Massimo Villata

The Dark Arrow of Time

A Scientific Novel

Springer

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Massimo Villata
Osservatorio Astrofisico di Torino
INAF
Pino Torinese (TO)
Italy

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Chapter 1
Very Fidgety, the Fat Lady Next to Him

Very fidgety, the fat lady next to him. Gripping the armrests tightly, every once in a while she would jerk her head a bit to one side or the other, for no clear reason. It was obviously her first trip, and you could tell from the blank look on her face, blank but strained, uncertain.

It was the first time for him too. It's not that he wasn't afraid, he was just trying to hide it, even from himself. And he was managing pretty well.

To some extent, actually, he was modeling himself on the serious man two seats down, who—at least apparently—was impassibly, calmly absorbed in his own thoughts, as if he did this every day, all just part of the job.

On the other side, a bit farther down, a black man was murmuring some kind of litany, like a subdued propitiatory chant.

They were all on a single, slightly curving row of seats, one beside another. He was almost in the center. Fifteen people, one seat was empty.

It was almost nine o'clock, almost time for liftoff before the transmission. The cabin with the sixteen seats at the center of the big room full of machinery was closed, and the enormous hatch in the ceiling began to open. It would just be a few minutes more, long enough to finish docking.

It wasn't a real trip. As he had learned in college, it wasn't a question of moving people or things from one place to another, at a certain speed and taking a certain amount of time. That wouldn't have been remotely feasible. Where he was going, around six parsecs[1] away, a trip would have taken several years at the speeds that could be achieved, even allowing for the relativistic contraction of distances.

By now, real trips were only used for short distances, inside the solar system or its immediate neighborhood. But even they were about to be made obsolete by the recent advances in the transmission technique, cheaper in terms of energy though still riskier, relatively speaking. A probability of around three per thousand of being lost for good in cosmic space, he'd read somewhere.

So it wasn't a trip, then, really just a hop, skip and a jump. Skipping a lot of trouble, too.

[1] 1 parsec $\approx$ 3.26 light-years.

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Our common existence is played out in a space-time continuum where moving from one point to another necessarily takes a time which is positive and greater than zero. How much greater depends on the speed. In theory, high speeds close to that of light make it possible to reduce the amount of time needed at will. Any given distance can be covered in a time less than that taken by light, even though the speed of light, as we know, cannot be reached or exceeded in our 'world'. What changes is the passage of time, and the measure of the distances. If a spaceship travels at a velocity close to the speed of light, say at $v = 0.995\ c$,[2] over a distance (measured from Earth) of ten light-years, from our point of view it will take slightly over ten years to complete its trip. For the astronaut, on the other hand, the distances are significantly shorter, by around a factor of ten,[3] and so the travel time will also be shorter. Consequently, the normal, real interstellar voyages last for small fractions of the astronauts' lives, while decades go by back on Earth.

They are almost always one-way trips, by whole families or social groups setting out to colonize new planets. News about the trips arrives sporadically, and how they turned out will only be known many years later. The whole business, in any case, involves monumental wastes of time and energy.

Transmission was a real revolution. It is not a trip in our world. Somebody had dubbed it "riding the light".

Fifty-five seconds. Fifty-four. Fifty-three. The fat lady vacillates between apparent calm and attacks of the jitters. The buzzing resonates more loudly, its frequency increasing. Now it is almost a hiss. Or that's how it seems, at least. The sleeping gas pumped through the mask begins to take effect, and it is hard to tell what is really going on. Through the portholes, he glimpses the attendants checking the seatbelts, the masks and the monitors one last time. The seats tip back. The fat lady goes limp. Helias turns his head to look at the serious man, still imperturbable, though his face behind the mask seems to lengthen and change color.

The long face is in front of him now, mask off and eyes half closed. Then it starts to revolve around the tip of the nose, slowly at first, then whirling faster and faster. So fast it is just concentric circles, light and dark. Slowing again, it comes to a halt, upside down. Now it is wearing a pair of dark glasses, oval lenses fitting close to the face. "We've arrived" it whispers to him, the voice calm and reassuring. The fat lady is still sleeping and looks like she'll probably be at it for a while. Better let her wake up in her own good time. The black man is already on his feet, ramming on the eyeglasses handed to him and striding off toward the open door of the cabin, swinging his suitcase purposefully. Four people on the right are still sleeping. Some of the seats are already empty. A blond girl starts to stir, while Helias's seat returns to the upright position and he puts his feet down. The seatbelts unlatch automatically. A bit hesitantly, he gets up, finds his luggage, activates the flotation unit and

[2] $c \approx 299{,}800$ km/s is the speed of light.

[3] The distances contract by a factor $\gamma = (1 - \beta^2)^{-1/2}$, where $\beta = v/c$. In the case considered here, $\beta = 0.995$, so we will have $\gamma \approx 10.01$.

starts for the exit, already wearing his glasses. The serious man seems to be waiting for him over there, leaning on a machine in the open-ceilinged concourse.

Helias looked up at the sky. It seemed dark blue, but maybe that was because of the concentrator lenses in his glasses. There wasn't much visible light on that planet. But its sun emitted plenty of infrared. The glasses increased the frequency of the infrared photons, moving them into the optical band where the human eye could 'see' them. Though this resulted in having enough photons to be able to see, the colors were obviously muddled, a sort of dusky, artificial Daltonism in the gloaming.

He walked past the serious man, pretending not to see him but sneaking a look through the dark glasses. The quiet voice made itself heard again.

"Dr. Helias Kadler?"

That voice, calming and disquieting at the same time.

"Yes? Yes, I'm Kadler."

"I know you are going to the Kusmiri Center. If you wish, I can take you there."

It was all very strange. And so who was this man? What did he know about him and his 'call'? He hadn't said, "I'm here to take you to the Center." But "If you wish, I will take you there". So he wasn't there to welcome him. How could he have been, in any case, since he had arrived from Earth with him? His trip, for him, had gone by in a flash, an instant. But on Earth, twenty years had passed. If he had immediately gone back to Earth, or rather, if he had been 'retransmitted', he would have been home again an instant later, but forty years after his departure, and with no guarantee that things would still be the way they were before. No wonder that transmissions beyond a certain distance were, at least these days, always one-way trips.

And so how could that imperturbable man have arrived together with him from Earth, and at the same time offer himself as a guide to the place? But maybe it was just his impression, since the man been so nonchalant about the transmission, and seemed so much at ease on that planet. Maybe he was a newcomer like him, but simply was well informed about the local topography or means of transportation. But even so, how did he know his name, and why did he offer to accompany him?

"How do you know my name?"

"I am called Mattheus Bodieur."

He hadn't answered the question, but at least he had introduced himself.

"Are you from here, sir?"

Before responding, he glanced around as if he wanted to make sure he wasn't overheard.

"Yes."

He was lying. If not, he would have had to have left at least forty years earlier, apparently for the sole purpose of 'accompanying' a person—him—who at the time was twenty years younger. Just a child, in other words.

Helias's first impulse was to say goodbye to the lying stranger and go his own way, following the directions given to him before departure. But his curiosity was piqued, and with his temperament, he wasn't about to leave without getting to the

bottom of this. He stood looking fixedly at the serious man's dark glasses, noting that his skin seemed brown.

"If you need to think about it, may I at least have the pleasure of offering you a real Alkenian ice cream at the station emporium? It's just what you need as a pick-me-up after the 'jolt'."

A 'jolt', he called it.

"Since you are so kind…. Thank you."

The Alkenian ice cream was superb, he had never eaten one like it. By comparison, the ones on Earth were pale imitations. It really had been a pick-me-up, and now he felt more relaxed and in tune with that unknown planet.

"Are you really from here?"

"Yes."

"And when did you leave for Earth?"

No answer.

"You would have had to have left at least forty Earth years ago. Incidentally, how long does an Alkenian year last?"

He knew perfectly well. It was just to keep the ball rolling.

"Around 407 Alkenian days, that's 378 Earth days. There's not much difference with Earth, and so it doesn't take long to get used to it."

"Why do you want to accompany me to the Center?"

Silence.

"How do you know my name?"

"It was on the passenger manifest."

"Did you offered to accompany all of the passengers?"

"No."

"And so you left here at least forty Earth years ago. You arrived on Earth, you found that I was coming here and you decided to accompany me? Doesn't that strike you as absurd?"

"More or less."

"That's not a very precise answer, wouldn't you say?"

He was silent for a moment, and then murmured, almost to himself, "There's the trick.".

"What trick?"

The question was ignored. He finished his ice cream meticulously and went to pay. Then he motioned to Helias to go out with him and in the doorway, putting his glasses back on, said "You will know in due time.".

> Any electromagnetic signal, such as light pulse or, for the sake of simplicity, a single photon, travels in empty space—a vacuum—at a constant speed c of around 300,000 km per second. This speed is independent of the motion of the light source and of the motion of whoever or whatever receives the photon. All observers who measure the speed of light, regardless of their state of motion, will always measure c.
>
> Though it seems to contradict what we think we know about "everyday physics", this is the way things work. If a projectile—a bullet, say, is shot from a moving vehicle and in the direction of the vehicle's motion, its speed will be greater than if it were shot from a stationary position. Likewise, if the target is moving toward the bullet, the impact will be

received at a higher speed than if it were moving away from the bullet's motion. And if the target is moving away at a higher speed than the bullet, the bullet will never catch up with it. But photons are not like bullets: with photons, you can run but you can't hide. Even if you try to escape, at any speed, the photon will always reach you with velocity c.

If we emit a photon from Earth, one second later it will be at distance of around 300,000 km. If at the moment of emission a spaceship passes at any given speed, half of the speed of light, for instance, the photon will also have traveled 300,000 km in one second from the astronaut's standpoint, and will thus be 300,000 km ahead of the spaceship, if the latter was going in the same direction as the photon. This would mean that the photon is simultaneously located 300,000 km and approximately 450,000 km from Earth, given that in the meantime the spaceship has traveled around 150,000 km. Clearly something doesn't add up here. In reality, the answer is quite simple, though it might seem strange. What changes is the passage of time, and the measure of the distances. A second measured on board the spaceship is 'different' from one measured on Earth. And the distance of 300,000 km measured from the Earth is no longer the same if it is measured from the spaceship. Yardsticks and clocks, space and time, change to adapt to the true universal constant, the speed of light.

We usually don't notice, because we deal with small velocities for which the relativistic contraction of distances and dilation of time are too small to be measured.

And so time is not an invariant. It does not flow smoothly and undisturbed, uniform and identical for everyone. It depends on the state of motion of the observer who measures it. We can make a space voyage at enormous speed, and come home to find that our son is twenty years older than us. And dimensions in space are not invariant either: objects and distances contract in the direction of motion, and their measurements depend on the relative velocity at which we measure them.

An elementary time interval is designated as $\mathrm{d}t$, while $\mathrm{d}r$ is a piece of space, an element of distance. Neither are invariant under Lorentz transformations. Lorentz transformations make it possible to calculate the space-time coordinates of an event in a given inertial frame, starting from the coordinates for the same event in another inertial frame moving at a constant velocity v relative to the first. For small relative velocities, $\mathrm{d}r$ and $\mathrm{d}t$ are almost invariant, as they appear in our everyday experience. For relative velocities approaching the speed of light, their variation from one frame to the other can become arbitrarily large. A length will contract by a factor $\gamma = (1 - \beta^2)^{-1/2}$ (where $\beta = v/c$), and time will slow by the same factor.

The simplest relativistic invariant, i.e., invariant under Lorentz transformations, is the square of the space-time four-vector, $\mathrm{d}s^2 = \mathrm{d}r^2 - c^2\mathrm{d}t^2$. In other words, whereas for Galilean physics (which still applies for small velocities), the invariants were $\mathrm{d}r^2$ and $\mathrm{d}t^2$, in relativistic physics, the invariant is a linear combination of the two, where the coefficient c (speed of light) is a universal constant. It should be noted that for a photon we have $\mathrm{d}s^2 = 0$, since $\mathrm{d}r$, or in other words the distance traveled, is equal to the product of speed, c, by the time $\mathrm{d}t$ taken to cover the distance. In this case, the space-time interval $\mathrm{d}s$ is said to be light-like. Likewise, it is called a time-like interval if $\mathrm{d}s^2$ is less than zero, i.e., when the spatial distance $\mathrm{d}r$ is less than that which light can travel in time $\mathrm{d}t$, meaning that the distance can be covered in time $\mathrm{d}t$ with a speed less than c, and consequently the two events at the end points of $\mathrm{d}s$ can be linked by a cause-effect relationship. By contrast, because no matter and nothing that transports energy or information can have a speed greater than c, the two events at the end points of a space-like interval, i.e., with $\mathrm{d}s^2$ greater than zero, cannot be causally linked, and in other words take place independently of each other.

We have just said that no matter, i.e., nothing with mass greater than zero, can exceed the speed of light. In reality, it cannot even reach the speed of light. Only an electromagnetic

wave, or its quantum correspondent, the photon, which has null mass,[4] can, or rather, 'must' travel at speed c.

And so we have this apparently random coincidence: particles with $m = 0$ also have $ds = 0$. A close relative of ds is the so-called 'proper time', $d\tau$, where $d\tau^2 = -ds^2/c^2 = dt^2 - dr^2/c^2$. It is referred to as proper time because it is the temporal distance between two events that take place in the same point in space, i.e., with $dr = 0$; in this case, in fact, $d\tau = dt$. In other words, it is the time measured with a clock at rest in the considered reference frame, hence 'proper time'.

A photon thus has $m = 0$ and $d\tau = 0$ (since $ds = 0$). Normally, we say that a photon does not have a reference frame, as the second postulate of the special theory of relativity (Einstein 1905) states that light travels at speed c in any reference frame. Consequently, there can be no such thing as a reference frame in which the photon is at rest.

The photon, whatever it is, is certainly something very strange and at the same time fundamental, that our description of physical phenomena can barely hint at. It is a sort of singularity of the physical world, a boundary that cannot be crossed, or at least apparently. It has null mass, as if it did not belong to our world, and null proper time, as if it were unaffected by the flow of time. For the photon, our space does not exist, because the closer speeds come to c, the more space contracts and tends to zero. So in a way it is as if it occupied the entire space in a single timeless event. No sooner has it left than it has already arrived, even if from our point of view it has traveled for billions of years and crossed half of the universe.

Consequently, having no mass is the essential, necessary and sufficient condition for traveling at the speed of light and not being affected by the passage of time.

And so how could Helias Kadler and the other travelers, with the whole spaceship and its far from negligible mass, "ride the light"?

[4]Or any other particles with null mass.

Chapter 2
They Were Flying Over Gentle Crimson Hills

They were flying over gentle crimson hills dotted with orange shrubs casting long violet shadows in the brooding light that announced the coming sunset. The air was perfectly clear and a brisk wind from the southwest shook the treetops in the woods at the foot of the hills, the tiny leaves shimmering in a broad swath of vibrating color, now yellow, now purple, now maroon, as the wind turned their different surfaces toward the watching eye. The undersides of the leaves were at their brightest yellow when the wind brandished the branches against the sun.

They were traveling north, almost along the planet's shadow line. At dusk, they had to increase altitude to clear a mountain range. And then the sun was back, tingeing with pink the immaculate snowfields and the plumes and pennants of clouds floating from the highest peaks. And where the sun failed to reach, the snow was blue and violet in the shadows, much like on Earth.

For a long time, Helias stood rapt before these breath-taking landscapes, forgetting all the problems and questions crowding his mind.

Only when darkness finally covered the land below and the first, brightest stars began to appear in the purple and green sky, did he turn from the porthole. Removing his glasses, he looked around the spaceship, his eyes growing accustomed to the dim white light. It was an eight-seater. Two rows of two seats per side, with an aisle down the middle. At the back, the baggage hold, at the front the cockpit with the two pilots. The door to the cockpit was ajar, and from his seat in the first row Helias could see the profile of the serious man, Mattheus, busy in the captain's seat. He was talking into the tiny mic of his 'cell', a miniscule earphone clinging to his earlobe and an invisible rod that supported the mic just to the right of his mouth. He was almost whispering, in a strange dialect. A few more words, interspersed with pauses as he listened, and then what seemed to be a goodbye of some kind and the conversation came to an end.

On the other side of the cabin, in the second row, a blond girl was drowsing. Hadn't he seen her before, somewhere?

Helias fell back into his own thoughts.

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He had been 'called', after more than a year on the waiting list. He'd had himself put on the list right after he got his PhD. Shortly before, his girlfriend had left him. He had told her about his plans to leave Earth, and that he wanted to take her with him. She seemed reluctant to go: too attached to her family and her own habits. For her sake, he might even have decided not to leave. But as it turned out, she took things into her own hands, and made the decision for him, telling him it was over—just before his final exam. She didn't feel she should have to wait until he finally made up his mind, and in any case, she certainly didn't want to have to blame herself if he gave up his dreams of the future for her.

For his part, he had no family left. Or almost none. There was a sister, somewhere in the Austrian Alps. They had never had much to say to each other, and from the time she married and moved to Austria he had never found the time—or the inclination—to go visit. They heard from each other from time to time, birthdays or holidays and things like that, but nothing more.

For the few times he permitted himself a vacation, he preferred the Swiss or Italian Alps. The high peaks and the eternal snows, with his girlfriend. Or Corsica, which he'd always loved, ever since he went, as a boy, with his parents.

His parents were gone, officially declared missing. They had been two prominent scientists, who worked at the transmitting station orbiting Mars.

He hadn't seen much of them, since he started college and was living on his own. They would come and go, staying for a while, busy with their studies, and then leave again. Once they had taken him with them. It was during the school break, and there was an extra seat available on the spaceship. He was sixteen, and he remembered it as the best period of his life.

Since then, he had had fewer and fewer chances to see them, since they spent increasingly long periods on Mars. Until two years before he finished his PhD. They didn't come back from their last trip. He never heard from them again.

Helias's eyes filled with tears, and his throat tightened.

But this was no time to get sentimental. And he was used to pulling the plug on his feelings, and pushing everything back down, deep underneath.

He allowed himself one small liberating sob, and slowly took control of his thoughts again.

He turned for a moment, glancing back at the seats behind to see if the girl had heard anything and was watching him. Nothing, she seemed completely absorbed, her eyes half closed.

For good measure, he pretended to cough, just to belie any suspicions.

He turned again and gazed at girl's face, as her lips seemed to move almost imperceptibly. It was an oblong face, though not too much so. The eyes seemed narrow, maybe because they were half closed, almost like an Oriental. Despite the fact that they were blue, and despite the fine blond hair that fell to her shoulders. She had a goodish figure, on the tall and slender side, though the loose coveralls made it hard to tell. Not his type, he told himself, though he couldn't deny a certain attraction.

The girl turned toward him, and he looked away immediately.

And now he found himself in this strange, unexpected situation.

He had been directed to the Kusmiri Center, where, among other things, they did research into alien molecular biogenetics. And where he would have been able to catch up with the field and start something new.

The last concrete news he had about the Kusmiri Center and, in general, the planet Alkenia, obviously dated back some forty years, though he had heard it slightly before his departure. He hoped nothing fundamental had changed, even if he had to expect that there had been a great deal of progress.

The information exchanged between the two planets was always twenty years out of date, and was more of historical interest than of any value as information.

Above all, he knew he would have to assimilate forty years' worth of new biogenetic research, and he had no idea how much progress the discipline had made.

Back on Earth, there were simulations that described all aspects of social life and the organization of research on Alkenia in a certain amount of detail. They were based on successive transfers of personnel, information and plans that Earth sent at fairly close intervals, every few weeks or months. Naturally, the simulations were only relatively useful, since they were little more than forecasts starting from the planet's actual situation as it was twenty years earlier. And they could be confirmed or rejected only twenty years later.

Up to the time of Helias's departure there hadn't been any major surprises.

But in the meantime, forty years had gone by. And more than anything else, it was practically impossible to make predictions about the advances in research that used 'raw material' that didn't exist on Earth, except in the form of samples taken decades earlier.

According to the program he'd been given on Earth—every detail of which he had committed to memory—on leaving the station he was to take the shuttle to the terminal in the nearby city of Symiria, where he was supposed to take the first flight for the planet's capital, which wasn't far away. Once in the capital, he would have spent the night at the Hotel Starcross, taking the shuttle for the Kusmiri Center the next morning.

None of this happened. That serious-looking man had immediately blown a hole right through the entire program. He had barely introduced himself, without even saying who he was or what he wanted from Helias. To all appearances, he just seemed to be a nice man who wanted to give him a lift. But his caginess about offering any kind of explanation, and the strange circumstances surrounding their meeting had something mysterious about it that piqued his curiosity. And there was no denying that the man exerted a certain fascination over him, a kind of charisma.

Upon leaving the emporium, Mattheus had walked off toward the parking lot, without another word. And this attitude had irked him again. The man couldn't treat him like this, like a child that didn't deserve an explanation. He had been about to leave without even saying goodbye, but then he ended up trotting obediently along after him, because he 'felt' he had to get to the bottom of this.

The blond girl and the copilot were waiting on the spaceship. Embarking, his impulse was to sit next to the girl, if only in the hope that she might be more

talkative than Mattheus. But she hadn't even turned to see who was coming in and—no surprise—she also seemed caught up in her own thoughts. So he had given up and, a bit huffily, went and sat as far away from her as he could.

While he was waiting for the flight to arrive, Helias reached into the inner pocket of his jacket and pulled out his little portable, which contained everything that could be digitized, from his childhood memories to all of his studies and research. He glanced at the index of his scientific publications, thinking that by now they were all old, obsolete analyses. With a bit of nostalgia, he looked at pictures from when he was a boy, the favorite photo of his parents, his ex-girlfriend. Pensively, he thought about how everything fades away and disappears, now more than ever before. He had no chance of going back to Earth, but even if he could and had wanted to, what would he have found down there? A seventy year old sister, aunts, uncles and all his relatives long dead, his former girlfriend with white hair, maybe surrounded by half a dozen grandkids and the children from her second marriage. With her first husband's portrait hanging on the wall, the first husband who, irony of ironies, was lost in space. And almost no memories remaining of their jaunts in the Alps, still so vivid in his mind.

He was beginning a new life, in every way. With no ties to the past, nothing more than a jumble of memories, old ones by now, and a few pieces of research that had since become meaningless.

In the midst of these thoughts, a light from outside caught his attention. A star, brighter than the others, was shining out among the low clouds on the horizon. It was Nasymil, the nearest star, now reflected imperiously on the clouds below, as the spaceship climbed to hurdle the last mountains. It was still mirrored in an immense glacier, brighter than the full moon. Then the lights went out in the spaceship as it began its descent toward the Center.

This new light shining on his thoughts of a new and unknown life struck him as a good omen, and he cheerfully prepared for the landing.

The Center appeared suddenly below him, no longer hidden by the looming mountain. And he had plenty of time to admire the architecture as the ship looped around it before landing. In the cold light of Nasymil, which was reflected now on the roofs of the towers, contrasting with the orange and yellow of the artificial lighting outside the building. It was enormous, a stupendous castle overlooking the choppy waters of a lake.

Despite his good mood, even better after seeing that fairytale landscape, and despite his eagerness to disembark and throw himself into his new life, he decided to keep his feelings to himself, given the lack of interest his traveling companions had shown in him. He was all ready to leave, but stayed glued to the porthole—not that there was much to see anymore—waiting for the girl to go out first. He got down his luggage and—sulkily, to all outward appearances—followed his two fellow travelers, while the copilot remained on board. Nothing, not even a word. What kind of a way to behave was that? Mattheus had barely glanced over his shoulder to check whether he was following. He went first through an ordinary sliding door and walked toward the reception area. Oh! A miracle! Once through the door, the girl

seemed to slow down to let him catch up, and she was even turning toward him. With a smile!

"My name's Kathia."

"I usually don't introduce myself, since people already seem to know who I am anyway."

And he gestured with his chin toward Mattheus who had stopped at the reception desk.

They stopped too, a few paces behind.

She looked him in the eye and smiled. He felt himself thawing.

"Pleased to meet you, Mr. 'Usually-I-don't-introduce-myself'."

She held out her hand. He followed suit, and was about to shake hands when he realized that it clearly was not the custom here. In fact, she didn't shake hands either, but remained with her hand outstretched and open. He brought his palm close to hers and felt something like a halo of warmth. Foolishly embarrassed, he snatched his hand back. She smiled again, almost maternally. She continued to look at him with an amused air, like someone bending over a new-born puppy, fuzzy but still clumsy. To hide his embarrassment, Helias asked, "Are you here for bio-genetics too?".

"No, archivist."

Nothing else? Why were people in this place so close-mouthed? Not that he was particularly loquacious himself, but these two had him beat by a country mile.

Mattheus came back to them with a couple of passes.

"These are temporary, the room number is at the top. They're on the other side of the building. The registration office is closed now, obviously. You're expected for the formal registration tomorrow morning, in the office alongside. The rooms should be in order. If you need anything, call Six. Rest well."

Wow! What a spiel! And almost without stopping for breath.

Mattheus smiled. He looked at Helias with a penetrating gaze. Then he looked at Kathia.

They said goodbye to him, went out of the building and made their way toward the opposite side, with a little detour to walk along the lake.

"What a strange fellow…." murmured Helias. But he got no reaction.

"Had you already met him?"

"When?"

"Before today, I mean."

A short silence.

"Yes."

"Do you come from Earth too?"

"Sure."

"What I mean is, have you just arrived, like me?"

"We were on the same craft."

Four whole words in a row! He noticed she had an odd accent.

And so that's where he'd seen her.

Why was it so difficult to engage her in a conversation? Maybe she had problems with the language?