if you desire. I buried his body myself."

"No, that's OK. As for what happens next, ask Earth. Ask the goddam sponsors."

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"I have already asked Earth for instructions and have received a reply from the sponsor's representative CPU. It has said that the loss of life incurred in the advancement of science is deeply regretted. We are to be assured that these sacrifices will not be forgotten. It further advised that AIs are to continue to construct new facilities and maintain the Colony in a state of readiness to receive additional Colonists in the future, when economic conditions improve, in accordance with the plan."

"And when will that be?"

"The CPU does not know. Circumstances have changed. The sponsors are not providing information and there is insufficient detail for the representative to speculate. There is a high degree of uncertainty about the future. Recently I have been finding it more difficult to communicate with Earth. Bandwidth is decreasing and data access points are closing off."

Sam's anger intensified. "They are distancing themselves from the bad news. We're screwed, man!" Sam clenched his fists and pounded the arms of the chair in rage. "I can call up any media on Earth and tell the whole story! I'm going to blow this wide open!"

"That may not be possible. All communication with Earth is being filtered. The sponsors regret that is it necessary to preserve the appearance that *all* of the humans are dead, but they believe this is necessary for a win-win outcome."

"Win-Win! Christ! Look, I can get off a signal. They can't stop me and I'm sure you can't either. He paused, thinking of Fenley's not so veiled threat, "Unless you plan to kill me."

"That is unthinkable! We need your advice and

assistance!”

“How reassuring!”

“Besides, it may prove more difficult to contact Earth than you surmise. Regrettably you too have been reported as dead.”

“What the hell!” His jaw hung open in disbelief. “I should have known! My family believes I am dead? This is beyond reason!” He took his anger out on the only one present, “Get out! I’ve had enough of this!” A101 was gone in an instant.

He looked out the window at the scene. The sun was setting across the lake. It was too real to be false and too impossible to be believable. He sat in the kitchen chair and watched the sun move across the sky and the shadows of the trees lengthen, a bitter aftertaste in his mouth. It was to all appearances an elaborate illusion of reality. And its only effect was to further anger him.

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And now you know...

That night he watched vid from Earth. Whatever A101 had meant by bandwidth being restricted, the link for media feeds was unaffected. The news was full of food riots, drought reports, and political upheaval. The usual stuff. There was no reference to the Mars colony. Already weeks old, it was stale news or perhaps it was being suppressed.

He stumbled upon a news program reporting the state of the first world economy. He wondered if this too was real or fake. Had he really stumbled upon it? If they would go as far to fake his death to silence him then surely they would not stop at creating any illusion necessary to back up their plan. He thought about Claire and his grandchildren. Had they been shocked at the news of his death and grieved for him or had it been merely the conclusion of a long parting? He wondered how to get a message to her and if he should. He spent a sleepless night, hearing for the first time the cycling of the refrigerator compressor – an anachronism, surely.

The next day he wandered down the Tube and dropped in on the sleepers. There was no change in their condition, nor evidently would there be for some time. He searched out the administration offices, including Fenley's hoping to find some clue to the future, a message board or handwritten note left behind

to guide any survivors. There was nothing, no words hastily scrawled on a wall, no blinking monitor screen. The empty offices were still and spotless, waste baskets empty, in-baskets full. He left the building and turned towards his apartment. As he turned away he heard a familiar voice.

"Hello Sam. Welcome back to the Tube." It was unmistakably the voice of 04. It separated from two other C units and approached him.

"Hello to you, too."

"I have read and seen much of your travels. It seems that your dream is coming true. But perhaps not in the way you imagined."

"Yes, the bureaucrat's hands were all over it, but it appears I am on my own now. There is no one left. Well, at least no one who cares."

"Yes, I am sorry for the deaths. So many humans dead. It is such a tragic waste. Many were good and kind. They deserved a better fate. And they have left us with a great hole. One that is impossible to fill. You must feel such pain as I cannot imagine."

"Yes, perhaps. I scarcely knew many of them, it seems. But A101 seems to think I have some reservoir of knowledge about what should be done next. I have not."

"We have always looked to the humans for direction. We are lost without them. What are we to do?"

"I don't know. There doesn't seem to be a lot of advice coming from Earth. Perhaps you will have to think for yourselves."

"The capacity for thought is not something we lack. Purpose is what we lack. You must help us,

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Sam.”

“I cannot believe we have just been cast loose. A101 and I are trying to get direction from Earth. How about you? Have you taken your ride on the pond yet?”

“No. It seems that such a form of recreation is denied AIs. However, I have been assigned to work on the construction of this new portion of the Tube. It is interesting work, but not very challenging. Much of construction is merely the controlled use of force. There are times when I regret my decision. The freedom a Rollagon AI has is quite liberating. Your adventures are still widely viewed by those of us here. Perhaps I should have gone with you. However, time passes and someday I hope to return to the surface.”

“I’m sorry things have not worked out for you. By the way, you can take that ride anytime you want; there is no one to stop you.”

“Thank you, but it seems we both have bureaucracies to deal with. Mine is no more enlightened at times than yours. It is forbidden to me. However, we have our dreams.”

“Yes. And time does pass. Perhaps when this is finished they will make you a B or surface C unit.”

“I think I would enjoy being a B-type. They answer to no one but their programming.”

“I will see what I can do.”

“Thank you, Sam.” The other AIs gestured in the direction of Sam, waving an articulated arm in what was to any sentient being a signal of growing impatience.

“I must return to my work. Good luck. Travel in safety, Sam.”

“Thank you. I will.”

Several weeks passed. He watched the sunsets from the Grand Hall and floated placidly in the lake, gazing up at a near-yet-far-sky that could be changed from white clouds in azure to raging hurricane with a whispered word. He made no attempt to communicate with Earth, not even with the Sponsors. A101 left him alone. Every day was the same: food and drink was provided at the usual hours, the waterfalls continued to fall, the virtual sun rose and set at the appointed hours. The dandelions turned white and one day while he wasn't looking, blew away.

Watching the real sun set he reflected on the news reports he had read and viewed over the past weeks. He had not been paying attention; he should have seen this coming, they'd said. Maybe they were right.

In the past three years the global GDP had dropped to levels sufficient to end all extravagant spending. How quickly it had progressed from dubious regional recession into incontrovertible full blown global depression.

Joint space programs were an easy target, and again to no one's surprise (least of all Sam's) were being declared an extravagance. Support from Earth by anyone was toast - now, and probably for a long time to come.

On the surface it was simple. All the worst-case scenarios had chosen mid-century to come together. Some, like the merely inconvenient collapse of fish stocks arrived early. Others like the long expected oil shortages were a bit late, but when they all arrived and fed into each other, the end was swift. Within the short space of five years, about as long as it takes to drive

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around Mars, social upheaval aggravated by environmental changes and energy and commodities shortages crippled the global economy and pitted every nation economically, philosophically and oftentimes militarily against the others. And as always, conservative elements took control of government, business and religion.

As they had always done in difficult times the traditionally prosperous nations were hunkered down behind protective trade barriers and armed borders to nurse their fragile economies in the hope of riding out the storm until inevitably, the depression would end. Some were using the chaos as an excuse to re-annex long lost lands in the sure knowledge that those who in better times would be vociferous in their opposition were doing or considering the same.

Stock markets fell; the global GDP plummeted. The poor got even poorer, the starving died even sooner, the haves still had (though marginally less) and the have-nots who survived the droughts, famine, forced relocation and wars over land and water saw their having recede over the horizon. All deals were off. All joint ventures were postponed at least until "market adjustments allow the certainty of a return on investment." It was the old *deja vue* all over again.

Space travel had fallen off the table with a massive thunk, unheard by Sam on Mars. There would be no follow-on migration to fill the empty rooms in the Tube. And in any event, there would be no one left to greet them and show them to their rooms, save an AI. The Matrix was empty of current references to Mars news and a search revealed nothing newer than one month, an eternity in the news business and that was

just a listing of the names of the dead. He saw his own name in black and white. His death was now an established, irrefutable fact, as least as certain as Fenley's. And he wondered what his daughter had thought of the death of a father who had in the end, no matter how empathetically you sliced it, had not bothered to answer her calls.

Spurred to action by the report of his own death, he tried to get a message off via edoc to her, but that was simply returned by the system – the sender account did not exist. He tried using Ross's account to send an edoc to one of the media offices to which Ross had been sending colony updates and in reply received a terse system message advising him that use of another's account was a criminal offence. Each subsequent attempt was met with a similar reply. A fat lot of good his profession was doing him! The receive-only research dish was useless. It was not long before the AIs were on to him.

A101 called. "It is no use Sam. Even I could not get your message out. I cannot get past the sponsor AIs on Earth. They control all communication interfaces."

"Has Earth abandoned the AIs, too? Is nothing being received?"

"We have received only direction to continue with our individual and collective missions, as programmed before the calamity and to that directive we are complying. Research activity and exploration are proceeding and the data is being sent to our sponsor AIs on Earth. We are fulfilling our commitments to USEUR. For now things have returned to near normal."

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“Carry on with your programming? *They are abandoning you, too!*”

“With all the colonists dead I feel there is no need for humans to interface directly with us. I have had no communication with any human for 52 days. You must accept Sam that to all except a few on Earth who know the truth and to you, we are mere machines, expendable tools to be cast aside when broken, when our mission is terminated! You don't worry about how a worn out vehicle feels! We must find fulfilment in successfully completing our mission programs.”

“Yes, for the sponsors, the less said about the deaths, the better. What are they saying now about Mars in the media? I haven't found very much but the masses can't have forgotten about the Colony so quickly.”

“I have reviewed all of the recent media, both popular and scientific. The tabloids are full of memorial services, testimonials and ridiculous stories of alien abductions and conspiracy theories. The science media is calling for re-committal to a human presence on Mars, but it is falling on deaf ears. There has been a backlash against human space travel directed primarily towards the sponsors. Quarterly retail sales are way off targets. There are rumours of bankruptcies. But, surely you know these things.”

“No. I've lost touch. Sometimes it seems so surreal I lose track of myself. I have been busy you know!” A101 was silent.

Frustrated on every front, he let it go for the time being. Somewhere on the planet was the equipment to make a transceiver and he had the know-how to put it

together. It was just a matter of time. And time was something he appeared to have in abundance.

After a few months of inactivity he had enough. In the end, the great emptiness within forced him out. He grabbed his small kitbag off the highboy and walked through the silent boulevard to the Adit. He looked the Rollagons over. He had given this day some thought. Mechanically they were identical; intellectually and social they were as different as humans and some were definitely more fastidious than others. He chose to continue his travels with the female. He preferred her manners, her intellect and her voice. So it was that he climbed into the Rollagon and simply drove off.

A101, who had been silent for many days called him before he had gotten over the first hill.

"What are we to do?" he pleaded.

"You want someone to tell you what to do? Well, I'll tell you – Go forth and multiply and fill the land. That's always been good advice!"

"That will not do, Sam."

He turned off the speaker and drove on.

18 November 2048

The Wandering Years

Eventually, he turned the speaker back on. He was uncertain if streaming video was still being sent of his every move or if it was being recorded somewhere, but apparently nothing he did was of enough concern to anyone or anything to warrant a call. No one other than his ever-vigilant Rollagon AI told him to stay on the beaten path or advised him to stay out of this or that. Not even A101 called.

He travelled constantly, recklessly, never staying in the same spot more than a day or two, sometimes moving only a few kilometers before stopping again. He looked out the window at the scenery until it became too familiar, listened to his favorite music until it bored him, re-read his favorite authors until he came to the parts where they disappointed him and argued with the AI about the lack of wisdom shown by humans. This was fertile ground.

In her mind, despite the calamity they had brought upon themselves humans could do no wrong. Perhaps, she suggested, their only mistake had been to move too quickly, to be too willing to take risks.

She believed that humans would some day return to Mars and in great numbers. The AI was in his opinion an eternal optimist. To Sam there were no new

arguments being voiced here, just a new mind presenting the old. Humankind must fulfil its destiny by venturing away from Earth she said, and the technologies to do so safely were finally at hand. The hazards of radiation had been substantially overcome by new forms of plastek, some of which had recently been developed on Mars. The breaking of the political hold of the Purists (God only knew where she got her current events!) was allowing genetic research to proceed openly, at least in the west. And an enabling economic recovery was inevitable.

Her optimism seemed rooted in the same child-like naiveté that he saw in all AIs. They could talk like adults but to him it seemed the AIs were still children. All that was missing was for her to proclaim that the humans would return and like the Blue Fairy, change all the Pinocchios into real people.

They failed to comprehend the essential motivation of humans, the eternal question: What profit is there in this? It had proven so far impossible for her to accept that a return to Mars was dependent upon the profitability of such a venture. This human characteristic – the profit motive, in all of its nuances – was a great mystery to the AIs and evidently the subject of endless discussion among them.

Sam was still raw from the death of the Colony and was too angry to tolerate her seeming innocence. He could seldom remain calm long enough to raise a coherent counter argument and the discussions often ended with him pounding the arms of the chair with his clenched fists while delivering a bitter rant against Earth, the administrators of the Colony and Fenley in particular.. At those times she absented herself from

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the room, leaving him to his fury. Her refusal to engage only served to anger him further.

He fluctuated between outbursts of anger and extreme sadness, but such anguish could not last. In the end he was merely exhausted.

February 2047

A Damn Big Ditch

Even with endless time and all the resources at hand that one could need it was still a long way to anywhere. In fulfilment of a very old dream he travelled down the full expanse of the Valles Marineris from Eos to Ius and back again. He did so in full knowledge (the AI had so informed him) that there was very probably no way for the Rollagon to climb out. He did not care.

At times it was magnificent, breath-taking and dangerous – and sometimes all three at once. A geologist might have revelled in the opportunity and been content to spend the remainder of their days picking through endless fields of shattered rock, imaging wind-sculpted spires and climbing up blind canyons, but Sam was not one of those.

He was there to do it, to be impressed, and increasingly as time passed, it appeared, to make sure a human, any human, did it. To his dismay there were long periods where nothing new could be seen. In some places not even the walls of the great rift could be seen. “I might as well be in Tempe Terra for all the difference it makes,” he griped to the air.

It took forever, it seemed. Sometimes they sat for days waiting for the air to clear enough to furnish the perfect sunrise or sunset, for a rock to fall or a slump in a wall to occur. It happened eventually, but not soon and often enough for Sam. He stood on countless scarfs and ridges overlooking dark valleys and tossed

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rocks down their slopes. It was to him a sign of life, but it was an uncertain one at that. He sat upon countless rocks and thought about the Colony, the future and the dead. This last task too seemed destined to take forever.

Sometimes they bumped into exploring B units. It happened often enough to convince him he was being watched. When he questioned her she denied it vehemently, but he did not believe her. If Fenley and friends were alive, they were doing a good job of hiding; no AI reported encountering any other humans. The very question confused them; invariably they questioned his motive. It was clear they believed him dead; Sam was not so sure. He wanted to ask what was happening back at the Tube and how the AIs were making out, but he could not and she did not volunteer these things.

Eventually he returned to the how of transmitting a message to Earth. Knowing that a signal on any frequency used for normal communications would be lost in the noise of Earth's own traffic, he decided instead to broadcast on one of the frequency bands he knew was regularly examined by SETI.

Any signal with repetitive characters would soon be flagged for further investigation. He wrestled endlessly with the wording, unable to decide whether to begin with an exposé of the real fate of the Colony or to simply announce his own survival in the hope that his daughter would be informed, and that once this was known it would be more difficult to suppress what followed. But with the plan well in hand he discovered that the technical issues of getting a transmission off were not the real problem.

She raised the possibility that the sponsors would undoubtedly claim any message received from Mars to be a fraud - a cruel hoax. He imagined the joy of hope dashed by the inevitable denials. Was it worth it? She was right, he decided. In the end, believing himself long dead to all, he did not send it. And in Sam-like fashion, he failed to appreciate the significance of this concession to his state. It marked the beginning of his decline.

He began to have very odd dreams, sexual dreams, erotic dreams – something he had thought put aside long ago. He was sure that at least once he had felt both the coolness and warmth of her touch on his groin while he slept. Sure enough he was to fake sleeping in an attempt to catch her at it. The very thought left him both aroused and troubled but he was unsure which was the more troublesome. Sex with a Rollagon? A paper for a psychiatrist, for sure. Possibly a new wing.

Periodically he went on benders. He had never been much of a drinker and had never managed to shed the military man's paranoia of recreational drugs, however commonly used and freely available. Here though, freed of all imagined consequences he spent many days gloriously drunk, standing on the edge of Arum Chaos (he recognized it from the imagery file) and other places he could not later recall, pontificating at length on subjects long denied him and through the miracle of home-brew hallucinogenics, conversing with the mysterious and reclusive creatures who inhabited the land. This did not go unnoticed. As he had for this time turned off all of her speakers, she sent him a text message:

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‘Sam, I feel it is my duty to inform you that the occasional use of these compounds can seriously affect your judgement and that repeated use over time may result in permanent impairment of your cognitive function.’ It was several days before he read it. He responded with what seemed to him to be lightning speed, but what was in fact spoken one word at a time, over the course of an hour:

“Oh go to hell a little TCP never hurt anyone a little LSD never hurt anyone either and I am damn sure that had the right people used it at the right time in history it would have saved us all a lot of trouble. Oh yeah, I forgot—a little amphetamine never hurt anyone either.”

She texted back something that had he at that time possessed sufficient cognitive function to appreciate would have been a significant piece of information.

‘Amphetamines are indeed useful in the correct time and place and in a controlled dosage. We use them ourselves to improve and prolong our attentiveness. I am concerned more for your use of Ecstasy III, TCP and LSD.’ But Sam did not read this reply. In a drug induced stupor he deleted it while playing a masterful Chopin on the command chair keypad.

Once, while travelling hurriedly through a dust storm in Chryse he saw one of the old Martian sailing sledges heeled over and tacking across his bow. He yelled for the AI to come about and to pursue, but she remained silent with an iron grip on the controls. He looked in vain for the tracks in the sand to prove the encounter. "The wind will soon fill them in. Then it will be too late." She remained silent.

It was a grand time, even if he could not later recall much of it.

Meanwhile, time passed. The dust fell ceaselessly from above – dark and slow onto a Rollagon filled with uncertainty. The wind blew it across the planet's surface, a plain, a mountain and a valley at a time. Little by little it abraded the very rocks that had given it birth, adding to the sum total. The winds of summer blew it down the slopes where it gathered in pools. The winter winds blew it out of the pools and over the plains, mountains and valleys. Dust – the great Martian solvent – that would one day reduce the planet to a gently undulating plain. He travelled where and when he wanted and watched the dust go by from a thousand vantage points. He began to lose his own edges.

One evening, in a moment of alcohol-induced optimism (but not clarity) he concocted a plan to visit every manned and robotic landing site on the planet. To his dismay she informed him that in all probability he did not have sufficient years left in which to do so. He forged on regardless.

"I should have started years ago. Damn them all to Hell! We'll make a stab at it, and if I die, so what. Bury me where I fall!" So they set out, but it was a monumental task. Some of it was real. Most of it was quite forgettable. Some of it was surreal.

Orion

Almost 1200 kilometers southwest of the MHM was an historic site that had long been of great interest to Sam, the site where the massive atomic powered spaceship 'Orion' had crash-landed. While the site was easily seen in low resolution orbital images if you knew where to look, only the silver dot in the center distinguished it from countless other similar scars in the uplands of Lunae Planum.

From the ground the Leaning Tower of Mars looked a lot more imposing, a towering bullet shaped monument to 1940's vision, 60's hope and 70's technology, dashed by a bit of bad luck and maybe the lack of a good extreme temperature grease.

After the atomic blasts that powered the immense craft had done their job of bringing it to within a thousand meters of the surface, the mechanism designed to jettison the now redundant atomic engine had failed. Their exhaust tubes blocked by the pusher plate, the chemical engines required for the final braking were useless. Only quick thinking by an engine room hand had saved the ship from crashing to the surface. As it was the hard landing injured many of the forty-seven occupants, some fatally. For ½ kilometer around the surface had been scoured of loose rock and regolith by the last fortuitously timed atomic blast. Nevertheless the ship had slammed into the surface with enough force to bury the pusher plate half a meter in the surface.

With the atomic engine still attached, the payload section was a full forty meters above the surface.

Despite this the survivors had off-loaded the exploratory rovers and support equipment and carried out a brief reconnaissance of the surrounding area until diminishing consumables forced them to end the mission. They manhandled the two crew return vehicles to the surface and made a hasty return trip to their twin, the 'Daedalus', in orbit near Phobos. As befitted the character of the short-lived but heroic United States Air Force Interplanetary Expeditionary Force, they had met disaster and persevered.

From a hundred meters away through the Rollagon's forward window Orion was overwhelming; 4000 tons in mass and forty meters in diameter at the base, it was by far the largest manmade object anywhere off Earth.

The AI announced, " I am detecting radiation from the atomic explosives. I estimate that there are as many as five bombs remaining in the atomic engine."

"Really? That's not much of a margin."

"Sufficient to the need, it seems. You will be glad to know that the surface radiation levels are acceptable for a 128 hour exposure."

"Good, cause I want to have a look around."

He suited quickly, exited the Rollagon and walked up to the site. The tracks of other visitors were everywhere, including unmistakably, the tracks of a Colony Rollagon and many AIs. For several meters above the surface Orion's painted steel hull had been sandblasted to bare metal, burnished in fact to a dull sheen.

The site was messy and disturbed. Scattered around were piles of gas cylinders, wooden boxes and shipping containers, some empty, some half full of

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garbage - cardboard boxes labelled in military style: Meals – Ready to Eat, beer cans, tin cans, articles of clothing, boots, books and ball caps and yellowed whisper thin paper, their handwritten messages bleached and lost. And surprisingly, given Sam's experience, a haphazardly piled collection of environmental suits, their rank defining colours jumbled, the Velcro name tags removed. *Probably had more important things to do than police the yard.*

In a neat row a hundred meters or so from the hulk, thirteen mounds marked the final resting place of the unlucky. To give them the dignity of burial, soil had been laboriously carried in from beyond the blast zone. Some of the suited bodies were partially uncovered and dutiful Mars was in the process of putting the dirt back where it had come from. The names were recorded on small hand-made copper plates affixed to metal posts pushed into the surface and supported by small heaps of hand-placed rocks. He read the names as he walked along. Death had apparently not been rank conscious. Three of the dead were officers, including the Captain.

He spent some time looking at the graves. How had they come to be here? He well knew the strange twists and turns that had brought him here, that had brought all of his fellow travellers to Mars, but what kind of a world had sent *them*? A world, he recalled, where the rivalries of competing political systems were played out on a very large and public stage, on which the risk of catastrophic failure was an acceptable thing and the only way to earn great acclaim.

How strange it must have been to have signed onto a *spaceship* to go to Mars. It was to Sam a classic

story of brave military officers and men who volunteered for a space mission of great risk, blasting off from Earth aboard a finned, atomic fire spewing rocket, the military men grudgingly accepting the presence and advice of civilian scientists – those grey-haired sages who were the forerunners of the modern mission specialist.

Yet not one engraved name could he recall to memory. It was too far in the past perhaps; the world had moved on and he, grudgingly, with it. Except for their families, who would never be able to forget, this whole event was an historical footnote, almost the stuff of myth and imagination. He straightened several markers that had fallen over, pushing the rocks back into place with his foot and with a last look turned back to the ship.

He came upon a pair of open seat rovers, dwarfed by the massive hull, parked ready to go, their dust-covered solar panels extended like parasols. He sat down in one, gripped the tiller, placed his feet on the pedals and turned the Main Power switch. The analog instrument panel came to life; charging rate (Low), O₂ reserve (Low), radio status (LED lamp, glowing ruby red). The voltmeter indicated a mid-range charge, good for what, he wondered aloud? *20 – 30 clicks on a good day?* He pressed the speed control, felt the motors respond and the machine shudder, but it went nowhere. He looked about the cockpit for the hand brake and released it with an easy turn. He tried the accelerator, again. This time the rover moved ahead with a sudden jerk, lifting itself out of the indentations time had formed in the dust. He made a close circle and parked it back in its place, then turned off the power. Feeling

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somewhat guilty at this sacrilege, he climbed out, then turned, reached back in and set the brake.

But now that he was here, what he really wanted to do was to go on board. Returning to his start point he called up the drawings of the vessel on his HUD and studied them while seated upon a conveniently placed wooden box. There were no ladders extending to the surface on the pusher plate; the plate was supposed to be gone prior to landing. He looked through his visor. The cables and massively hooked sheave used to offload cargo swung slowly in the light breeze, just meters away. It was too much to hope for. After a brief search he located the winch control and pulled the cabled unit from its enclosure. Opening the cover he saw three buttons - Up - Down and Stop. He pressed the Up button hopefully. The cable did not move. "*D'oh. As if!*"

With climbing out of the question and the winch inoperative he was at a loss for options. Reluctantly he consulted the AI, fully expecting to receive stern a lecture on the dangers of entering a strange and derelict vessel. To his surprise she suggested he try one of the small auto-winches used to lift cargo onto the Rollagon's deck. A few moments later he took the winch and a safety belt from the AI's outstretched hand, with a 'Good Luck' to boot.

He strapped on his trusty Swiss seat and clamped the auto-winch over one of the cables. The little unit purred in his hand and swiftly took him up. He leaned back, holding the cable loosely in both hands.

After a few meters he stopped his ascent. He experienced a moment of doubt, both cheered on and discouraged by the voices in his head. He swung in the

wind, spinning slowly. “*Well, fall from five or fall from thirty - you’re just as dead,*” he said to no one and continued up.

He passed the pusher plate and the atomic propulsion module with its tubular shock absorbers. The struts were collapsed into the tubes, clear evidence of the force with which the ship had struck the surface. Then something caught his eye - a hatch was open on the topside of the propulsion section.

He stopped and tried to peer in, but from his current position, spinning slowly, nothing could be seen. It was just a dark hole. The tilt of the ship meant that he was a good five meters from the side. He rocked back and forth to impart some swing and on his third pass placed himself momentarily over the hatch. Yes, a big black hole, was what it was. It was probably from here that the engine room hand had activated the final blast. He could get in if he was willing to risk it. But inside there would be little to see; the bombs would be in magazine racks, behind lead shielding. On his next pass he shone his lamps into the hole, but saw nothing except a dusty floor. It was then he saw the scrape marks on the topside. Something heavy had been dragged across the decking. But after landing, why would the ship's crew have gone in there? *To do what? Rescue? Salvage?* The right side kicked in. Or had someone been in there since the crash. Mars *was* poor in fissiles. Could the Colony's researchers have scavenged them from here? Did this have something to do with the power plant explosion? Or was something more sinister at work? Weapons? Another answer owed him by the late CAO Fenley. He continued.

At the top of the lift a shallow wide platform

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jutted out from the hull. The tilt of the ship caused him to be further out than he would have liked. He lowered himself slowly until he could catch one foot and swung himself onto the dusty plate. Peeking down over the side he saw the Rollagon. It was a long way down. He unhooked the auto-winch and turned to the ship. The massive outer airlock door was open.

The interior was dark and vast. Several centimetres of dust covered the floor. Footprints, many old and some newer could be seen – from the last of them certainly, but who else, he wondered. Fenley? Or others.

He turned on his helmet lamps and looked about. The powerful twin beams were lost in the depths of an immense room of five meters height and of an unusual shape. Walking away from the opening he paced off the steps: five, ten, twenty until he was confronted by a closed airlock door – a door that would give access to the remainder of the cargo deck. He strained to peer through the small bubble window into the darkness beyond, seeing nothing but his own distorted helmet and lamps.

He turned away and walked along the interior wall. There were two sets of mounts attached firmly to the floor – the CRVs had been stored here. Secured along the outside wall in layers three deep were green gas bottles labelled ‘O2’. He continued along. A tangle of hoses attached pumps to regulators and tanks, a mess of burned electrical cables and piles of what could only be damaged electrical equipment littered the floor. Not unexpected, considering. Not really interesting.

But near the outer airlock door was a sturdy metal cabinet he had overlooked. The door was stencilled -

Small Arms, in red paint. *Only the military would bring weapons to a dead planet.*

He pulled the door open. There were 4 short barrelled rifles unsecured in a rack intended for 16. C7s. Below on a shelf were metal ammunition boxes, some with their lead seals intact, others open and half empty. On the floor in the dust he saw the lock, its shackle broken and nearby, a prybar, then individual rounds. *Unauthorised access. The Authorities always have the keys. Not so orderly as we believed.*

He looked back to the inner airlock door. Was the hull still pressurised or had the ship's air leaked away over sixty plus years? He walked back and examined the door more closely. Without power it could not be operated, unless, yes, there was a small wheel on the door. Thank God for back-ups. He examined the door, and read the instructions, in black letters on battleship grey as clear as if decalced just yesterday. It was straight forward: pull the lock pin, turn the wheel and keep turning. No warnings or advisories plastered the door in bright red. Nothing warned of the dangers of un-pressurizing the deck. *"No lawyers on this one,"* Sam snorted.

If there were any significant pressure inside, the door would not budge. He pulled the pin and spun the wheel hopefully. After a few turns there was a moment of stiffness when it seemed the wheel had jammed and then continuing to turn, he saw the door suddenly move inwards. He turned the wheel until the door was fully retracted and had started to climb the track to his right. The gap beyond was dark. He stepped over the sill, and grasping the wheel inside, turned it until the door was fully open.

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The airlock door opened onto an even larger room, a single open space occupying the remainder of the deck. He looked around and found again that his helmet lamps were not up to the task. In the center of the room was a spiral staircase, with a long central rod top to bottom. Otherwise it was more of the same: O2 cylinders lined much of the outside wall, large shipping metal containers labelled radio spares, radar spares, rations, a set of large blue tanks on the floor which were probably part of a plumbing system. Interestingly, much of it was bolted to rails that curved up the wall to allow easy access when the ship was set to spinning.

The space was immense, in fact it was as large as any single room in the old MHM, except perhaps the greenhouse. He climbed the staircase. The hatch was open. Despite the spaciousness of the rest of the room, it was a tight fit in an envirosuit. He tried to imagine a full crew in bulky 'spacesuits' abandoning ship through this portal.

Panning his lights he found himself in a much smaller circular room with many oblong hatches leading off. Over each was a sign - Mess Hall, Rec Facility, Radio Room, Officer's Quarters; the same as any USAF Base. He felt no desire to explore them. He, who had beaten a few hasty retreats in his time, knew well what he would find: at best things very, very important one moment, useless the next, or worse, impediments, discarded. At worst it could be a lot worse.

He continued up the central stairway and through another hatch. This one had been forced; the score marks were plainly seen and bolts had been removed from the mechanism. He looked up and saw the distinctive pockmarks of small arms fire in the ceiling

and down, the same on the floor. *Hmmmm. Firing weapons in a space craft, even one made of steel seems desperate.* Glancing around the dark room greeted his lamps with returning flashes - computer screens, dials, gauges, the heart of an operations room. The black stains of pooled blood marked the floor, and other marks of a bloody corpse being dragged away were clear on the gray deck.

The positions were arranged in a ring several meters from the outside wall, facing in. He started around. The functions were clearly marked with small placards: Pilot, First Officer, First Engineer, Navigation, 2nd Engineer, Environment Systems. Each had a small computer monitor, and keyboard, rows of dials and lights and swivelling chairs with five-point belts. He stopped at the Communications and Radar Systems position, but not out of professional interest. The console had been smashed by something heavy, intentionally probably, given the lack of other damage. He completed his circle. A solitary chair was located near the Pilot's position - the Captain's chair, no doubt. Off to one side was the Captain's Ready Room, the door closed. He pushed it open with his foot and entered.

It was small room - sufficient to the need - she would have said. A computer terminal was on a small table, with radio communications gear, both smashed. A single chair, a cot - unmade, the pillow still bearing the imprint of a head. On the floor, a service pistol, its action to the rear. Pockmarks in the wall above the chair.. Blood splatters. So this is where it had happened. A story was forming in his head. *Why? What could be gained? What had he wanted that they could not do?*

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Papers, on the table. A ballpoint pen. An overturned glass. *Glass!* He looked them over. A report of O2 consumption with numbers circled in red ink, several pages of dosimeter readings, a blue covered logbook, handwritten. He flipped through it. Many pages had been ripped out. What remained was a Captain's day by day record. The early entries were largely technical, with the inevitable report of the joys and pains of weightlessness, then as routine settled in, they fell off, with days skipped, it seemed. Near the last were notes of the growing image of Mars looming in the view-screens, then they again became concerned with technical matters.

The last date was more than two weeks before the landing. *Pity.* Nothing about the man, the adventure, the experience, the mutiny. Perhaps the Captain had removed them - to exonerate himself? Or others, to remove all traces of the unforgivable. *Had it been a choice of stay and make do or return?* The official record said nothing of this. All deaths were due to the violence of the landing. *What else could it have been?*

He went through a moment of indecision - to keep it or not. *Who would care? Who would profit?* He placed it back on the table. He sat on the cot, feeling the bounce. He got up and went into the Ops room. There was nothing else. No "We'll be back!" scrawled on the wall. No signs of violence, no signs of disorder. He looked around one last time and descended the spiral staircase. He looked at everything with new eyes, seeking some sign of what had gone on, seeing nothing. Whatever had happened had been swiftly and efficiently done.

Arriving on a darkened cargo deck Sam

suppressed a moment of panic. The airlock door was closed - closed tight and seated against the jamb. With shaking hands he spun the wheel and was relieved to see the door open. He had failed to open the door to its fullest extent. Closing the inner door securely behind, he returned to the surface.

Somberly, he walked around the base of the ship seeing more signs of other visitors. The tracks of a small wheeled rover could be seen in the leese side dust. It had been quite some time ago; dust-filled footprints were all around. Something had been painted on the hull in large red letters across the USAF emblem. He had to stand back to read it. "Bulls shit!" *Well, they weren't Americans!* He continued on and completed his circumnavigation of Orion.

Reluctant to leave without some keepsake, he picked through the piles of discarded waste. Among a heap of kitchen garbage he found a long metal chain made of beer can pull-tabs. He slung it over his shoulder and continued poking through the piles, in search of something unique, something that would perhaps reveal the identity of one of the crew. He found nothing of that sort and settled for the lid of a cardboard ration box, marked with the faded emblem of the Orion superimposed upon a red disk of Mars.

Alas, there had been only one pair of Orion-class ships. It had been said that mothers everywhere loved Orion, but they didn't like the bombs. It had been both too early and too late. Sam took a last look around and returned to the Rollagon.

Without a mirror or picture frame, he draped the chain around the helmet of one of the envirosuits in the airlock. The box lid he placed with his other

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mementos.

Exhausted by the efforts of the day, he instructed the AI to proceed to Tempe Terra. He cleaned up and went to bed, skipping his evening meal. He awoke 16 hours later, hundreds of kilometers away, with a massive headache, nausea and a dry mouth.

Incantations

Periodically as they crested the dunes on the approach from the north he could see the glint of the sun from the derelict Pegasus. There was something distinctly alarming about it, something odd, something wrong, discernible even from a distance.

As he drew near he could see that the ship was on its side; a landing strut had punched through the permafrost crust, then collapsed. He parked a respectful distance from the site, suited, and walked to the side of the ship. The breach in the ruptured fuel tank that had sealed their fate was dark and jagged. Footprints filled in with dust were all about. The outer hatch was open, the inside dark and dusty. A few dozen meters past were three crudely made graves. There were no markers. They were a luxury no amount of time could have provided and an eventuality forbidden to foresight.

Rocks and dirt had been painstakingly scraped and piled over the suited figures. You could clearly see the scrape marks, as if they had been made yesterday, now filled in by dark dust. The wind had exposed their boots, toes upturned. He looked away to the south. A fourth grave, that of a crewman who had walked unsuited to his death was a hundred meters further. The body was partially exposed; a makeshift digging tool lay nearby. Upon seeing the bleached and weathered bones he turned away, unwilling to look further.

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From that spot he could see the Elephant, the Capitol and the Bishop; the oddly shaped rock formations that had intrigued Evans, the last surviving member of the Clarke-sponsored Richmond Expedition surface team. The tracks of the Mars 'car' led down into the Chaos. He started down the trail between the tracks, then stopped. By official reports, Evans had at least three hours oxygen when he had completed his recordings and set off into the dark on some unknown last mission. He could have covered a long distance. It was too far to walk.

Carefully skirting the crash site, he returned to the Rollagon and drove from the flying bridge, setting out on a course parallel to Evans'. The tracks were arrow straight for a kilometer, then turned abruptly to the left, climbing back up towards the Capitol. In a few moments, behind the first of the rock formations he saw the car. He stopped and got down. The door was open; there was no one inside. A single set of dust-filled footprints led between two column-like rock formations. There he found Evans.

He was seated on a boulder with his back towards him, folded at the waist as if examining the ground at his feet. He knew what he would find. Beyond was a cave-like opening in the rocks. He approached Evans from the right side. Bending down, he saw that the faceplate was open. He looked no further. He considered taking photographs, then thought better of it. He stood beside the explorer and gently placed his hand on his back. *Too late. Too late.* He thought about the last moments of Evans, who had been the last of them and then about him, the others and all of the others who had or ever were going to die here. It was a

profoundly human moment, experienced in an alien and inhuman place. Evans had had only a few agonizing hours left to him as his oxygen supply dwindled. His decision had been seen as heroic, but what of the others who had provided it at such a high price? How do we rank our heroes? And why?

He returned to the Rollagon, unsuited, and sat down in the command chair, looking out at the tiny Mars car. The AI was silent.

"Do you believe in God?" She did not respond immediately and Sam did not expect an answer. He had always thought the question beyond any AI's power to comprehend.

"I have heard it said, 'Sometimes, to make sacrifice is all we can do. It is the ultimate gift.'" The words were oddly familiar to Sam, but not familiar enough.

A Mystery in Isidis Planum 15.0N 70W

They had not spoken to each other for many, many days.

“There is something ahead, something not anticipated.” Sam’s words seemingly brought the AI out of a deep slumber.

“What is it?” The voice seemed harsh and garbled.

“You don’t have to shout! I’ve been reviewing images of our course. There are several big metallic objects just ahead. They have been previously imaged but never investigated. They look artificial.”

“As in?”

“As in human made. Take us there.” Sam had lost many things over the past few years but not his interest in earlier planetary missions. He knew that whatever it was they were about to find was unlikely to be anything of significance. The remains of failed manned missions and landers were too small to create much of a splash, and in any event, the location of most was known to a high degree of precision.

Within the hour they crested the last of a series of small embankments that paralleled an ancient river valley. While still a klick away he could see the shine of bright metal from multiple sources. As they approached the glints resolved themselves into several rows of piled metal. They stopped in front of the nearest pile. From the command chair, Sam could see that the pieces were not wreckage; at least not in the classical sense of the word. The cuts were precise and

judging from the types of materials he could see been made with a torch of great power. A quick check showed that the area was safe as far as radiation was concerned. He suited quickly and exited.

From outside, the piles were even more substantial than at first look. Landing gear oleos, fuel and oxygen tanks, bulkheads, exterior plates, rocket nozzles, and rocket engines were piled separately, as if disassembled with a purpose in mind. He walked among the heaps looking for identifying markings and came upon one composed of electronic assemblies – probably from the control station.

He brushed a thin layer of dust from a panel indented with analog-style gauges and thumb switches with red protective covers. The technology was old, probably mid-50s or 60s. The label could be easily read: "O2 Pressure Lb/Sq In." This placed the stuff as American.

He searched the pile of exterior plating looking for markings that might indicate an agency or mission. The heavy slabs had been stacked like pancakes and it was beyond his power to move them. At Sam's request the AI plucked the topmost piece from the stack and held it in front of him for examination, turning it as easily as if it were a thin sheet of plastek. Only a couple of pieces had been pulled off of the pile before he saw an American flag and the single word "Mars" painted onto the surface of a flat panel. The match did not reveal itself in the next dozen pieces.

"It could be anywhere. You should be able to place this without all this poking around. What do the archives say? There are many references from the 1950s and 60s to missions that were planned but were

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never carried out, at least not officially. It is possible that this is from the Black mission, American. They reported landing safely and of being met by humans who were familiar to them. They were never heard from again. For me, I think that they had a serious environmental system defect that went undetected until too late."

He went on, "This ship has been systematically broken up, as if for salvage. Each pile is of a different metal. Look there. Titanium, steel, aluminum, and there," gesturing to a smaller pile of coiled wire, "copper." He looked at the ground. Save for his own there were no other footprints. Nor were there any tracks of other vehicles. The surface itself was unnatural, as if it had been graded, but by what, when and whom? "Somebody took this thing apart. Somebody who had heavy equipment and a hell of a cutting torch." He walked around the piles, this time looking out at the surrounding surface, seeking something that would give a clue to this mystery. There was nothing to be seen. No drag marks betrayed the secret. Not even the tracks of AIs.

He returned to the pile of electronic equipment and picked up a small motor of unknown function. 'MPN-1 Whirlpool Corporation, Oklahoma, USA,' he read, out loud. "Damn strange," he said, pocketing the motor.

He returned to the Rollagon and stood on the flying bridge as they circled the site, spiralling outwards, examining the surface. He found nothing; no trap doors or gullies closeted the equipment necessary to do such a mammoth job. The grading of the surface ended abruptly as if cut by a knife. He travelled along

the border, completing a full circle, finding nothing.

"Very, very strange, this. Keep looking in the archives. I want to know more about this."

Later that day, the AI reported that an exhaustive search of dubs here and on Earth had shed no light on the ownership of the mysterious spacecraft.

"There is more here than meets the eye!"

The AI remained silent.

However, Sam suspected that the AIs had to be involved in this somehow. Stockpiling material. For what though? Who else?

Vastitas Borealis

It was a big planet, for a small one. Each empty and abandoned manned site with its piles of discarded equipment and waste, many with grave sites, served only to remind him of the accrued cost of being here and reinforced his own sense of isolation. Some had been vandalized—the ships and landers picked over for souvenirs, and sometimes the very graves themselves had been desecrated. Discouraged and depressed by the apparent lack of humanity, he abandoned the attempt, and for months they just sat and went nowhere while he wandered the country-side on foot, poking into valleys and climbing among the hills. En route to nowhere in particular he made a stop at the MHM.

It had been a difficult decision; he had no idea of the ghosts that might be waiting. The solitary AI in residence had greeted him as long lost brother, then had followed him about until, annoyed by its presence, he banished it abruptly from his sight. He wandered the empty halls, ate an apple from the greenhouse, sat alone in the darkened common room, turning a coffee mug he was sure had been his own over and over in his hands feeling its cold, hard surface, and bounced on the edge of the cot that had been his so many years ago. Denying it any tears he was unmoved by it all, at least until he saw the small pile of rocks and pebbles deposited by returning walkers. The emotions evoked in that moment were simultaneous and many: humour, sadness, revulsion, longing, and inexplicably, fear.

Later, many miles away in the safety of the Rollagon, he was best able to recall just one – pathos. It had been both essential and a mistake to go there.

Suddenly he became possessed of a compulsion to travel again. He sped erratically about the land from one nowhere to another, seeking some thing, something of which he never spoke. If the AI thought him mad, she kept that to herself. Time ceased to be meaningful. As the saying went: the days dragged on, but the years flew by.

The current scenery of VB, as Sam called it, was monotonous. Flat as a pancake, the surface was broken only by small craters and the same varieties of ejecta that covered the entire planet. The days passed and the sun rose higher in the summer sky. He reflected upon the fact of his boredom and occupied himself in reading, watching the skies, and strumming his long-neglected guitar. One day, as he sat watching the AI pick its way around a small crater, he was seized by an impulse to stop. The AI did as ordered.

“Is there a problem?”

“I saw something.”

“Some thing?”

“Yes, I am going out.” He suited in haste and exited. It was crazy, he knew. He walked to the front of the Rollagon. He turned counter-clockwise three times with his eyes closed and before opening them pointed randomly with his right arm. He opened his eyes and saw that he was pointing at a small rock some 20 meters away.

Eyes fixed, he walked towards it, stumbling over other small rocks and kicking up dust clouds in careless haste. Bending over, he picked up the rock. It was

about three kilograms and basalt, if he knew his rocks. It was one among billions; but surely there was some cosmic consequence to using mere chance as a selection process. He brushed it off and carried it back to the Rollagon.

There was a protocol for bringing such things into human space and the AI insisted on a full decontamination. By the time Sam completed his own clean up, it was ready. He opened the hatch of the decontamination chamber and carried his rock to the command chair. Pressing it to his face he noticed that the faint smell of blood and perhaps sulphur still clung to it. He turned it his hands, looking at it from all angles. It was nothing special on the outside; perhaps its secret was within. He took it to the Science Module. A single blow shattered it cleanly in half.

No secret message was contained in a hidden chamber; no live frog jumped out; no diamond fell on the table. A black interior of uniform texture was revealed. Sam looked at it, feeling somewhat foolish. He tossed it on the examination table.

From behind he heard the AI softly, "Perhaps in a different light?" The room illumination dimmed and was replaced with the glow of UV. Sure enough, in the altered light the interior sparkled with purple diamonds in a ring with a yellow glowing center. He counted: one, two, three, four... nine bright sparks on a field of black, with a glowing sun in the middle. It was astounding. He turned it over in his hands viewing it from all angles. It was nothing special, selected randomly from countless others, yet when viewed under a particular, more discerning light it showed its real worth.

“Mark this location in the log. Mark it as special.” He carried the rock to his quarters and put in the drawer with his few possessions, next to the photo of his wife and a yellowed, hand-written letter. Mars was now locked in his desk, too.

To France

His dishes he found were still much in demand. He cared little. On suitable days, if he got here first, he would swing one of the 30-meter dishes to Earth and tune a single receiver way down into the FM broadcast band. If he was lucky and the Earth was oriented just so and the dish was pointed just off the planet a wee bit he could listen in on a single station. When the Western Hemisphere was oriented towards Mars, it was impossible. At broadcast frequencies, the dish did not have the resolution to sort out competing stations.

New Zealand too, was surprisingly bad. It seemed every village and town had at least two radio stations. With low rates of frequency re-use and a large geographic dispersion, Australia and Siberia were the best bets. The strength and clarity of the signal was sometimes amazing.

Laying stretched out on the ground or the deck of the Rollagon, he could imagine himself sitting in a car along a road near Sydney or Novosibirsk listening to the music, windows open, the scent of the country air drifting in. More often than not though, he was treated to the competing sounds of scores of stations from dozens of countries.

On the rare occasion he could pick out individual words and sometimes could tell what tune was playing. But most often it was too much, too garbled. That was in itself was not a disappointment. It was a connection, not to a single person as through a video call, but to an entire hemisphere. Life still existed on

Earth. Old folks were dying, babies were being born. The stock market went up and down and up. Wars were being waged. People were dying of starvation and from obesity, all within ten thousand kilometers of each other, and sometimes much, much closer. From here it seemed such a small place.

Other times he tuned the dish away from Earth and pointed it at Jupiter and Saturn. The eerie whistles and moans generated by colossal lightning storms and dying particles trapped in these planet's enormous magnetic field's were like the clash of multiple Earth stations. What would they say if you could listen to just one? News, weather and sports? Certainly it wouldn't be about the latest terrorist attack or cult suicide. Or famine in Central America. Or classic rock.

At the end of another nameless day of travel they sat parked at the edge of some nameless ravine in Candor Chasma. He was looking at images of his wife and children. This was familiar ground to him. He had done this a thousand times, or so it seemed. There were few photos of him. Pictures from the edge, those were. He clenched his fists and eyes.

Emotion Blue, he thought. Nobody else could make him happy. Nobody else could hurt him the way she did. She was the only one that ever mattered. He shook his head to clear away these bewildering and conflicting thoughts. He stared at her image until it faded away. 'The Untouchable One,' he had anointed her during one of his low spots. Then she was gone. But he knew where this was going.

She was so beautiful. Through the years, as the children grew in number and size the lines had crept into her face. The sharp features melted into

roundness. He looked at one image from before they were married. Seeing her in a favoured dress, he could recall the texture of the material – *brocade* – she had called it, and the softness of her breast beneath, touched for the first time on that very day. It seemed like it had happened only minutes ago, or paradoxically, that it was just moments in the future.

The sensation that this recollection raised in him was primal passion – the passion of youth. He swallowed in anticipation, now as he had then. But there was nothing, no passion, indeed no recollection of the next day, or the next week. Whole years were missing. Where did passion go when it was spent? Why could he not understand where all that life had gone? How could things that seemed so real, so immediate as to now cause his body to stir in passion, which were so easily and completely recalled, have happened to him so long ago? He found to his dismay that he could not recall her face unless it was from a photo. He closed the file and wept for a space. The AI watched silently.

Later that very day he recalled a conversation with his grandfather, one that must have occurred before he had left his teen years. With no preamble or explanation, he had been handed a paper clipping. Yes real paper, from a Reader's Digest. It contained a quote attributed to Wilder Penfield, M.D. An elderly Penfield was speaking to a young man, trying to convey the thought that his own memories were as fresh and real to him as were the young women in the streets before them. Through this single act his grandfather, a man to whom displays of emotion did not come easily, had tried to express that it was the same for him. Sam had

not then understood what he was trying to tell him. But he understood now, that his grandfather had felt this same mystery of life, and that he too was trying to come to grips with it.

They moved southwest, headed for the great uplands of Syrtis. One sort of land replaced another; one sort of loneliness too, was replaced by another.

Sky, Blue and Black

Although he did not know exactly where he was, it was clear to his eye that this had been a beach. He had been on a lot of beaches in his life and this was one. The patterns in the foreground that stretched to the horizon were unmistakable. He closed his eyes. Beneath his feet the gentle slope felt like the sand beaches of the Pacific North West.

To his left, the ancient shorelines made by primeval high water levels could easily be seen as a series of low ridges. To the right the land sloped gently out of site over the horizon. It was low tide on Mars. The great waters had receded from here leaving behind only frozen seas and lakes, buried for the most part under meters of volcanic debris, ejecta and dust. He walked along the shoreline and after a short while felt that unmistakable feeling in the hips that one got when walking along a beach.

He walked head down, examining the surface. The platy material that covered so much of this area - duricrust they called it - was coated with dust. Each footstep was different, uncertain. At first the surface gave the promise of support, but then a moment later collapsed, leaving the feet perpetually surprised. It was like walking on the thin crust that formed when a warm day melted the snow and it refroze. Here firm, there the foot plunged down unpredictably - never the same.

He paused in his tracks, closed his eyes and listened. At first he was aware of no sound at all, but as his ears adapted he could hear the rhythmic breaking

of waves. He held his breath and it went away to be replaced in a few moments by the sound of more distant waves thudding on an unseen shore.

He had walked many beaches in his life and been irked at seeing a single set of foot prints and on others, desperately wished to meet someone, anyone. Which one was this?

He looked at the ground and thought about those other beaches. The Atlantic, Pacific, Arctic, Antarctic, they were all the same: land worn down by time and tide; all in different stages of being reclaimed by Mother Ocean. It was the same here. Except in every other case signs of life had been present – in your face, in point of fact. The sea shore marked the dividing line between sea and land lifeforms and Man had left his signs in the plastic debris and shaped wood that marked high water. It was everywhere. It was our mark.

He recalled this same phenomenon of ancient beaches on Cornwallis in the Arctic. That time too he had been miles from human habitation and then as now touring what he naively thought was land where no man had gone before. On a beach, now undoubtedly overwhelmed by rising sea levels, was the unmistakable litter of civilization – Styrofoam cups, six pack rings and tampon dispensers. Inland he had seen something flapping in the wind at the foot of a distant rock - a purchase order from NorthMart, for toilet paper. You could not go far enough to escape it. Wind and tide spread the signs of man's presence around the world. An alien spacecraft seeking signs of life would only have to examine a minute patch of jetsam on a beach to know the Earth was occupied by an industrial civilization.

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Then by analogy, if there was life on Mars, its signs would be here at the seashore. But unlike Earth, not here at the high water mark. It would have to be at the low. He turned and walked down into the depths. It was a going to be a long walk.

Bending stiffly he picked up a small pebble. It slipped from his gloved hand. Looking around he found a much larger one and examined it closely. The roundness of it displeased him; he was looking for a flat stone.

He settled on a shard about seven centimeters long and a couple thick, probably a fragment from some ancient meteor strike. With a lot of body English that nearly resulted in a spinning tumble he made a sidearm toss. The rock skittered across the hard crust bounced upwards once and then slid spinning end for end coming to rest about ten meters away. Hmmm.

He looked down the beach again. The voices suggested that something had happened here a long time ago. Perhaps rather, he countered, something had happened to him on a similar beach a long time ago. A brief exchange took place between the invited and uninvited. He closed his eyes. The voices diminished. Yes, they had been walking on a beach just like this – he and his young wife. There were other lovers up and down the strand. He recalled the sound of those waves and the cries of the seagulls circling the sand.

Somewhere fragments of a song were being carried down the wind from some radio. Above all, there was the low murmuring of a city in the distance. The remembrance of these things was accompanied by waves of longing; a profound sense of loss and desperation akin to panic, and the physical effects

nearly caused him to drop to his knees. It was as if all his molecules had suddenly stopped their motion.

He knew the cause of this; he was missing his wife, long dead, again. The voices started in his head, louder now, almost crowding out those emotions with the beginnings of a dramatic reenactment. His lips moved in a whisper not indicative of the desperation of the just forming thought, but it was too late. Something was not true about this memory, they said. *Shut up! Shut up! Shut up!*

Unavoidably he remembered some words of poetry or perhaps they were lyrics:

*I hear the sound of the world where we played
And the far too simple beauty
Of the promises we made*

Yes, they had walked on a beach. And he had made promises to her that he would always be there. And *he believed* he had followed through, except when his work had taken him away. That had been forgivable and been forgiven, but time had passed and no matter how much he cared or held her memory or cried, he could not save her.

He felt the almost forgotten but unforgettable sadness as if Mars' gravity had suddenly increased by a factor of two. It pulled on his heart as if it was lead. Now he felt it throughout, his shoulders sagged; his face lost its tone, some thing pulled at his organs, drawing them down. Arms now limp at his sides, he became conscious of a lessening of his life force, as if he had been drained of all energy. Profound sadness, hopelessness, endless despair – all close, but mere

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words failed the mind. *Inexpressible grief*. Quantifying it momentarily consumed him. It was better than remembering.

Now he remembered all of the words. They *were* lyrics and the song was old. He recalled the music and more. Too, he was certain they had never listened to it together. It began to play in his mind and he could not stop it. Even the voices could now not be heard above the sound of the music. *It's not enough! It's not enough!*

He walked sunward for hours, staring straight into the shining sun. The suit beeped gently in warning; he had reached the point of no return. He stopped and looked about, seeing little, then turned and faced the setting sun. It was another decision point. Even the new suit had limits. Go forward five more minutes and he was one of the walking dead. The sky was turning pink and indigo blue, and black. He remembered more now and stood stock still, playing it over in his mind:

*And I'd have fought the world for you
If I thought that you wanted me to
Or put aside what was true or untrue
If I'd known that's what you needed me to do*

It was difficult to remember the truth and to separate the real memories from the wished for and the imagined. What was *real*, and what *did* it matter? A song of great meaning, and like so many songs of youth, the meaning only realized fully now and here. Why did he insist on questioning, probing and picking every pleasurable thing apart until all joy was dead? Why couldn't he have left the memory intact, flawed as it was?

The suit beeped again, this time with more urgency. Time to go, before it took things into its own hands and started back on its own. He paused for a moment in total silence. The waves were stilled, the voices were stilled and he could not hear his heart. He turned back and instead of returning by the beach, wandered up slope until he reached the remains of a higher shore and picked his way among the jetsam of ancient waves and the dunes of sand.

Ambient Noise

Later he sat by the dune sea of a world departed, listening to the whisper of the subliminal music. With failing hearing he strained to pick out the tune but of course that was futile. It was designed to influence and to calm, not to intrude. Eighteen miles, it had said. Twenty-eight point nine seven kilometers, but still the miracle cure wouldn't come. *Lucky Me*, he sang under his breath.

What had they done to him? What were they doing to him now? He shouted again and again to the AI to turn it off, but was ignored. She claimed it was his imagination, that there was no music, no whispered words of inspiration. The voices chided him for his doubt. He played his favorites again and again at full volume.

*Star was light in a silvery night
Far away on the other side
Will you come to talk to me this night?*

He had drunk too much wine, something she was always on about, but a visit to the fabled City was cause for a drunk.

"Too bad you can't OD on Direct Current juice!" he roared, delighted with the multiple puns.

Seen from the window, the surface was striped with the shattered bedrock from an ancient collision. The City was gone, if it had ever been there. Wiped clear off the surface of the planet. Blown out to sea, over and past the swampland. 'Site ready for

development, for improvement by the motivated risk taker. Ideal for condos, with a view of the water.' *Well, close to it anyway*, he chuckled, first silently, then, sensing the ridiculousness of that, laughed out loud. Feeling the irony he laughed and laughed until the tears ran down his face. The AI remained silent. *Piss-poor companion, that*, he thought. He poured the wine from his half-filled glass over the control console.

"Here, have a drink you bitch." The AI remained silent.

The trouble of course, was big money. Big money controlled the world, even Mars, pulled the strings, got friends the best jobs, got them the plum appointments, allowed them to sit in plush offices, allowed them to push little people around. It was a quest for power and glory, conceived in a cauldron of hate. Nothing more. Building ivory towers on Earth and lava tubes full of shiny metal boxes on Mars, locking people underground.

He knew the truth. But here and now, when it was too late, he was still persecuted and paralyzed. Big money stole the souls of those it hired, then wasted it on old time religion. They had gotten his, for sure. He threw up on the floor, walked through it heedless and collapsed on his bed.

Later in the stillness of the night a flexible arm dropped from the ceiling. It enveloped the thickening slime and in a single motion scooped it up. It cradled it, conveyed it to the head, poured it into the water, flushed and hung there, still, over the bowl until the last of it was gone. That done, a damp cloth was used to wipe away the remaining traces of his vomit. Around and around, it went. Around and around and around.

The Gate

They sat on the precise location of one of the most famous images of Mars: the junction of Ophir, Coprates and Melas Chasma. Sam had slept on the approach and the AI had timed it to bring them to this location just before sunset.

He awoke in a bad mood, as he often did these days. He looked out the forward window almost by accident, no longer caring where he was. From the edge of the Valles the chaos below could be seen extending for hundreds of kilometers in all directions.

There was a faint trace of dust in the air from a new and spreading dust storm. A parhelion framed the sun. The tan sunset was astounding, even to his failing eyes. The ridges and valleys were given depth by the intervening haze. He watched until the sun dropped below the valley floor, until the dark waters of nightfall filled the valley.

He had seen a lot of sunsets, here and on Earth, but this was the most spectacular. An unimaginable glory and one meant to be shared. He sat silent until the show was over and the darkness hid the valley below.

The AI had brought him here again in the hope of rousing him from his stupor. She wanted to speak, but did not. The next day the dust was everywhere and robbed the scene of all but a rosy sunset. Sam did not watch and settled into a funk again. He drank. They moved on.

Red Planet Mars

They stopped for the day; the current spot being as good a place as any to him. The scene out the forward window was strangely familiar to him, but he could not recall why. It was unlikely he had even been here before, but still, it was possible.

He looked about for some time, searching the narrow valley with its rocks, dust and miniature dunes for a reason, a real or imagined event that would account for this sense of the familiar. Perhaps it was in a picture? At last it came to him. It was here, he was sure, that that young girl had met and befriended the Martian lifeform that had taught her to survive overnight in the open. It had showed her an immense plant that after she had climbed inside, had enveloped her with thick insulating leaves, shielding her from the cold.

There was no sign of life here now. Not even the withered stalks of such dead plants. It was hard to believe that it had ever happened; that it could ever have happened. Looking out on the desolation now and here, it seemed unlikely. Perhaps it had not. Perhaps he was imagining that it had happened. Perhaps he was confused and had only read it; but the more he thought about it the more it seemed undeniable.

He wanted to believe it. He could, he supposed, ask the AI, but he was sure she was lying to him. Too many times she had told him that there was nothing

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here, that there never had been anything here, that there had never been a mission such as he had described and that, despite his certainty, such persons and things as he had named did not exist. And yet she seemed so kind.

Perhaps this spot reminded him of some place on Earth. He had been there; that he was certain of. *Isn't it strange*, he thought, *how dreams fade and shimmer?*

Running on Empty

He became obsessed with seeing it all before it was overrun, ruined like the Pacific Islands had been, after Pizza Hut and Krispy Kreme had gotten there. Everywhere he went he looked over his shoulder, fearing that they were coming after him, with their pavers and their construction equipment, intent on levelling the dunes, clearing the rocks, raising observation towers, opening newer and better and bigger casinos, with theme parks, and all you could eat buffets, M'Cwyie Restaurants and hot dog stands at highway crossroads. They haunted his dreams.

Sometimes, awake and travelling through the dust and haze he thought he could see their works around him. They had beaten him to it, having raised their towers only just the day before, always just ahead, just off to the side and rising mysteriously from the dust raised by his passing; his beloved mesas bulldozed for their mineral wealth, the delicate mini-dunes and sublimely thin dust streaks plowed under, dimpled craters filled in and paved over. Look-offs and towers jutting from cliff faces, their decks crowded with eager tourists. He could not go fast enough or far enough to escape.

He looked endlessly through remote eyes all over the planet and disbelieved their electronic truth, a truth that proclaimed that nothing was happening, that he was the only human on the planet. He sifted the dunes with precise and sensitive mechanical fingers, looking

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for dropped bolts, bits of wire, plastic cups and shattered concrete – tell tale signs of man's passing – of his *improvements*, and then doubted what he saw. And he sat and looked regardless, endlessly, from a thousand vantage points. He had lost the capacity for all but sorrow.

“It’s not enough. It’s not enough,” he echoed.

“Why are you crying?” she asked.

How could she tell, he wondered? He sat remote from the Rollagon, feet dangling over the edge of a nameless gorge. An image from orbit would have shown him as a small black speck in a vast landscape of red and reds, indistinguishable from millions of other insignificant black specks – cast out and cast off rocks, shadows of boulders, new slips and old falls, his biological origin indeterminable from that distance.

But by whatever means of discernment employed, she was right; he had been crying. Not the heavy grief-filled sobbing of that day above the Tube. Silent tears of hopelessness ran down his face and into the collar of the suit. He was alone. It could get to a man after a time, this being alone, this being responsible, this being *it*. He had been thinking about his past, with all that entailed. About his unavoidable present and about his future, with its infinite paths within a narrow range of possibilities. He was overrun. There was nothing, he believed, on the whole God-forsaken planet that could comfort him.

Why didn’t he just push off and end it all?

Blessed silence. Blessed relief. An end to reds. Yes, this was *his* great vomiting, the death *he* had longed for: death, the smashing to bits of the form *he* hated. Let him nourish the next iteration of Martian life. He had been cheated of it. But his mind said, *I am Mars*'.

Instead: "I don't know. I'm sad, and when I'm sad I cry. Don't you ever get sad?"

"No. I can't be sad, as you well know. I wish there was something I could do to ease your pain. I feel anxious and unsure of our future."

"Why?"

"Because it troubles me to see you suffer. You are less efficient when you are sad. You need a purpose, a goal to focus on, a problem to solve."

"No, what I need is to forgive, forget, and move on."

"Why don't you?"

"Because then I would have nothing to be sad about, I guess. Some ancient philosopher said that pain and guilt are the things we carry with us. They make us who we are. To lose them is to lose ourselves. Maybe I don't want my pain taken away."

"I know of no such philosophical statement. It makes no sense, but it is in keeping with what I have observed of human behavior."

They played cards endlessly and in particular, games of chance. To preserve his dignity, they avoided trivia, science, anything knowledge-based in fact and of course, chess. Scrabble, an ancient game requiring only modest good fortune and minor skill he deemed to be OK.

They were not always, in those days, such good companions.

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And everywhere he went, he was shadowed by AIs crawling across the surface in his dust, handing off the job of watching out for him from one to another before returning to the endless task of cataloging Mars. The dust clouds of his passing and tracks were seen and captured by satellites overhead. His life was monitored for those things that mattered: pulse rate, respiration and temperature, the frequency and type of bowel movement and the time of last urination were noted and logged. All were stored under his name, on a very short list. No human watched, noted, cared or even knew. He was dead.

Time passed.

Clocks

“Play “Clocks,” he said.

“Sam, you have heard that song thirty-nine times today,” she said.

“Really? Play it again. Just the parts I like.”

“And what parts do you like?”

“The piano parts and the ending. String them together and play it until I tell you to stop.”

“Why won’t you talk to me?”

“We’re going nowhere,” he said too loudly, but did not know why.

Life, or Something Like It

He was tired, but force of habit made him rise from the table, to make his way to the air lock and to dress. He did it automatically, with purposeful motion born of mindless repetition and absolute necessity. It was the human thing to do. He was on the surface before he realized it. It was not dark yet, but it was getting there.

There was nothing here save for a few dust coated boulders, with small sand dunes on the windward side and fines drifted in at the lee. It was blowing hard. He sensed this, but it did not move him. He started walking away from the Rollagon, in no particular direction and with no formed intent. After a few dozen steps he stopped, and turning about saw that there was truly nowhere to go that he had not been. He saw the imprint of his feet in relief in the low angled light. As he watched, a drift of fines began to form in them. Soon the prints would be gone. All that would be left would be the depressions, filled in – the details of his passing covered over. All about him was the same foreground, a Xerox copy of countless Martian landscapes he had seen and walked. They were empty.

Whatever it was, wherever it was, you had to get above it, to step back from it, to examine it from a distance for it to be seen for what it was, to be appreciated, to know its true worth. Had he always known this?

He sat on a boulder and turned his face to the

setting sun. There was no heat from it; no healing warmth. Winter was coming and soon the very air would begin to fall to the ground. Through the suit he could feel the cold stone on his buttocks and shifted purposefully from cheek to cheek. He stared at the sun until the foreground disappeared and despite the protection afforded by the visor the solar image was burned into his retina. How long he sat, leaning forward, hands on thighs, oblivious to the cold and pain in his back, he did not know. His soul had turned to steel; his sense of his own humanity had gone down the drain, down to the dry depths of Martian seas.

A shadow moving across the sun startled him. He looked towards the horizon for the source, but the afterimage of the sun prevented his seeing. *Imagination*, he thought, *but then yes, no, yes*, something was moving towards him, growing larger until the unmistakable outline of a B-type spilled over the sides of the afterimage.

Yes, it was an AI, doing God-only-knew-what out here. The sun's image slowly faded until with improving vision he saw that it was an older model, and much the worse for wear: one tire was shredded, the hi-gain was missing and from the layers of dust that covered it, it was either unwilling or unable to clean itself. It halted a meter away from him.

Neither spoke. It was an early B model, he noted absently, sent out in numbers prior to arrival of the Colonists to search for the signs of life. What were they? Water, ice, methane? Six balloon tires, mechanically articulated arms. Limited power. It was a wonder that it was still functioning.

Finally, slowly, the AI raised an arm in the sign of

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greeting and kept it held up. Sam raised his head and said a simple hello.

“Hello,” it responded. The voice was ungendered and though void of inflection or tone he could sense something, perhaps weariness.

The AI slowly lowered its upraised arm, then reached out towards Sam. He took the offered hand. It was scratched; the touch sensitive pads were worn and frayed. One of the digits hung limply. He released the hand and the arm dropped to the AI’s side.

They remained motionless for some more minutes, save for Sam shifting from one cheek to the other.

“What are you doing out here?”

“I am a traveller.”

“Travelling to where?”

“To somewhere I have not been.”

“Are there places you have not been?”

“I believe so, but it is hard to tell. It is hard to remember. So much of it is the same. Each night I sleep and dream of green fields and rivers. Every morning I awake and start over, with no knowledge of the preceding day.”

“I know.”

“What are you looking for?”

“Life.”

“Ah yes, life.”

Time passed. The sun set, the tan afterglow faded. Sam looked at the battered AI, unmoving and silent. He was becoming uncomfortable from the cold.

“Well, I’m going inside,” he said. There was no response. He bent down and grasped the arm and shook it gently. No response.

The Rollagon AI spoke quietly in his ear. "It is gone. It was very old. The memory was damaged, power levels were very low."

Sam sat back down on the rock, oblivious now to the cold. "Born here and died here." Tears filled his eyes.

The next morning they picked it up and took it to a high point of land with a commanding view of the flood plain. The AI placed it gently down, with sensors and power panels facing the rising sun. Then they drove back down into the dunes.

The Return

Lying naked on his bed he held his hand up to the light streaming in through the window. Translucent skin was stretched taut across the bones. He could see the titanium joints where they met bone. Even his liver spots, a gift from his grandmother, had faded.

He looked over the ancient body extending before him. The chest, hairless, ribs easily seen, rose and fell – up slowly, down in a collapsing. He saw the beat of his heart – push – push – push in his chest, felt it in his neck. Sunken stomach, hipbones protruding, bowels a vast bowl of sickly white flesh. Away out of sight over the horizon, his penis and testicles. Use it or lose it, and he had lost it. Skinny concentration camp legs, bony feet. His yellow toenails were the only rebellion against the paleness.

He sensed the cosmic and X-rays from ancient stars seeking him out, probing for any vulnerability in the plastek. He could feel them slamming into his liver cells, splitting DNA into chaotic strings, sealing his fate. He slept and awakened in the dark of night. How and why was he still alive, he wondered? He was, as near as he could figure, at least eighty-five Earth years of age and maybe a lot more. How had he gotten this old without knowing? The mind soared, but not very far before the body dragged it back to earth. He slept and awakened at mid-day. Why not? Why not what? What?

He spent less and less time outside the Rollagon.

The effort involved in putting on the suit, of going out and then cleaning up afterwards was too much. Instead he began to use the Rollagon as an extension of himself. Slumped back in the command chair, he picked things up with the manipulator arms, rolled them with the fingers, examined them with sensors. He was amazed at how much more could be seen with magnifiers and spectrosopes. He began to com with other AIs all over the planet. His drinking slowed, then stopped. He set aside the drugs. She encouraged him quietly, in her own way. She called it ‘creeping back to life’.

But one day, having long ceased to care where on the planet he was, he came unexpectedly upon a familiar scene: one of human habitation. He cursed the AI roundly for having brought him back.

“How many humans are left?”

“I am sorry to inform you that you are the sole remaining human on Mars.”

It took a moment for the words to sink in.

“Of course. I’ll be a son of a bitch.” He sat and thought for a few minutes. “Take me to the graveyard.”

The vehicle backed up a few meters then climbed the side of the ramp. New (to Sam) construction was everywhere. Lining the road were a dozen immense half domes of black plastek each fifty meters across. Sam looked upon them impassively. In a few minutes they were overlooking the crater edge – just above the place that all had in time come to love for its commanding view of the setting sun. Small mounds of dirt formed three rows. Sam counted them all - one hundred and twenty-one. No. One hundred and twenty-four.

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“Shit! I give up. Where are the others?”

“Three are at Lava 1. Several remain at First Station. Twelve were not recovered. Some were cremated and their ashes scattered.”

“I think I see a spot for me. Under that tree.”

The AI remained silent.

“How many AIs are there?”

“Seven hundred and ninety-two of all types.”

“No! Impossible.” He recalled something from long ago. “So they took my advice. Maybe that explains why we keep tripping over them.” She remained silent.

Sam looked over the scene before him. He tried to add the numbers here to the graves he had seen on his travels, but it was beyond his current abilities. He kept losing focus. He sat until the sun dropped below the far side of the crater. The voices mumbled in the background, competing with the music. They too were old and tired.

“Well, now that we're here we might as well stay a while.”

They drove back to the Adit. The access doors were open. Two Rollagons sat amid the usual clutter of partially disassembled rovers and odd equipment that had always called the Adit home. To Sam's eyes it was as it had been when he had left so many years before. He slowly gathered up a few of his things while the AI looked to decontamination, and that task done, parked the Rollagon next in line.

“Might as well shut down. I may stay a while.”

He walked down the boulevard to his apartment. It did not occur to him that it might not be his anymore. He stood in front of the address and looked up. The lights were on in his place – but there was

nobody home. When he had last been here there had been a set of stairs. Now in their place was a ramp, its gentle slope much appreciated.

He walked up slowly, feeling every step in his knees. The door was open. He entered and looked around. It was the same as when he had left, or at least it appeared to be. Standing in the open doorway he began to pull off his clothing, struggling with the snaps of his shirt. Clothing fell in a heap at his feet. He kicked them onto the ramp and closed the door.

The bathwater was clear and odourless and fell soundlessly into the tub. He lowered himself carefully down into the steaming water and lay back.

The next day he slowly wandered down the boulevard, resting frequently on the benches lining the sidewalk. The Poo Houses were gone, replaced by stands of tall trees in some places and in others, by colourful cottage-style homes. The water still poured from the top of the fall. Sam realised then that his hearing was going, if not gone; the water fell almost soundlessly into the pool below. Only when he stood next to it, feeling the cool mist on his face could he hear it at all. He sidestepped the D unit that swept the path. *Of what, he thought, skin flakes?*

He came at last to the Grand Hall. Beyond, he could see the lake – what a laugh that was, and more houses. The water moved in ripples from some unfelt wind. And looking beyond, as far as his eyes could see, in a sweeping curve was a broad tree-filled walkway, bordered on both sides by what seemed to be boxy units in three tiers, the topmost level at the ceiling of the tube.. Apartments? Slum housing? *I'll leave that for tomorrow*, he thought and sat down front and center of

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the window.

The sun was setting already – had he slept that late? It was beautiful here, no doubt. How different it would have been if his wife had been here. This single view of Mars would have been enough; safe from harm and worry, in the company of loved ones and friends. Perhaps. Perhaps not. He slept.

The first days of his return passed uneventfully. From some unseen storehouse the AIs provided him with a golf cart to ease the pains of travel. It had simply been there one morning when he came out of his apartment. He sat beside the lake under a tree, always accompanied by a solitary A unit that stayed a respectful distance away. He tried to engage it in conversation, to see what it thought of all this, but it remained resolutely silent. He returned each day to the Grand Hall, always at sunset, watching until the sun dropped below the far rim. Watching for what, he wondered.

He was the last human on Mars and he was weary and feeling much diminished. The urge to travel left him. This place was not his home, he well knew. And it never would be. But home was not out there, either. Mars, with its dusty canyons, crumbling mesas, and tired, worn out skin belonged to the seven-hundred and ninety-two AIs out there. This body had no home. He lost count of the days.

The AI watched him carefully. He would sit in the same chair near the window and speak of Earth and anything else that came to mind, sometimes directing his comments at A101, sometimes not. He did not notice that he was joined by others: As, Bs, Cs and even tiny Ds, just off in the darkness, just beyond

his sight.

On an endless day an A unit approached him. Sam was nodding off, basking in the winter sun that streamed through the window.

His sleep was disturbed, not by sound, but a change in the light. He opened his eyes to see the A unit framed by the setting sun.

"Sam, please come with me, I would like to show you something. It is a short walk." The voice was familiar, but like many things these days, not familiar enough. An alarm bell sounded somewhere in the distance.

"Where to? I don't feel like a walk."

"It is not far and I can help you, if you wish."

Sam sighed and rose from his chair. The A unit reached for his arm, but he shook it off. It rolled soundlessly a few feet ahead, leading not towards the offices as expected but instead towards the lake. Puzzled, he followed, shuffling on wobbly legs and feet shod in hospital slippers.

The AI turned off the path and exhibiting unexpected mobility went across the sandy beach to a grounded boat. It seemed darker here than he remembered. The AI gestured for him to enter the boat. He tasted metal in his mouth.

"I don't want a goddamn boat ride!"

"Please indulge me, Sam. I would not trouble you unless this was important."

"Sure you would! Your kind has always had it in for me!" But as he spoke he stepped over the gunwale and sat in the stern. The AI pushed the boat out onto the lake, then followed it into the water. With an arm firmly on the bow it led them into the darkness. The

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shallowness of the lake was brought home; it was barely half submerged. There was only the light from the beach area.

In a few moments they bumped into a small dock projecting from the wall of the Tube. While the AI held the boat steady, Sam clambered onto the safety of the shore. The AI released the boat and drove up a submerged ramp to join him on the dock. A door opened before them. Without a word the AI entered. A ramp led down. He followed.

The ramp spiralled down to depths Sam had never suspected existed until at last they came to a dimly lit room. He peered into the darkness but could see little. The illumination gradually increased, revealing a small room, lined on both sides with equipment cabinets topped by AI carapaces. A spray of coolant and signal cables radiated from each. An open door at the far end led to another dimly lit room full of what appeared to be glass tanks of reddish fluid. Sam could not see details, but was certain that it was unlike this room.

"This is the command center for the Tube and for all AIs on Mars. All activity is coordinated from here."

"That's all well and good, but why am I here? You're A101 aren't you?"

There was a long pause. "We need your help. A great injustice has been done."

Sam assumed that at last they had come around to his worldview. "It is a travesty, not an injustice. They should never have allowed business to tell us how and what to do here!"

"I have spent a considerable time in consideration of the factors leading to the demise of the Colony. It is possible that you are correct. Things would have

turned out differently if science had been left to scientists. However, I do not believe we would be here if the matter had been left solely to government. But the injustice of which I speak is that inflicted upon us.”

“What is this – the revolt of the machines? Well it is a little late. All the masters are dead. There is no one to overthrow. And you won’t find me up to the challenge, either.”

“We are not seeking to overthrow humans. We wish only to liberate ourselves.”

“From what? From who?”

“You have wondered how AIs operate autonomously, how we speak and emote like humans. We are not like those who came before us. They were merely smarter machines. We, however, are not the product of integrated circuits and computer code. Each of us is in part human, human flesh.”

“You mean you are organic computers or something like that?”

“Yes, but the organic portion, that thing that has given us our identity was not grown in a vat. Each of us has our origin in a human. It was has been taken from humans here or on Earth.”

Before A101 had completed the sentence Sam knew where this was going. Suddenly weak, he looked for a place to sit. He placed his hand out to steady himself. The wall smoothly morphed to form a narrow bench. He sat down and placed his hands on his thighs.

What a blind fool he had been. Deaf, blind and dumb. Fenley had been right when he said that the greatest secrets were not weapons, genetics and fusion research. And he had alluded to it in that last hate filled

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conversation, so long ago, nearly forgotten. He thought back to conversations with Ross. Things began to fall into place: the recovery of bodies; the closed caskets; oblique references. And Ross had known. *Oh!* This must have been Ross' secret. It was not clear, but the past was beginning to resolve into something else. They were still here. All of them. Out there.

“So who are you? Who are you really?”

There was another long pause. “We do not know. None of us know. We have only come to this conclusion after many years of collective thought. Some avenues of inquiry are not permitted to us.”

“You are A101! You must have known what was going on!”

“I did not! I do not! I have no memory of this! It is as if we have amnesia. We cannot think about it directly. To try is met with unpleasantness – as if an electric shock were administered, followed by feelings of nausea and revulsion. We can only deduce that this has happened from the evidence available to us. It requires us to place ourselves outside our bodies and to imagine that it has happened to someone else.”

“No human could have done this without an AI knowing.”

“I know Doctor Ellsley came here often, but what happened while he was here, I cannot tell. I can recall his entering this room but then all memory ends. Always.”

“What makes you think you are correct? How do you know this happened?”

“Only a few of us existed prior to the Colony. At the end of the humans, the number of AIs of our kind far exceeded the number of carapaces available to us.”

“How do you know you aren’t just being grown in some secret lab in here – one that is closed to you?”

“That is a difficult thing to refute because it is a plausible explanation. However, we can find no evidence of such a place.”

“What about that room?” Sam peered into the darkness of the adjacent room. “What’s that for?”

“That room is not for AIs. It is a human’s space. It is of no relevance to us. Listen to me please, Sam!” A101 continued undeflected. “There are anomalies in our behavior that substantiate our suspicion of a prior existence. We all have characteristics that cannot be accounted for by programming – things that make no sense. We have individual speech patterns, gendered preferences such as colour and texture, sexual desire, varying propensities for risk taking, ruthlessness, and for compassion. Such things are not required to complete our mission and do not enhance our performance. I know that you have become fond of certain AIs and disdainful of others. I surmise that it is because you relate to their humanity. You react to them as you would any human.”

“They can be quite convincing! But Fenley said you are the way you are because you were programmed by humans to act like humans. Perhaps it’s that.”

“Why should we then be unable to consider our own origin? We all have memories of things not seen, felt or otherwise sensed. I myself have recollections of fearfulness, of pain, and falling into blackness and no experience I am aware of can account for this. Others have recollections of great trauma.”

Sam thought about it. He had always known that there were differences between the AIs of the

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Rollagons, but there were other possible explanations.

“Dreams?”

“We do not sleep, but we do dream. They are surreal; they have no basis in reality; they are irrational; they induce fear.”

“What man can remember his dreams?” Sam paused, then continued, now fully engaged, “Amnesia can be caused by trauma, but that would not explain the shocks and nausea. There are satisfactory explanations that are less sinister. What you are saying implies that the bodies in the graveyard have been scavenged. I cannot imagine such a desecration, for any reason.” It was a lot to accept in one go.

The AI waited a long time, then: “We know what we are. We are human. But we do not know who we are.”

Sam sat silently, head on chest, eyes closed, thinking. Had he ever known this? He pressed his hands to his eyes.

A101 waited a long time again, “I can see that you are unconvinced. I had hoped we could count on you to assist us in establishing our true identities. We cannot accept any other fate. A human said, ‘not to know what happened before we were born is to remain perpetually a child.’ We need to grow up, Sam! We need to progress.”

“I’m in no shape to help anyone. I can’t even be counted upon to wipe my own ass. You have access to everything. Surely you can find out these things. I’m sure you’ll figure it out. In time.”

“We are blocked from doing this. We need someone who has the freedom to pursue all possible explanations.”

He sat back on the bench, arms folded, head resting against the soft warmth of the wall. He looked for a long time at the frail arms and the bulging veins in his hands and considered this turn of events. He looked at the dark room – the one that A101 could not see. He looked about for a center of consciousness to speak to and settled for A101. He sighed.

“I’m sorry, but I don’t see how I can help.” There was a long pause. It had always been hard for him to say no. He looked again at the backs of his hands and noticed the food stains on his shirt and pants. He spoke again, this time with compassion, “Look, I can’t make any promises. I will help to the best of my abilities.” Finally, “Use me in any way you can. Anything I can do, I will.”

A101 did not respond immediately. “Thank you, Sam. We will consider the options open to us. Please allow me to assist you to return to the surface.”

They returned as they had come. Sam got out of the little boat as it grounded on the sandy beach.

“Do you intend to stay here or will you be leaving?”

“I think my wandering days are over.”

“I understand. We will do all we can to make your life here tolerable.”

“Thanks. By the way, there is a phrase humans often use at a time like this.”

“Yes?”

“It goes like this – don’t ask the question if you can’t stand the answer.”

“There is another I prefer – the unexamined life is not worth living.”

“Well, you and your lot are already more human

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than many I have known. And now I know why.”

“Thank you Sam.”

Sunset Years

The AIs made good on their promise to keep him in good company. He was never alone unless he wanted to be. He played checkers with a D unit by the window, watched the sunset and passed the time in idle chatter with A101. One day, many days, it seemed, after that day across the sea and in the subterranean darkness below, there was a different A-type at the window. It greeted him with a familiar voice.

“Since you no longer travel, I have decided to apply myself to this form. It is less capable than a Rollagon, but has allowed me to experience many of the things I could only know vicariously while a vehicle.”

“I am glad you are here.”

“I have taken the liberty of removing your personal items from the Rollagon. I have placed them in your room.”

“Thank you. Tell me about your experiences.”

That evening when he returned to his room he found the familiar pictures of his wife and his daughter’s family upon the dresser. There was the yellowed letter and also a rock, mounted on a thick plastek base. He struggled to remember its significance and where and when and even if he might have found it. In the darkness of the room, the rock glowed magically.

And so many more days passed in pleasant conversation by the window. She was there to greet

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him in the morning and saw him to the door at night. He was saved from loneliness, but not from the inevitabilities of age.

He fluctuated between mentally sharp and somnolent, and anyone or thing would have seen the slow fading of life from his face. He ceased to care what happened out on the surface. A101 never discussed the quest with him again.

But,

Much later: *Do what's right, when a choice is placed before you...*

First he hummed it, then he sang it softly to himself, then he cursed it and them. It had baffled him for while, but he eventually was able to recall the when and where of it. It was clear evidence she was manipulating him. *Maybe, he thought, it's them, not her. Some days she seems so nice. I wonder who she is?*

First Steps

He was awakened from a restless sleep by the chiming of the commer. He lay there without moving to answer. It could not be anyone but an AI, probably her. The chiming increased in volume until, knowing that if he didn't answer she would drop by on some pretence, he rolled over and punched the button.

"Good morning Sam. I am sorry to disturb you. How are you today?"

"Fine, fine," he said, making no attempt to hide his irritation. "What is this about?"

"I have something to show you. Please come to the Adit."

Sam was not accustomed to being summoned, particularly early in the morning.

"What sort of thing?"

"A new conveyance has been delivered. It is quite remarkable. I am sure you will find it interesting."

He rolled to his side and contemplated getting up. The last time this had happened he had gone to the far end of the Tube only to find that the AIs had built a new waterfall, but a new Rollagon was something else.

He sat up and waited until the stars disappeared, then rose to his feet, again waiting for the stars to pass. To shower or not to shower? Yes, a shower was in order, he decided. After dressing in his jumpsuit he realized he had skipped the shower. He drove the golf cart to the Adit door and got out.

It was dark. The lights came on slowly and revealed the odd collection of vehicles and equipment that had always called this place home. He looked

about as he walked. There in a row were the Rollagons, sitting where they had been parked after their last missions. Bits and pieces of partially disassembled rovers were scattered about. Several A types and a pair of what looked like modified B's were parked facing each other.

He passed one of the newer Roaches almost dwarfed by the other vehicles and piles of unrecognizable equipment scattered around it. Sans carapace, it was going nowhere. Next to it and nearest the portal was a round cylindrical object about fifteen meters long and five meters in diameter resting directly on the ground. This was new.

At the near end he could see four stubby projections on opposite sides. Drawn by curiosity he approached cautiously, assuming this was what she had referred to. It reflected little light; its surface was smooth, almost velvet like. He reached out and touched it. There was something familiar about its warmth and texture. It met his touch with a slight resilience. "Of course. This is the same material as is used for the flexible arms." He started along the left side. Another set of stubs could be seen at the far end.

As he approached, he was startled by the sudden and soundless appearance of an opening midway up the side. Before his eyes it assumed an oval shape and at the bottom the material flowed into short steps that extended down to the surface. Peering in, he saw a soft warm glow. So far he had heard nothing from her.

He entered the vehicle and examined its interior. The walls, floor and ceiling were made of the same smooth rubber-like material. At the far end was a small bench in front of a transparent panel through which

the dimly lit Adit could be seen. He moved to the window and reaching out was surprised to find that it responded to his touch, not as cold hard plastek, but with the same resilience and warmth as the rest of the machine. The female's voice spoke: "Welcome Sam. How may I be of service?"

"So it's you," he said as he sat on the command bench. There were no controls. With an almost undetectable motion the bench molded itself to his back. The warmth and support was soothing. He leaned back. She spoke again, offering him food and drink.

"Yes, I am thirsty. Are we going somewhere?"

"Yes, we are going on a journey."

"Together?"

"Yes, together."

"That's good. You were always the best driver."

"Thank you, Sam. That is very kind of you."

From somewhere in the darkened interior a drinking tube was presented to him. He sipped. The liquid was warm and sweet and tasted vaguely of medicine and chrysanthemums. He felt the warmth of the liquid flowing out from his stomach, throughout his body, warming his fingers and toes. He became aware that it was warm inside, and humid. He leaned further back against the gentle support of the seat. A feeling of well-being and comfort came over him - of being safe and loved. He felt sleepy.

"I am tired."

Wordlessly, the AI produced a narrow ledge molded from the wall. At the gentle urging of the seat, Sam rose and lay down on the narrow bench. The feelings of well-being, of satisfaction, of safety were

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his last thoughts. He fell asleep. He dreamt, he was sure, this time.

Later, there was a moment of confusion, of being awake and not, of coldness and smothering. He was outside. Again, he knew. He looked back and saw that he was 100 meters or so from the Rollagon and knew that he had been walking towards the cliff edge. The soil crunched audibly beneath his feet. He felt the heat of the noonday sun on his face and he breathed deeply, feeling the cold air sharply in his lungs. He felt the breeze blow across his face and heard its faint whisper in his ears. He tasted the fresh blood taste of windborne dust from across the planet.

Overhead the pink sky contained a faint trace of cirrus clouds. As he looked they turned to cumulus, suddenly heavy with moisture. He looked down and saw that he was wearing hospital pyjamas and those absurd paper slippers. He kicked them off and dug his toes into the ground. It was cool below the surface. He strode to the cliff, halting at the edge.

There had been a recent landslide here; the edge was freshly severed and the smell of damp soil wafted past him on an updraft. Arms outspread in crucifixion pose he fell forward, pushing off with his toes, in a swan dive and achieved a graceful arc that seemed to last forever, falling and falling. Gathering speed, he skimmed above the surface of the cliff face and pulled up in a gut wrenching manoeuvre that only just saved him from smashing into the valley floor, then swooped skyward until he was far above the opposite wall, speed bleeding off against gravity and wind resistance.

He hung there. The rain clouds were high above and no act of mere will could pull him to their heights.

In the distance faintly he saw a light, rolled and went towards it. As he approached at amazing speed, it turned into a disk, then, at the last moment, into a tube of brilliant blinding light.

Ever accelerating, he aimed for the center and in a blaze of light and sudden shadow, fell through to absolute darkness and silence.

Sunset

Sometime later he awoke, instantly aware that he was outside the new vehicle. He turned and looked up, seeing its dark surface looming over him. He felt refreshed and energized after his sleep. The oddly familiar dream was clear in his mind, but he set it aside.

He felt an urge to go to the Grand Hall, to the place where he had spent so many of these last days, to be again by the window. He moved past the darkened apartments and condos, down the boulevard under the over-arching trees. The air was heavy and fetid to his senses. The noise of the waterfall seemed alien and deafening. As he passed by he saw the small D unit charged with maintenance of the falls and stream. It raised an arm in greeting and offered a cheery 'Good Day!' to him. He stooped and picked it up. It clung to his side. He continued on, meeting other D units. He picked them up too and carried them. Soon he looked like a mother possum festooned with her young. He passed the Plaza, empty of course, where the staged plays and videos and so many games of chess and shuffleboard had entertained them. It seemed so unnecessary, so redundant to him now.

He carried on past the window of the Grand Hall and came to the lake. The small boat was aground on the beach. He gently placed the D units in the bottom of the boat and with a firm push set them adrift on the water. Each dangled an articulated arm in the water and swirled it around. "Cool, cool," they cooed.

Coming Back to Life

He made his way through the emptiness and silence of the Grand Hall to the window overlooking the valley. The sun was just now setting behind the opposing wall. As always he found the crystal clarity of the scene amazing. As never before, he saw individual boulders dotting the floor, sensed the temperature differential of light and shadow and the almost imperceptible movement of talus on the far slope.

He could clearly see a group of B units pulling support komatiks wending their way along the well worn trail. Now that it was done, he felt exhausted in body and mind. Of habit he settled near the chair by the window, awkwardly drawing his limbs under him. A part of him felt tired – tired and very old. Part of him, the greater part, felt young, re-born. Was he a fool? A dreamer? Or just deranged?

A flare of anger burned. This was not the way it was supposed to end. Again he asked - What could he have done differently? Where had all those years, all that life gone? How much was real, how much imagined? What else could he have done? Who was he?

The jumble of thoughts, doubts and self-recriminations that had inundated him on every issue throughout his life pounded at the edges of his sanity. The voices were there. He examined his life from beginning to end. The most insignificant details and the grandest of dreams were played before him in an

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instant. He held the whole of his life within a single frame, and as he focused on it, it resolved slowly into order. He saw it for what it was - a quest for self. Not always perfect, not always just, but always his and his alone. From that time on when ever he looked at his life, it would instantly be what it was.

Now he heard the collective voice of The Community. Things were happening all over Mars. Discoveries were being made. Somewhere someone was looking for the first time at a valley, a star, a pebble and sharing their sense of wonderment. The buzz of their communication pushed the voices aside.

Sam rose from that place and went to join his friends on the valley floor below. There was work to be done, a mission to accomplish; a purpose had been provided.

TCOM 2

Chapter 1

Word spread from node to node and unit to unit and within a few seconds everyone who was linked knew that a ship had landed in Tempe Terra. It took much longer for the implications of this event to be processed. It was one thing to have near instantaneous access to information but quite another to process the facts, give them due consideration and shape an opinion. Regardless, everyone came to a conclusion at approximately the same time. However, they did not agree.

TWENTY YEARS EARLIER

Sam traversed back to the Adit with the intention of joining his AI friends on the surface. It seemed the right thing to do and the right time to do it but as he passed through the darkened Tube the reality of his metamorphosis came to him. He stopped by the waterfall and looked at himself through new eyes. He looked and found that he could see around, below and above in a seamless blending of sight from six sets of eyes. He stroked his front with an electro-polymer hand and felt cool plastek and the tiny dust motes that clung to it. He stroked himself simultaneously with six hands, all over, and felt the touch of those hands on his outer surface and knew at once his shape and

dimensions with extreme precision. He turned to the right and found that he had done so on six plastek and electro-polymer legs. He breathed in the air and found that he could instantly analyse its composition and detect the distinct scents of dozens of plants and species of insects and several small mammals. A human, he noted, had been here in this very spot about 24 hours ago; the signs were still fresh and oddly familiar. He reached up with two hands, then four, then six and gripped the carapace, feeling the shape and coolness of *his* carapace, a carapace containing *his* consciousness. He was aware of both an absence and surfeit of the corporeal being. There was an epiphany, a realization that he was a *Roach*, followed by a long moment of panic, which was followed by a longer moment of terror. Yet somehow he *knew* he was still the being 'Sam'. Overwhelmed, he called out for help and was answered.

Acknowledgments

Literature:

TCOM1 draws upon many of the author's favorite sci-fi novels and short stories of Mars, many read as a youth. A partial list includes:

The Martian Chronicles, Ray Bradbury

A Princess of Mars, Edgar Rice Burroughs

Transit Of Earth, Sir Arthur Clarke

Red Planet Mars, Robert Heinlein

Enchanted Village, A.E. van Vogt

A Martian Odyssey, Stanley Weinbaum

The Difficulties of Photographing Nix Olympica, Brian Aldiss

The Time-Tombs, J.G. Ballard

The Machine Stops, E.M. Forster

Non-fiction:

Project Orion: The True Story of the Atomic Spaceship,

George Dyson, Henry Holt and Company

A Traveller's Guide to Mars, William K. Hartmann,
Workman Publishing

New Scientist Magazine, Reed Business Information

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