

The Caves of Mercury

THE STARMAN SERIES

by Michael D. Cooper

THE CAVES OF MERCURY

MUTINY ON MARS

THE RUNAWAY ASTEROID

JOURNEY TO THE FARTHEST PLANET

DESCENT INTO EUROPA

A KINGDOM IN TWILIGHT

DANGER AT L5!

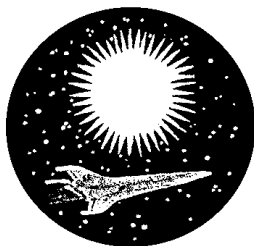
PARODOX LOST

DOOMSDAY HORIZON

THE HEART OF DANGER

THE LAST COMMAND

THE CAVES OF MERCURY



By Michael D. Cooper

Cover artwork by Scott Dickerson

A David Foster Starman Adventure

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CHAPTER 1

Many thousands of years ago

THE TEMPERATURE inside the tunnels was even higher than the merciless heat on the surface of the first planet. The miners were well aware of the extreme temperature and had designed their robots well. The machines were able to function handily in the 800 degree F intensity.

The digger robots squirted out liquid lead under pressure, blended with sharp quartz crystals. The mixture abraded and scoured the walls of the tunnels and freed up the rich ore that was buried twenty to thirty feet below the surface. The recycler robots scooped up the spilled lead and crystal mixture and fed

it back to the diggers. The refinery robots took possession of the chunks of ore and began to break it down on the spot so as to extract and retain the rare earths.

The mining operation consisted of two spacecraft, one manned command ship and an unmanned freighter. The command ship remained in orbit around the small planet, and by keeping itself always on the far side of the planet from its sun 36 million miles away, it avoided the powerful radiation that continually struck the sunward surface of the world below it. The freighter was almost twice the size of its companion, and rested on the inhospitable surface, adjacent to the openings of several tunnels that led into the top layers of the sun-hardened rock. Into the freighter's roomy hold the refinery robots deposited nearly pure rare earths.

For three weeks the mining operation had been under way, and the results were encouraging. The rare earths were much needed by the race that was mining them, and the supply was plentiful. The difficult journey to this innermost planet of its system and the hazardous endeavor of extracting the rare earths was worth the time, effort, and expense.

At last the freighter was full to capacity. The command ship loaded its robots into the freighter. The freighter eased its enormous bulk and heavy load from the surface of the planet and made orbit. Then the two ships linked together and began the long return journey to Ahmany.

CHAPTER 2

Sometime in the 2030s

“WE LEAVE in five days to return home,” announced Zenzile Masekela, captain of the mining operation on Mercury. Her twenty-seven crewmembers from the Republic of South Africa received her general announcement gladly. Surface conditions on the sunward side of the first planet were always extremely challenging, but they had learned that unusual solar activity would make the difficult venture even more intense than usual, and their two bases, located nine miles apart, would rotate out of the dark side of the planet into the sunside in a week.

After the announcement, Oliver Ntini, the captain's chief assistant, met briefly with Masekela in her office aboard the mission's lead ship, *Ku Thixo*.

"We have collected only about eight tons of ore," said Ntini, "and that will yield us roughly 335 pounds of rare earths before we launch. It is not much for two month's labor, but it should cover the cost of the expedition."

"And more," responded Captain Masekela with a confident nod, "and more. It is not just the unusually high level of radiation that requires our early departure. High radiation would make further mining perilous, but probably nothing we couldn't endure." She looked down, and then said softly, "It is also the political situation."

"Of course," said Ntini, his somber tones quickly matching the captain's

change of mood. "You have received an update from South Africa." It was a statement, not a question.

Masekela nodded. "A message from my brother came in just a few hours ago."

Both Masekela and Ntini were of the Xhosa people, as were most of their crewmembers. Nearly all had family members in the Republic, which was currently highly unstable. The collapse of the government was expected to occur within the forthcoming twelve months – perhaps, even, within two months. The fall of the regime would mean the end of interplanetary missions for the foreseeable future, especially risky ventures such as the expedition to Mercury. More than that, the ensuing chaos would put all South Africans under threat, and the spacefarers did not

want to be away from their families at such a time.

"I'll see to the refinery," said Ntini. "It will take all of the five days to extract what we've got. I suppose that we can stop further mining then?"

The captain agreed.

* * *

"Four hundred and two pounds!" said Oliver Ntini five days later, with satisfaction. "Much more than I estimated!"

"Under the circumstances we've done well," said Captain Masekela. "Now prepare for launch." The brightness on the horizon showed that sunrise was only a few hours away. The shadows at the sites of the African mining operation were new and long,

but growing shorter as the first planet's nearly 30-day-long night was coming to an end.

Within the hour the *Ku Thixo* and its companion ship, the *Usisikelele*, blasted off from the surface of Mercury.

This was the third and last venture of the Republic of South Africa to Mercury in the twenty-first century. The records of their journeys, including the purpose of their operations and the results they achieved, would be encrypted and concealed. There was probably no practical need to do so, but in the unstable international and political atmosphere of the 2030s, such secrecy was common among nations and peoples.

CHAPTER 3

*About eighty years later:
September 3, 2112*

THOMAS STARLIGHT, the founder of Starlight Enterprise, was on vacation with his wife Sandra and seventeen-year-old son Richard in northern California. Their last vacation had been two years before when they had gone to Mars on the luckless last voyage of the immense spacecraft Olympia. Now, in the summer of 2112, they were on Earth, eager to enjoy the inspiring beauty of the Sierra Nevadas.

The company that Thomas had founded, Starlight Enterprise, was now on firm footing, and supported by highly profitable mining operations in the

Asteroid Belt. The company was expanding into new ventures, leading the rest of civilization in rebuilding the economy and the fabric of society after the calamitous decades of the Collapse.

Thomas had left the leadership of Starlight Enterprise in the capable hands of his top personal assistant, Keerthi Nair. Keerthi was a young Indian woman of winning personality, well trained in business and organizational skills. The long-term but temporary headquarters of Starlight South Pacific was located on Vava'u in the Kingdom of Tonga. While Thomas was away, she was responsible for overseeing the ongoing construction of Starlight Academy, designed to be the largest artificial island ever built. For over nine years manufacturing had been under way, with completion anticipated in

2114.

Thomas had chosen the South Pacific as the site of the Academy because of its year-round tropical climate that was unaffected by seasonal changes or challenges, and definitely encouraged good morale among his staff and students. The Vava'u island group included several islands ringed by white sand beaches and others with tropical forests, sea-level caves, and dramatic limestone cliffs with breathtaking vistas. Remote and truly unspoiled, the waters around Vava'u were crystal clear with abundant sea life of over a hundred species of colorful tropical fish, giant clams, manta rays, sea turtles, and spinner dolphins.

Living in such a place of pristine beauty made the Starlights' choice of a vacation spot difficult, but eventually

they had chosen northern California, with its spectacular mountains and alpine terrain.

After two days of simple rest and plain, healthy country food, Thomas and his family had set out for a three-day hike on a thirty-two-mile loop trail through Tuolumne Meadows in the California Sierras. The clear sunny skies reminded them of the South Pacific, but the terrain was decidedly subalpine. Each day was filled with a leisurely ten-mile walk through some of the most beautiful country in North America, and ended with a camp at a station provided by the Forest Service.

After a rest of two days, they decided to visit Kearsarge Lakes Basin. Ages before, glaciers had carved out the valleys set among the sharp-peaked mountains, and alpine streams had filled

the low spots, creating a chain of blue lakes that reflected the clear skies and the gray mountain peaks that reared over them.

As Thomas, Sandra, and Richard were gazing with admiration over the Kearsarge Lakes, Thomas received a call from Keerthi Nair. Tom recognized who was calling and elected to receive the message.

"Greetings, Tom," said Keerthi. Her smiling face appeared on the beamscreen that appeared in the pure air of the high Sierras. "You've gotten some sun, I see."

"Hello, Keerthi," answered Tom. "Yes, we've been outside a lot. My fair skin burns pretty easily. Even my hair is bleached a little." He smiled boyishly and with his hand ruffled his thick blond hair. "Is everything alright?"

"Oh yes; construction on the

Academy is coming along as it should. That's not why I called. I thought you might want to know right away that I finally found the records of South Africa's mining venture on Mercury eighty years ago."

A surge of excitement showed in Tom's face. "Really? Good work! I'd almost given up on that. Well done, Keerthi!"

"Thank you, Tom."

"Is there anything new in their records, anything we didn't already know?"

Keerthi's expression showed puzzlement. "Well, yes, maybe, in a way. Something curious. As you know, our Bartus satellite in orbit around Mercury continues to give us good spectroanalysis of the surface composition, and has located several

deposits of rare earths that are easily accessible to mining – assuming we are able to establish a mining base on the planet. Bartus has identified eight sites to date where rare earths are in enough abundance to consider a mining venture. South Africa's mining exploits were located on five of these sites as well as two others that Bartus shows to be barren of any valuable ore.

“However, Bartus also shows one site of exceptionally rich deposits of rare earths that is not in South Africa's records. Yet South Africa must have had at least rudimentary spectroanalysis capability eighty years ago or they wouldn't have gone to Mercury at all, much less found the five sites where they set up a mining operation. I cannot explain why their records do not show the richest site of all.”

“Not much question there, I think,” responded Tom. “We know that in the years right before the Collapse there was much tension among the nations, and many attempted to keep their research secret. Records were falsified, left incomplete, or encrypted. You know better than anyone what a challenge it was to locate even what you’ve got. More than likely, South Africa didn’t want anyone to know of the rich site. They must have a record of it somewhere, buried even more deeply than what you’ve unearthed.

“No matter now, though. Your research confirms what Bartus has already shown us in even greater detail. I think we can pick up where South Africa left off. But...”

Tom paused a moment, looked away from the screen and gazed over the chain

of lakes that lay before him. Then he made a decision and gave his attention back to Keerthi.

“Before we make a final decision to commit to the project, I’d like to send an unofficial explorer out to Mercury, not a company expedition. There’s no way of knowing how South Africa may respond if someone like us takes over their mining venture, although it’s almost a century old. Is, uh, is Ezra Hill in Tonga?”

“No, Tom. I believe he’s in Amundsen City.”

“Would you please contact him and ask him to meet me in Vava’u on September 22? Let him know that I’d like him to go to Mercury on an unofficial exploratory mission. I’ll be back on the twentieth, so that’ll give me a couple of days to get caught up before I meet with

him to discuss details. And please keep this plan under wraps until we can investigate any South African claim to the mines. Tell Ezra that too."

"Very well, Tom. I'll see you when you're back."

CHAPTER 4

September 22, 2112

"IT'S GOOD TO see you, Ezra," said Thomas Starlight, shaking hands with his visitor. "Please sit down."

Ezra Hill was an old classmate of Tom's from their university days a couple of decades earlier. After Tom had founded Starlight Enterprise, he'd hired Ezra as one of his first employees. Ezra was 42 and unmarried. He was tall and muscular, filling out his clothing well. His hair was cropped short and was thinning a little on the top.

"Keerthi said that you want me to go to Mercury," began Ezra after a few pleasantries, "and that I should keep the plan to myself. It sounds more than a

little intriguing.”

Tom filled Ezra in on the history of the mining operations on Mercury and his hope that such an endeavor could be renewed by Starlight Enterprise.

“We have much better technology now,” concluded Tom, “and may well be able to manage a profitable and useful undertaking. Of course, it will take a select type of person to work the mines, but if we pay them well I’m sure we can find suitable personnel.

“What’s uncertain,” Tom began, looking away and running a hand through his hair, “is whether South Africa has any claim to their former sites. There’s very little archival material available, and none of it is very informative. Of course I have no idea whether there is any other information that hasn’t been made public. So...”

“So you want some ‘unofficial’ exploration done on site to see if it’s worth the effort to start the operation that someone else abandoned nearly a hundred years ago.”

“Precisely!” said Tom with a grin.

“And I’m the one you want to go!”

Tom smiled broadly.

“Just what does ‘unofficial’ mean?”

“I’ve given that some thought,” said Tom, “and have actually expanded my original notion far beyond just a simple, unannounced visit to the first planet.” Tom leaned forward, his expression full of excitement.

“I can see forming a group of highly skilled, devoted venturers who will be connected to Starlight Enterprise and, in a sense, working for the company, but for all practical matters working as independent explorers. The company

will train them – at Starlight Academy – give them their charge, and of course cover all their expenses. But they won't be 'employees' in the usual sense – at least, as that term is understood. They'll answer to me directly, when they answer to anybody. They'll be responsible for exploring anywhere in the Solar System, not only for the sake of Starlight Enterprise, but for the good of all civilization."

Tom leaned back, joined his hands together, and waited for Ezra to respond.

For some time his visitor said nothing. He looked out the window at the expanse of buildings and landing fields that made up part of the facility of Starlight South Pacific. Beyond the campus he could see the beginnings of a green field bordered by tall palm trees. In the farthest distance was a spread of

white-capped water and a deep blue sky.

He looked back at Tom.

"A number of people with almost complete freedom to do what they want but expected to be pioneers in space exploration, with all expenses covered by the company, and answerable only to you."

"Well, not 'answerable', really - at least not like a private army. I can see the relationship to be one of honor and trust rather than a contractual kind of agreement. The best worlds of almost complete freedom on one hand, and the support of a major organization on the other. No 'red tape' to get in the way."

"And you see me being the first one? On this Mercury venture?"

"Yes, I think that's just what I have in mind."

"What will you call these people?"

Thomas offered a wry smile. "Call them? I hadn't thought of a name, no. I've only thought about the idea and what it might look like." He paused a moment. "Well, 'Space Explorer' comes to mind."

"Starlight Enterprise Space Explorer. SESE." Ezra rubbed his chin. "Maybe. How about 'Planetologist' or 'Planet Explorer'? That would describe your mission to Mercury, in a way. But you're not thinking of limiting the work of these people just to planets, of course."

"No, it'll mean more than that. Solar Explorer? For those exploring the Solar System..."

For a few moments neither man spoke.

"Starman?" said Thomas. "That carries a lot of weight. It implies being connected to Sol, our own star, but other

stars as well, and the planets around them.”

“It’s got a graceful feel to it, too. The term is... inspiring, almost lyrical. You’re thinking far ahead, aren’t you?”

“Yes. As soon as I said it, it felt right. I think that’s the term. Starman. We’ll be creating a class of Starmen.”

Tom looked up into Ezra’s eyes. “And you’ll be the first.” He leaned forward again and put his hands together. “I like it. How about some coffee? Let’s see if we can plan this Mercury venture in a little more detail.”

CHAPTER 5

Mid-October 2112

STARMAN EZRA Hill's departure from the Starlight Enterprise base in Amundsen City was intentionally inconspicuous. The *Elizabeth Ashlie*, a well-supplied one-man spacecraft, lifted off mid-morning in October, the second of five launches scheduled for that day. His flight plan had been filed merely as "special errand for Thomas Starlight, destination to be provided for the record at a later time." Tom guessed that it would take his officials time to get used to the idea of a corps of special venturers being able to launch and land more or less on their own terms. His personal intervention with normal procedure for

today's launch was done almost matter-of-factly.

It wasn't that the journey to Mercury needed to be kept particularly secret, but he wanted to set a precedent, a pattern, for future Starmen. Even the term "Starman" had not yet been made public. At present, only he and Ezra knew that they were inaugurating something quite unprecedented. Ezra's successful return would be the platform on which Tom would announce his new vision.

Ezra's voyage to Mercury would take 118 days – just short of four months. The new Starman was used to making long journeys through space, but never had he embarked on such an extended flight, and doing so solo would be a new experience for him. He expected to spend about two weeks on Mercury,

exploring several site. The return trip would be a little shorter, but even so he anticipated being apart from human companionship and conversation for more than eight months. For that reason he reserved much of the necessary research on Mercury to the first part of his voyage.

Ezra was a well-disciplined, seasoned spaceman, and kept to a rigorous twenty-four hour day throughout the duration of his flight. He ate, slept, exercised, studied, labored, and rested according to a strict schedule. The longest he had been in solitude before had been ten weeks, but he had established his disciplines well and wasn't too concerned about being able to endure a span five or six times as long as that. Besides, Mercury was interesting, and he felt the honor of being asked to

take on Tom's special project.

The days passed, turning into weeks and then months. Hill adhered to his meticulous routine. He kept his days predictable, having programmed his computer to sound an alarm when it was time for him to wake up in the morning, to begin and end his exercise routine, his study period, his time for recreation, and the time to maintain his logbook. He had already selected which books he would read and in which order. His favorite pieces of music, and the music he had planned to learn to appreciate for the first time, were played in random order during the fixed time of his evening meditation.

Rigorously he monitored the ship's systems for propulsion, life support, and damage. Each week at precisely the same time he exited the ship, tethering himself

to the ring adjacent to the airlock, and walked over the surface of the *Elizabeth Ashlie*. His instruments showed no damage, but he made a painstaking visual inspection just the same.

Christmas came, followed a week later by New Year's Day. Gradually the sun became larger in his viewscreen until the day came when it appeared to be nearly three times what he was used to in the Earth-Luna system. At last the first planet became visible without instruments. Hill made fine adjustments to his trajectory and came into orbit around his goal.

CHAPTER 6

February 10, 2113

STARMAN EZRA Hill flew the *Elizabeth Ashlie* over the surface of Mercury. He took four and a half hours to circumnavigate the diminutive planet in close orbit, cruising at a little more than 2,000 miles per hour. He had seen maps and video records of the surface, but he was fascinated by what he was now seeing firsthand. Meteorites at one time had heavily bombarded the planet. Like Luna, with which he was very familiar, Mercury was heavily cratered with regions of smooth plains, but its terrain was more complex and varied than Luna's. There were highlands, plateaus, mountains, escarpments, and valleys.

Mercury's surface had places of marked wrinkling, with numerous strange narrow ridges, extending up to a few hundred miles in length. Gently rolling, hilly plains in the regions between craters were Mercury's oldest visible surfaces, predating the heavily cratered terrain. The surface of the planet was flexed by significant tidal bulges raised by the Sun - the Sun's tides on Mercury being about seventeen times stronger than the Moon's on Earth. Like the Moon, the surface of Mercury had incurred the effects of the space weathering process, including solar wind and micrometeorite impacts.

The planet had no natural satellites and no substantial atmosphere. Unlike Luna, it had a large iron core, which made the planet exceptionally dense. Its core generated a magnetic field, though a

very weak one: only about 1% as strong as that of the Earth. Surface temperatures ranged from almost -300 degrees F up to 800 degrees F, with the bottoms of craters near the poles being the coldest places on the planet.

Hill eased closer to the surface, slowing his spacecraft incrementally until he was only a mile or two from the floors of deep craters and cruising at less than a hundred miles an hour. He had decided to make his first landing near the south pole, a place of eternal shadow, never exposed to direct sunlight, where temperatures remained perpetually below -275 degrees F. Mercury's poles were among the coldest places in the Solar System. Huge deposits of water ice were found there, containing about a fourth the amount as that found in the ice sheet of Antarctica.

The *Elizabeth Ashlie* touched down with such gentleness that Hill hardly noticed. He shut down its engines and a bottomless silence fell. The persistent squeaks and hisses and low hums that were part of a spaceman's life while in flight, the unremitting background noises that he gets used to and disregards, shocked him by their sudden absence. For the first time in four months, Hill was in a cocoon of absolute silence. For several minutes he didn't move at all.

Then he blinked his eyes, sighed deeply, and left the bridge and went to the galley. He boiled water and brewed a pot of strong black tea, spooning one load of sugar into the pot. He returned to the bridge and unhurriedly drank three cups, one after the other, until the pot was empty. As he sipped, he gazed out

at the black landscape. Stars sprinkled the heavens above the horizon, but below it there was only emptiness.

Starman Ezra Hill washed out his cup and the teapot, then donned his spacesuit and went to the airlock. Minutes later he stepped onto the surface of Mercury. For three hours he explored the terrain near his landing spot. His suitlights made him a hazy sphere of illumination that wandered in all-encompassing darkness like a will-o-the-wisp. He trekked aimlessly across smooth, stony fields, crossed an occasional ridge, and kicked a rare loose stone. Pockets of ice covered with a thin layer of regolith extended down from low slopes. With a wry smile, Hill cut out a chunk of ice from a deposit harder than iron. He retraced his steps to his spacecraft and took the ice into his lab

where he analyzed it. Assured that it held no dangerous elements, he melted it and made himself another pot of tea.

CHAPTER 7

THE NEXT DAY Hill flew over the Caloris Basin, the largest crater on the planet, almost one-third the diameter of the planet itself. Its center was located at the shadowy zone between the day and night sides of the planet. The impact that had created the basin was so powerful that it had broken the crust and caused lava eruptions, and left a concentric ring over a mile tall surrounding the impact crater. The Starman landed near the center of the crater and took some rock samples for later analysis.

Directly on the opposite side of the planet, also in the shadowy zone, was a large region of unusual, hilly terrain

created by shock waves generated during the Caloris impact that traveled around the planet and converged at the basin's antipode. Hill lifted off from the Caloris Basin and less than an hour later cruised slowly over the antipode. The weird terrain was unlike anything he had ever seen. The high stresses of the shock waves had fractured the surface, creating a hodgepodge of ridges and wrinkles, among which were set crevasses and deep, narrow tortuous canyons.

At midday, or what his ship's system defined as midday, he settled the *Elizabeth Ashlie* down near what had been the largest South African mining site eighty years earlier. He stepped out near open pit mines that had known no activity for nearly a century. For the next several hours he surveyed the area,

taking samples of soil and refining the maps and analyses that the Bartus satellite had created. There were two abandoned workstations with discarded mining equipment such as empty fuel tanks and single-use vehicles. The Starman walked over tread marks and footprints nearly a century old. He examined heaping mounts of crushed stone, and recorded that, with current Starlight technology, it would be possible to extract usable rare earths from what the South Africans had left as slag.

For the next four days the Starman explored key sites on Mercury, including all of the mining sites and a few potential others that showed a promise of profitable mining.

* * *

On the fifth day after his initial landing near Mercury's south pole, the perilous nature of being on the surface suddenly showed itself when the Starman was caught without warning in a "magnetic tornado" - a twisted bundle of magnetic fields connecting the planetary magnetic field to interplanetary space. A burst of solar wind carrying its own magnetic field whipped across the broad, empty plain where Hill was working and connected with Mercury's own weak magnetic field. As the solar wind blew past, the joined magnetic fields twisted up into a vortex-like structure.

It was nothing that Hill could see or feel until it was upon him. The twisted magnetic flux tube formed an open window in the planet's magnetic shield, and the solar wind entered and directly

impacted Mercury's surface. The electronics in Hill's suit sputtered and surged, burning out some circuits, and then dropped, creating unpredictable levels of electronic power as the suit's emergency system sought to override and overcome the churning power levels outside. Hill dropped what he was doing and sprinted for his ship, nearly a quarter of a mile away.

Three minutes later he blew through his airlock, breathing hard and moaning in pain. His suit's air circulation and temperature maintenance system had failed in the last twenty seconds of his flight, and its internal temperature rose from 72 degrees F to almost 180 degrees F. He peeled himself out of his suit as quickly as he could, leaving its pieces scattered over the deck as he ran for the shower. His body had suffered first

degree burns over most of its surface, with second degree burns on the back of his hands, upper thighs, and the tops of his feet.

A cold shower put a quick stop to the course of the burns, and a slather of ointment initiated healing. Medication dulled his pain, but the Starman knew that any further work – indeed any movement at all – would be painful for the next few days. He drank several quarts of juice over the next few hours as he alternately worked on overhauling his suit and slept.

CHAPTER 8

FIVE DAYS later, Starman Hill brought the *Elizabeth Ashlie* to his final planned landing site on Mercury. He saved for last the site where he expected to achieve the best results of his exploratory mission. This is where the Bartus satellite had shown the highest concentration of rare earths anywhere on the planet.

The Starman stepped out of the airlock and moved gingerly toward the site of the mine. This was the site that the South African records had failed to mention. Right away, Hill could see why. This was quite a different type of operation from the other sites he had investigated. This was no open pit mine;

there were several artificial caves cut from the sides of slopes that reared up into high mountains. There was very little slag. No tread marks were apparent.

Hill was puzzled. For a moment he wondered whether the South Africans had worked this site at all, but Starlight had no information that any other nation had gone to Mercury, not even for simple exploration, much less any mining endeavor. Only the South Africans were known to have operated on Mercury. He tentatively concluded that a different kind of operation had been tried at this site, or perhaps another company had done the work from the Xhosa firm that was known to have worked the open pit mines.

Starman Hill entered the closest of the caves. The shaft penetrated the rock

in a clear cut fashion. Hill was impressed at the quality of the work. The tunnel spiraled downward on an easy slope, making movement easy. Seventy-three feet into the mountain and twenty-four feet below the surface he came to the end of the tunnel. He noted pools of lead embedded with small quartz crystals. After puzzling over his discovery, he concluded that the miners had squirted the mixture under very high pressure to loosen the ore from the walls of the tunnel. He cut small samples of ore from the sides and end of the tunnel, and then retraced his steps.

He explored a second tunnel and found much the same. He noted that the outside temperature was 812 degrees F. He frowned at that. It would be a challenge for Starlight Enterprise to design mining equipment that was able

to work efficiently in that heat. Nothing like that had ever been designed – or needed – before. He knew that Tom was fully aware of the conditions on Mercury, though, and had top researchers who could devise the equipment needed for the project.

Just then his suit alarm went off.

What now? thought Hill as he checked the circuits. His eyes opened wide as he realized that his suit's detectors had identified the first wave of intense solar radiation that was about to engulf the planet. The sun had erupted a massive solar flare! A massive amount of charged particles was on its way, inexorably rushing onward like a monstrous ocean wave. Again, Hill sprinted for his ship. In minutes he had lifted off, and in an hour had taken refuge on the dark side of Mercury.

It would be several days before the effects of the solar flare diminished to a level that would not threaten his ship's electronics systems. The Starman had taken ore samples from the caves, and decided that it was not necessary that he return to the site where he had gathered them. His samples had confirmed and expanded on the data that the spectroanalysis had provided: there were abundant rare earths on Mercury in several sites, most especially the one that the South Africans had kept secret.

He spent four days in the darkness double-checking his ship's systems and its hull. It needed a few repairs. When he had completed the work, he considered his mission accomplished. A rest of another day or two, maybe a leisurely walk on the shadow side of Mercury, and then he would set course for home.

CHAPTER 9

June 24, 2113

NEARLY EIGHT months after launching from Amundsen City, the *Elizabeth Ashlie* touched down in the place from which it had begun its journey to the first planet. The Starman had already made a full report and sent it to Thomas Starlight. His conclusion was that mining on Mercury would be extremely difficult and hazardous, but could be well worth the effort. Tom himself was present when the *Elizabeth Ashlie* landed, and stepped out to be the first to greet the first Starman.

“Well done! Well done!” said Tom, taking his friend’s hand in both of his, and then embracing him and pounding

him on the back. Then he stepped back and beamed at him. "A most successful journey in more ways than one!" he exclaimed.

"You're buying me a juicy steak for dinner," responded Starman Hill with a wide grin.

"Indeed I am!"

After months of painstaking research, Keerthi Nair found no traces anywhere of any claim on Mercury by South Africa. As a result of Hill's report, Thomas Starlight decided to take the risk of setting up a mining operation on Mercury. Starlight Enterprise's mining venture was established early in 2114. Although extremely costly, the results proved to be worth the effort. There was no objection from South Africa, then or ever.

Further, Tom's concept of the Starmen captured his imagination and he formally established the position of Starmen as Starlight Enterprise's venturers of the 22nd century. He designed the ceremony of the creation of Starmen with an assiduous eye toward the meaning of every action and symbol.

Sadly, after such a promising beginning, the venture on Mercury was to be marked with tragedy. Thomas and Sandra Starlight died in a mining accident on Mercury in 2119, just seven years after the first Starman made his exploratory visit. At the age of 26, their son Richard took over the operation of Starlight Enterprise.