

Nick Kanas

The Caloris Network

A Scientific Novel



Springer

Science and Fiction

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Cover illustration: Man walks through the fantasy crystal corridor with rugged walls and bright glowing end. By Eugene Sergeev/Shutterstock.com.

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Preface

Mercury is the innermost planet of our Solar System. It is around 58 million kilometers (36 million miles) from the Sun, and its daytime temperatures can go up to 427 °C (801 °F). At the other extreme, its nighttime temperatures can drop to −173 °C (−279 °F). Although there is evidence that ice exists in craters located near the more temperate north and south poles, the rest of the planet is waterless and desolate.

I woke up one morning thinking about what kind of life might develop in such an environment! This challenge formed the germ of this novel, and I hope that you will enjoy reading it.

In writing *The Caloris Network*, I want to thank a number of individuals whose help and influence contributed to its final publication. First and foremost is Dr. Christian Caron, the Editor of Springer’s “Science and Fiction” series. Chris has selected two of my other novels for publication in this excellent series: *The New Martians* and *The Protos Mandate*. I am grateful to him for his helpful comments on an earlier draft of this novel, along with the comments made by an anonymous member of the series’ editorial board. I am also grateful for the useful comments made to an earlier draft by a number of friends and colleagues: Drs. John Holzrichter, Shirley Huang, Lyn Motai, and Richard Ray. Last but not least, I am grateful to my wife Carolynn, who has read and commented on many of my science fiction writings and who has continued to support me in this and many other activities over the years. Of course, I am solely responsible for the ideas and concepts that appear in this book.

This book is dedicated to the memory of my parents, Andrew and Angeline Kanas, whose spirits inhabit the storyline in many ways.

San Francisco, California, USA
January 2016

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Contents

Part I

The Novel	1
The Caloris Network	3

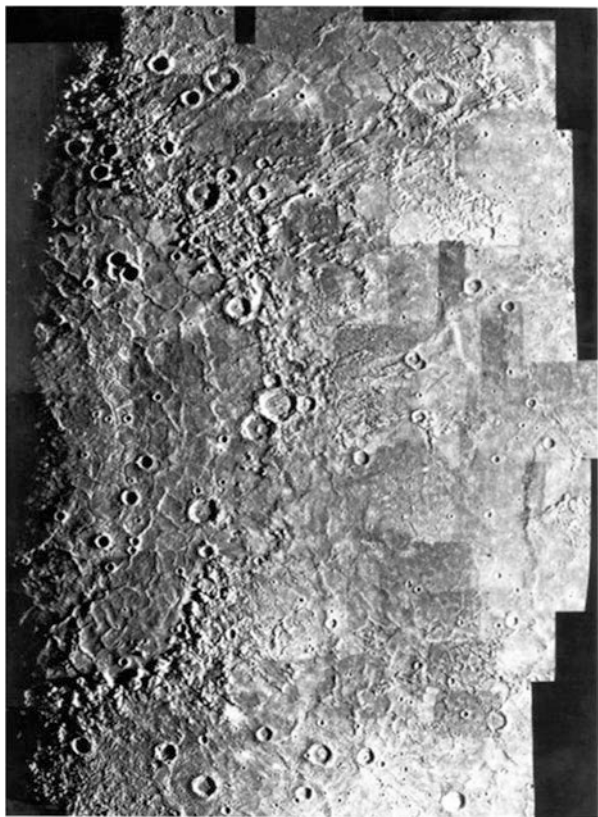
Part II

The Science Behind The Fiction	107
Silicon-Based Life and the Planet Mercury: Fiction and Fact	109

Part I

The Novel

The area around Caloris Basin on Mercury, as photographed by the Mariner 10 spacecraft on March 29, 1974. Note the Basin in the left half of the image and the mountains circling concentrically around it. These features were caused by the collision of a large body with Mercury eons ago. Courtesy of NASA (NASA/NSSDC digital image); and *Solar System Maps: From Antiquity to the Space Age*, Nick Kanas, Springer/Praxis, 2014



The Caloris Network

Prologue: Mercury, Day 43, 2130

The Sun had stopped in the sky. Soon it would move east for a couple of days, pause again, then continue its trek toward the western horizon, where it would set.

Only on Mercury, Samantha Evans thought, trying to get her mind off of the events that took place earlier in the day.

The actions of the Sun were all a matter of perspective. Mercury's rotational period was tidally coupled to its orbital period in a 3:2 resonance, so it rotated one and a half times during each passage around its bright star. This meant that at local noon on the surface of the planet, the Sun would appear to move back in its path across the sky before continuing its westerly motion.

Samantha put on her filtered glasses and looked directly at the Sun. Appearing more than three times larger than seen from Earth, the chromosphere glowed softly in crimson. She saw a band of sunspots that were moving across the boiling surface. Prominences shot out into space. The Sun looked alive.

Glancing at the outside temperature gauge, she noted that the surface temperature had risen to 310 °C. The heat scorched the cracked surface of the planet with ferocious intensity. Crevices and craterlets dotted the ground in all directions. Four weeks from now, as the Sun continued to heat the surface, the temperature would rise to over 400°, well past the melting point of lead. Mercury indeed was an alien place.

And then there was the matter of the two bodies they were bringing back to the base and her conclusions about the network. . .

How do I tell them? she thought. *Will they believe me? Will they think I'm crazy?*

She wearily rubbed her eyes and glanced over at Chuck Morgan as he steered *Rover 1* across the bumpy surface. His gray eyes darted left and right to avoid the small ridges and potholes in their path. Hair stubble growing on his

previously shaved head and face gave him an unkempt appearance. Ahead, the *Hermes* was silhouetted like a sleek silver bullet against the mountains toward the east.

Chuck reached over to activate the comm.

“Hello, Tilda. We’re four clicks away and should be home in just a few minutes.”

“Roger that,” came the static-modulated response from the communications officer. “I have you on the screen. Welcome back. You’ve had a tough trip.”

The 46-year-old muscular engineer frowned.

“That’s for damn sure. I imagine the Captain will be holding an emergency briefing.”

“That’s already planned. Drive safely. Chang out.”

Chuck turned the comm off and glanced over at Samantha.

“What do you think will happen?” he asked.

“I don’t know. Captain Kilborn will be by-the-book, as usual. I’m sure that after our briefing, he’ll contact Luna City. Then, who knows what we’ll do.”

They drove on in silence. Samantha thought about the network again. This led her to reminisce about her father and what had happened to him. Were there some clues there that related to the network and to herself? Her thoughts became lost in reverie. . .

Station Delta, 28 Years Earlier

“Samantha, hurry up and put your toys away. Your father will be home soon.”

“Yes, mother,” the 6-year-old said. She glanced at the digital clock on the wall. It read: “18:34/Nov12/2102”.

In their small apartment, she didn’t have far to go to reach the toys scattered here and there. Besides a small bedroom for her parents and a tiny bathroom/shower, there was only a combined kitchen-living area where the family spent most of their time. Her sleeping space was recessed in one of the walls, which was now closed off by the pulled-up bed. The furniture was minimalist, and two walls were covered by pictures and an entertainment section with a large 3-D holographic projector and multiphonic sound system. On the only outside wall there was a single large view port that opened up to the vastness of space. The kitchen area was dominated by the foodbot, which prepared and presented their meals through its delivery chute.

Samantha reluctantly left her spot by the window to gather her toys. She had been mesmerized by the stunning view of the Earth below, still glorious despite being blanketed in a brownish haze.

Sixty years earlier, overpopulation and climate change had led to a crash program to venture into space in order to help deal with the effects of global warming. Too many people were using too many resources and producing too much waste. Although conservation programs had helped to stabilize things on Earth, it would be decades before the effects of climate change could be reversed. Consequently, plans were made to construct a series of orbiting space stations and bases on the Moon, Mars, and elsewhere in the Solar System to offload as many people as possible.

Station Delta was the fourth such facility orbiting the Earth that was built for this purpose. The giant four-spoked rotating wheel had become a city of over 100,000 people poised to celebrate their 40th Anniversary in the next year. As a senior electrician, her father was working overtime in wiring the float that Sector P would be submitting for the parade through the Main Corridor.

As she picked up her dolls and computer pad, Samantha glanced over at her mother. The slim, tall black woman was at the foodbot, punching the buttons that selected their dinner. She had picked up her daughter from school after her day's work as a nutritionist in the algae farms, and the two of them had only just returned home. As usual, their day had been busy and full of multi-tasking.

There was a rustling outside. The door dilated open on overlapping metal plates like the iris of an eye, revealing her father. Stocky, with fair skin and blondish hair, he initially looked tired, but upon seeing his family, his face broke out into its characteristic wide, jovial smile.

"Oh, you beat me home," he said. He went over and gave his wife a kiss, then turned toward his daughter with open arms.

"And how is Daddy's little girl?"

Samantha giggled and leaped over toward him, giving him a hug.

"Fine, Daddy," she said.

"Here's a present for you."

He reached into the bag slung over his left shoulder and produced a tiny brown-colored rose.

"I passed the hydroponic gardens on my way home and saw this. It reminded me of you."

He gave it to his olive-complected daughter, whose brown eyes shown with delight.

"Thank you, Daddy," she squealed and excitedly hugged him.

"That's lovely, Dylan," her mother said.

"And I didn't forget you, Kalisha" he responded.

He again reached into his bag and took out a stunning black rose, almost glowing in its iridescent shimmer.

“Thank you, sweetheart,” she responded, taking the flower and then pushing another button on the foodbot. “I’m going to order you a second portion of blackberry pie for dessert. And then maybe we’ll have our own special dessert after dinner.”

They both giggled.

Observing them, and based on past experience, Samantha knew that she would be sent to her bed early tonight.

“How was your day,” he asked his wife.

“Pretty good,” she responded. “The algae are healthy, and the polls show that our new taste supplements have been well-received by the study group.”

“I certainly agree with that!” he responded. “Who would have thought that algae could be made into a patty that tastes just like rib-eye steak? You and your teammates are really clever.”

“Necessity is the mother of invention. How is the float coming along?”

“It should be spectacular. The front carries a model of a space ship bound for Saturn. Behind this is a carriage depicting the surface of Titan that shows an ethane pool containing life forms and a mine being worked on by two space-suited miners. The space ship has lights that flash on and off, and the miners move. It’s really cool. Our sector should win one of the awards at the celebration next year.”

“Just make sure that it doesn’t break down and block the other floats behind it, like what happened with the Sector K float 4 years ago.”

“Right. There’s barely enough room in the Main Corridor for the floats to parade as it is. But I think that our float will function normally and get through just fine.”

“Good,” Kalisha said, as the foodbot gave a ring. “Whoa, your algae steaks are ready!”

Both Samantha and her father rushed to the small table in anticipation of their dinner.

Mercury, Day 1

“Prepare to land!” Bill Kilborn exclaimed.

Below them the surface was dark, although the Sun could be seen above the horizon at their height. As they descended, the fiery solar ball slipped below the eastern rim of the basin. Caloris Basin was huge—some 1550 km across, formed by a gigantic impact event three and a half billion years ago. It was also the point where the Sun was directly overhead at Mercury’s closest approach, making the basin very hot; hence, its name.