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Valery Bulygin

Coiper Belt

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Аннотация

There is a beginning to civilization. There is an effort by nations to move forward. Civilization must not disappear without a trace. To preserve civilization is the goal of humanity.

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Chapter 1

Almost three years of flight behind. The Ship “Nation” and nine other ships are flying on their given route. The speed is still small, some 50,000 km/h. However, we cannot fly faster, although there is such an opportunity. It is still good that without losses flew the asteroid belt. Let us fly faster; the defense of the ship could not withstand the bombardment of interstellar gas and meteorites. We will be looking for protection from this in the Coiper Belt. Then, if all goes well, we will rush to the fullest.

Not much changes on the screen. Darkness and distant stars.

– Dad, what star are we flying to? – Kvik asked.

– It is up to the team center, – the father said.

– Previously, it was decided to fly to one star system. However, three years of flight have already passed and during this time, there may be other options. However, we are going to be in the Coiper Belt for five or six months. We are going to have a lot of work to do there. The braking will soon be over, and we will be in weightlessness. You have never experienced this condition before. Burton stroked his son and went to his department. You need to prepare for a very difficult and responsible job. The ship is large, about 3 km in diameter. To get to the place of work it is necessary in a special elevator. He made this way every day. Sitting in a chair, he again thought about the upcoming work. Three years behind. Behind his home planet Earth. How hard it

is to part with your home. It is not a breakup for a while when you know that the business trip, though long, will end and you will come home. Even expeditions on Mars in 8—10 years return home. What about now? He will not be home. There is nowhere to go back. How do you accept that?

Our flight, this is only the first expedition. The second, the third will fly after it. So it will continue until there is no one on Earth. The earth is dying and it is inevitable, unfortunately.

Our luminary behaved unpredictably. Activity has increased greatly. Plasma emissions are increasingly flying towards the Earth. The Earth's magnetic field will not withstand such a bombardment for a long time. In 100—150 years, life will fade, and it is inevitable. Exit one; look for another place of life, another land.

It was decided to combine all the resources of States for the construction of spaceships and go in search of suitable planets, for their further colonization. There was no other way. Even the few colonies on the moons of Jupiter and Saturn will not last long. Ships began to build not only on Earth, but also on Mars. Mars has become the main transit point. Mankind was faced with the challenge of survival. Mankind did not expect it to happen so soon.

Chapter 2

– What is the situation with the passengers? – Burton asked his wife. You are a psychologist. There are 100,000 of them on our ship alone. What is the psychological situation after three years of flight?

– We do a survey on the net every month, – Dora said. They need to answer many questions. Well, for example, how do you tolerate parting with your home planet? Have you fully understood the situation on Earth? It was very difficult to understand and accept it. Many people were thinking before we left, maybe it would. Only scientists, physicists, astronomers did not give such hope. Now I am more concerned about the relationship between people.

– During the three years of the flight, they united or locked themselves in small groups? What unites people and what divides? Will not despondency, hopelessness, and doom overtake everyone? If there is no consolidation of people on the ship, the whole flight will be meaningless. They should understand that they would not reach the target, but their distant descendants. Perhaps the next generation will not be so painful to bear the hardships of flight, but people who saw the blue sky, bathed in the warm sea, will endure it very hard.

– What about faith? – Burton asked.

– We have representatives of different faiths on our ship.

We still look at ancient Greek mythology as a legend. Do they preserve traditions, rites, and festive customs?

– Yes, – after thinking about it, Dora said.

– The question is very interesting. Before the flight, no one could accurately predict people's behavior. Some believed that detachment from the earth, from big cities, from shrines would force people to reduce their commitment to faith. Others, on the contrary, believed that detachment from the earth to force people to keep the faith that will help them survive would further unite.

I am more inclined to the first option. 5—10 generations will pass and detachment from the Earth will do its job. Everything will remain in the form of legends. We still look at ancient Greek mythology as a legend.

– Do you, as a psychologist, already see changes in people's communication? – Burton asked.

– When we left the Earth, people of different nationalities gathered on our ship, people spoke different languages, although they knew the universally recognized, on which everyone communicates.

– Yes, of course, there are changes, – the wife replied.

– Although not much time has passed, people have become less likely to communicate with each other in their native language. That is understandable. During the flight, people continue to work, perform their official functions. Now it is mostly English. It has been like this on Earth lately. This is computer language and technical texts. Even at the very

beginning of the flight, it was decided to develop some universal language, which would be clear to all and easier to study.

– So, what is the basis? – Burton asked.

– There have been many discussions on this issue. On the one hand, it is convenient to use a language in which sounds and letters correspond, as in Russian language. If, for example, a person speaks the word cosmos, then each spoken sound corresponds to its own sign, letter. With such a system, you can record a word when you hear sounds. There is no need to think about the fact that there are any exceptions or accepted conventions. Take English. I pronounce the sound of “yu” but I write “you.” You just have to remember it, and why? If, for example, you heard an unfamiliar English word, you cannot write it down. There are also words that are pronounced the same, but are written differently, and the meaning is understood only out of context. All these difficulties must go away.

– What about the beauty of language, poetry? – Burton asked.

– There will be nothing left of poetry if you use dry, not expressive words.

– I think it is all going to stay. People will cherish all the good and valuable. Culture will remain a culture. This is the basis of everything. If there are no values, then what to protect. The history of life on Earth will remain in the memories of subsequent generations. All the best and bright will be passed down from generation to generation. Somewhere in a new place, everything will be restored or at least as possible.

Future generations will need to know their homeland, their homeland of origin, development, formation.

Chapter 3

- Commander, – Ivan asked. We are already in the Coiper Belt. Have you already chosen the landing site?
- Yes, – Scan replied. Our stop on Dysnomia, Eris's satellite.
- Is that the one behind Pluto – Ivan said.
- Are the sizes of Dysnomia good for us? – It is somewhat big.
- What to do, we did not have much choice, – Scan agreed.
- Beautiful name, Dysnomia.
- It is like honoring the goddess of lawlessness. We do not need lawlessness. Is she far from Eris?
- About 30,000 km. It is 10 times closer than the moon from Earth. Think of it next to you.

Our main ship came close to Dysnomia. Now begins a complex, time-consuming and responsible work. For all ships of the expedition it is necessary to drill deep wells in the satellite, so that the ships could enter deep into Dysnomia and there to gain a foothold.

- Yes, I know, – Ivan said.
- We have been assigned that task on Earth.

Powerful passing shields approached the Eris satellite and started work. The diameter of the main well should be more than 3 km, and the depth of 5 km (this is for the main ship). The other nine will be smaller.

It has been six months. The wells are ready. Tunnels have been

tunneled between the wells to communicate with other ships. Tunnels were also pierced to the surface of the satellite for the output of various equipment (telescopes, radio telescopes, etc.).

The meeting of representatives of all ships decided to hold on the network. It was necessary to listen to the report on the work done, to put the task in the future.

Dysnomia's choice was not accidental. Outside the solar system, the flight will be at a speed of 30,000km/s. This is about a tenth of the speed of light. You cannot go faster; the power of the engines will not allow it. At this speed, interstellar gas and dust will simply destroy the ship.

It was decided to hide the ships in the satellite of Eris and under the protection of the surface to fly into deep space. All the bombardment will have to surface the satellite, and it, pushed by our engines will fly like a comet or an asteroid.

Fuel supply takes place on Eris. There is a lot of frozen methane. On Eris itself, a methane processing station was installed in the fuel we needed. The shuttles are constantly plying between Eris and Dysnomia. Ships are able to recycle any useful substance into fuel. In the first stage, this is enough.

Scan looked at the stellar environment for a long time. Somewhere out there, our Sun is far away. It is still visible; after all, we are still in the solar system. True behind the Coiper Belt is the Oort cloud, but there will be no more planets, only stones and chunks of ice. Then the black emptiness and the cold. It is hard to be aware of uncertainty. While living on Earth, Scan

was engaged in mountaineering. More than once, he climbed undefeated peaks. There was clarity. You know the route. You have pictures from space, weather forecasts. In any unforeseeable case, a rescue team will come to the rescue. In addition, here? Who is coming to the rescue? The route is conditional.

Chapter 4

(Conversation in a biological laboratory)

//Martha is a researcher, Arkady is the head of the laboratory,

Ryuken is the second employee. //

– Even when biological institutions were on Earth, they set the task of human survival in space, – Arkady said.

– Man is a very gentle creature, adapted to live in greenhouse conditions. For a comfortable life, he needs a very narrow range of temperature, humidity, pressure, light, radiation level, noise level, etc. Gravity on Earth has made man who he is. The first inhabitants of the colonies on the Moon felt at once less gravity. The load on the bones was reduced and the human skeleton had to be artificially loaded in order to avoid major changes. In weightlessness, a person also cannot stay long.

Such a woman in Cosmos cannot squeeze, especially in the far. On bases in the solar system arranged conditions similar to Earth, but all this is difficult. Small malfunctions in life support led to big problems. With relatively “calm” life in the solar system somehow managed to find a balance, but we are now flying to the distant Cosmos. Whether we like it or not, a person needs to change and change very much.

– What decision did they come to? – Martha asked.

– The decision was unusual, – Arkady said.

– The most important thing that Man has is his brain. It

is what sets one person apart from another. All other parts of the body provide brain function. Vision – gives information to the environment, hearing – the ability to hear sounds, hands – to perform appropriate functions, legs – to move, etc.

– And what changes in the human body are we able to make? – Ryuken asked.

– Almost everything, – Arkady replied.

– If we want to survive in the far Cosmos, we cannot do without basic changes. The biggest problem is that it is not a technical problem, but a moral one. We on Earth have long learned to replace the hand of the person who lost it in an accident or accident. Installed artificial with many sensors. Yes, she worked like a native. How to look at such an artificial hand to a man? Does he see it as his own? If you change everything? Is the man ready for this?

This applies not to one person, but to the whole community. I think we need a long transition. It is better to start with small children. They perceive all changes less painfully. It will take 30—50 years and it will become the norm.

– In addition, what will change drastically? – Martha asked.

– Everything, – Arcady answered without hesitation.

Unfortunately everything. Whether we like it or not. Otherwise, we cannot survive. Yes, we will leave some of the migrants unchanged. Enormous efforts will have to be made to ensure them. All this will be done in the hope that at the place of arrival there will be similar conditions for life, as on Earth. It

will certainly be an incredible success. Then in a new place, we can (if possible) adjust the environment to ourselves. You should not count on it.

– Well, what about love, feelings, – Martha asked.

– It is more complicated than that, – Arkady said.

– This is how our world on Earth was arranged. Nature is so disposed, a man is born, lives, dies. To procreate, you had to produce the same kind. Women started from men, gave birth to children, raised them, parents died, and children continued the path of parents. That is the way it is on Earth. There are two individuals: male and female (mostly). It might not have been that way. Nature has “forced” people to reproduce. Came up with a simple method – the male sex should gravitate to the female. Everything was provided for. The female sex draws attention to itself; the male sex (having a sexual attraction) is looking for opportunities to connect with the female. A woman chooses a whiter partner than a strong, intelligent, and beautiful. Why? Nature wants to continue the family, but the successors must be strong and healthy, otherwise in a difficult world the weak do not survive. There would be no sexual attraction; there would be no continuation of the human race. Hence the love, attraction, the cell of society – the family. Well, how further we will develop I can hardly imagine. If a person has only the brain left alive, and the rest of the other parts are artificial? Will such a man want to snuggle up to a woman, pet her, feel the warmth of her body, her aura? It is very hard to imagine that we are going to have

to give up on this. Perhaps everything will move to another form of communication. I do not see how else you can survive in Space. We do not have a lot of choice.

That is how we will fly to the destination of two species. One species is gentle, fragile. The other is with artificial organs (except the brain), which is less whimsical to the environment, which will be able to carry loads ten times more than a biological person, for whom the temperature range will be comfortable not from -30 to 30 degrees, but somewhere -100 to 100 degrees. The composition of the air is a little critical and gravity too.

Chapter 5

– Commander, there is important information from navigators, – Ivan said.

– Something important? – Scan asked.

– Yes, – the deputy replied.

– You are very much asked to come to the navigation department. There was some tension in the department. The faces of the staff were focused and agitated.

– Commander, – the head of the department said. We have very important information. For several months, our navigators scanned the near space. According to our observations and calculations, it turns out that some objects are approaching us. There are 80 or 100 of them. All of them fly together and apparently, their speed slows down synchronously. It cannot be asteroids or comets.

– Did you calculate their braking speed? – Scan asked.

– Yes, – the head of the department replied.

According to all our calculations, the end of braking will take place in the area of Eris.

Now the distance to us is about 5 million. Kilometers. In 10—15 days, they will be in our area. Most likely, these are objects of artificial origin, judging by their movements. Of course, I am far from thinking that this is something reasonable, but I think we should continue to scan them and send some information just

in case.

– What information do you want to send? – Scan asked.

– As usual, what we sent before. Standard set: who we are, what we are, where we are. These signals in any case indicate that they are of artificial origin. We will wait for an answer if he follows. If there is an answer, we are kind of going to have to deal with something reasonable. Oddly enough, this will be the first contact with something similar to the mind. In the history of the Earth, it was not possible to hear signals similar to artificial signals from the Cosmos. I still have no confidence that there is anything reasonable in the nearest Cosmos. For almost 200 years, we have been listening to Cosmos and everything in vain.

A week later, the head of the navigation department again invited the commander.

– We can inform you that our requests have received clear signals and they are of great interest. The response signals were received at the same frequency. The first packet we received was the same as the one we sent. It was actually repeated. They are probably some kind of ship. Who is in them? Machines or sentient beings? That is the surprise. Is there going to be a meeting of sentient beings?

Is there going to happen to be a meeting of sentient beings on the edge of the solar system? It seems to be early to fantasize. It will be necessary to decide how to exchange information.

The whole department of cryptographers worked three shifts. The communication algorithm, which was developed on Earth,

was improved. After two weeks of intensive work, the following – 94 ships fly from another system, which, by the way, is in our Milky Way galaxy. According to the coordinates that we were given, we roughly identified this place. Almost all ships are living creatures, inhabitants of this system. Their system has become subject to the attraction of a local black hole, and after a while, this process will become inevitable.

They (like us) decided to build ships and look for a better place to live and colonize.

Now they are sent to our solar system, because according to their calculations it is suitable for habitation. Living creatures on ships of protein origin.

Here, in short, is such information. It is going to happen, we are leaving the solar system, and they are flying to it.

Captain Scan made this decision:

Let the aliens know what awaits them in our solar system.

Find out where they are coming from so we do not go there.

It was also decided to refrain from close contacts for the time being. It is not known what their intentions are. What we can expect: friendship or hatred, understanding or competition.

After a while, the following message was received: the exact coordinates of the place from which they fly, do not want to give.

The tone of the message alerted Scan. Turns out it is not that simple. Something is wrong. In connection with the current situation, it was decided to stop all contact with aliens and go on a given route. Contacting a stranger is not a predictable

thing. Imagine you are walking alone in the desert for three days. You do not have any more power. Then on the horizon, you can see some settlement. You think that is salvation. Come to the settlement, and there live cannibals. In addition, they are very happy to see you. What are their intentions? Who are we for them? Friends, brothers of mind or competitors? At the dawn of our civilization, we were very naive. We thought that the brothers would come in mind, share their achievements, technologies. However, does it really have to be that way?

Chapter 6

(In orbit Ross 128 b)

/Meeting in the Committee on Planetary Development/

/Chief, assistant – Strokov, biologist – Litovskaya, physicist –

Klarsen, chemist – Ji Li/

– First, I want to congratulate you all on the success of our mission and the achievement of our goal. It may be finite, or maybe intermediate. We are the fifth generation of forced travelers. We all come from planet Earth. Our predecessors cherished the memory of her. They passed on the knowledge accumulated by the humanity of the Earth, preserved culture, literature, and art. We will keep this knowledge forever, without it we will not survive in the vast spaces of space. We will always treat with great appreciation to those people who prepared the expedition and built ships. Billy spent a huge effort to organize mass flight

Now we are at the first point of our target and it is the planet Ross 128 b, which revolves around the red dwarf Ross 128.

Our ancestors could not determine with certainty whether it was possible to make this planet our home. We have to decide and draw conclusions about the possibility of staying there. All of you have sufficient knowledge. All this knowledge has been accumulated on Earth and carefully transferred to you. Now you have a great responsibility. We will not hurry, it is not necessary.

The slightest mistake will be very expensive.

We have already sent robots to the planet. In the first stage, they will explore the planet and gather the information we need. Some of the information has already arrived, and your task is to handle it.

It has been three months. The Development Committee met for a preliminary meeting.

– I ask you to provide a general characteristic of the planet Ross 128 b, – said Mr. Saripov. Let us start with the chemistry department. Please, Ji Lee.

The chemical composition on the planet is not the same as on Earth and it was expected. The composition of the air is about 2% – oxygen, 90% – nitrogen, 2% – carbon dioxide. This composition of air was on Earth about 300—400 million years ago.

– As a biologist, I can explain the small amount of oxygen, – Litovskaya said.

– There is water on the planet, although not in large quantities. There are algae and on the rocky surface found primitive plants in the form of lichens. They give such a small amount of oxygen. However, the composition of the air suits us quite well. We have technical solutions to bring it to normal. Something else is unpleasant. Ross 128 b has only one side facing its Star. In addition, it is hot on this side. Solid stone deserts devoid of water. The opposite side is covered with ice, as in Antarctica on Earth. Only a strip of 2—3 thousand kilometers wide is

of interest to us.

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