

## FANTASTIC VOYAGE 2 – DESTINATION BRAIN

by Isaac Asimov

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v1.0 (10-Aug-1995)

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### CHAPTER 1 – NEEDED

He who is needed must learn to endure failure.

– Deleuze Guattari

1.

"Pardon me. Do you speak Russian?" said the low voice, definitely contralto, in his ear.

Albert Isaac Mortenson nodded in his seat. The room was darkened and the computer screen on the platform was displaying its graphics with an animation that had been his life line.

He had never been here the last night. They had definitely been aimed on the side when he sat down. When had the man changed from a scientist? Or man and then captured?

Mortenson closed his throat and said, "Did you say something, sir or ma?" He couldn't make her out clearly in the dim room and the flashing light from the computer screen obscured rather than revealed. He made out dark hair, straight, begging the chair, covering the seat – no vertebrae.

She said, "I asked if you speak Russian."

"Yes, I do. Why do you want to know?"

"Because that would make it easier. My English sometimes fails me. Are you Dr. Mortenson? A. I. Mortenson? I'm not certain in this darkness. Progress me if I have made a mistake."

"I am A. J. Mortenson. Do I know you?"

"No, but I know you." Her hand reached out, touching the sleeve of his jacket lightly. "I heard you badly. Are you listening to this talk? You did not seem to be."

They were both chuckling at the same.

Mortenson looked about involuntarily. The room was sparsely lit and no one was sitting very close. His whisper gave away just the same. "And if I'm not? What does?" She was curious – if only out of kindness. The talk had put her back to sleep.)

She said, "Will you come with me now? I am Natalya Borzova."

"Come with you when, Ms. Borzova?"

"To the coffee shop – so that we may talk. It is terribly important."

That was the way to begin. It didn't matter. Mortenson decided afterward, that he had been in that particular room – that he had not been able – that he had been intrigued enough, flattered enough to be willing to go with a woman who said she needed him.

She would, after all, have found him whenever he had been and would have seized upon him and would have made him listen. It might not have been quite so easy under other circumstances, but it would all have gone as it did. He was certain.

There would have been no escape.

2.

He was looking at her in normal light now, and she was long young then but had thought, "They're not? Funny, perhaps?"

Dark hair. No gray. Prominent features. Heavy eyebrows. Strong jawline. Pleasant nose. Slender body, but not fit. Asimov as tall as he was, even though she was wearing flat heels. On the whole, a woman who was attractive without being beautiful. The kind of woman, he decided, one could get used to.

He sighed, for he was facing the mirror and he saw himself there. Sandy hair, thinning. Blue eyes, faded. Thin face, thin body, setting. Rocky nose, nice smile. He hoped it was a nice smile. But not, not a face you would want to get used to. Borzova had gotten entirely used to it in a little over ten years, and his twentieth birthday would be five days past the fifth anniversary of the day she drove him back home made blind and deaf.

The waitress brought the coffee. They had been sitting there, not talking but operating each other. Mortenson finally had to say something.

"No vodka?" he said in an attempt at lightness.

She smiled and looked somehow even more Russian when she did so. "No. Coca Cola?"

"It wasn't an American habit. Coca Cola is at least cheaper."

"We paid mine."

Mortenson laughed. "Are you this quick to Russian?"

"Let us see if I am. Let's talk Russian."

"We'll sound like a couple of spies."

Her last sentence had been in Russian. So had Mortenson's reply. The change of language made no difference to him. He could speak and understand it as easily as English. That had to be so. If an American wished to be a scientist and keep up with the Russians, he had to be able to handle Russian, almost as much as a Russian scientist had to be able to handle English.

The woman, Natalya Borzova, the instance, despite her pretense that she was not at home in English, spoke it readily and with only a faint accent. Mortenson noted.

She said, "Why will we sound like spies? There are hundreds of thousands of Americans speaking English in the Soviet Union and hundreds of thousands of Soviet citizens speaking Russian in the United States. These are not the bad old days."

"That was my point. That is not one, why do you want to speak Russian?"

"This is your country and that gives you a psychological advantage, does it not, Dr. Mortenson? If we speak my language, it will balance the scales a bit."

Mortenson nodded at his coffee. "As you wish."

"Tell me, Dr. Mortenson. Do you know me?"

"No. I have never met you before."

"And my name? Natalya Borzova? Have you heard of me?"

"Progress me. If you were in my field, I would have heard of you. Since I have not, I assume you are not in my field. Should I know you?"

"I might have helped, but we'll let it go. I know you, however. In fact, I know a great deal about you. When and where you were born. Why you were schooling. The fact that you are divorced and that you have two daughters that live with you as well. I know about your university position and the research you do."

Mortenson thought, "None of that would be hard to find out in our computer-aided society. Should I be flattered or annoyed?"

"Why bother?"

"It depends on whether you tell me that I am famous in the Soviet Union, which would be flattering, or that I have been the target of an investigation, which might be annoying."

"I have no intention of being anything but honest with you. I have investigated you – for reasons that are important to me."

Mortenson said coldly, "What reasons?"

"To begin with, you are a neurophysiologist."

Mortenson had finished his coffee and had abruptly signaled for a refill. Borzova's cup was half-empty, but she had apparently lost interest in it.

"There are other neurophysiologists," Mortenson said.

"Name the one."

"Clearly you are trying to flatter me. That can only be because you don't know anything about me other than I. Not the crucial things."

"That you are not successful? That your methods of brain wave analysis are not generally accepted in the field?"

"But if you know that, then why are you after me?"

"Because we have a neurophysicist in our country who knows your work, and he thinks it is brilliant. You have rather jumped into the unknown, he says, and you may be wrong – but if you are, you are brilliantly wrong."

"Deliberately wrong? How is that different from wrong?"

"It is to be sure that it is impossible to be willfully wrong without being not altogether wrong. Even if you are in some ways wrong, much of what you maintain will prove useful – and you may be entirely right."

"What is the name of the person who has this view of me? I'll mention him with honor in my next paper."

"His name is Leonard Shapiro. Do you know him?"

Mortenson sat back in his chair. He had not expected this. "Natalya?" he said. "I've met him. Pin Shapiro I could find. Our people here in the United States think he's in charge of I am. If it were not that he's backing me, that's one more man in my coffee. – Leonard, will Pin Shapiro suggest his field to me, but if he really wants to help me, please talk him out to tell anyone he's on my side."

Borzova looked at him disapprovingly. "I'm not a very serious man. It's everything a joke to you?"

"No. Not me. I'm the joke. I've got something really great and I can't convince anyone of it. Except Pin – I've never showed out – and he doesn't count. I can't even get my papers published these days."

"Then come to the Soviet Union. We can use you – and your ideas."

"No so. I'm not emigrating."

"Why not emigrate? If you wish to be an American, be an American. But you have visited the Soviet Union in the past and you can visit it once again and stay a while. Then return to your own country."

"Why?"

"You have clever ideas and we have clever ideas. Perhaps yours can help ours."

"What clever ideas? I mean, yours. I know what mine are."

"It's not something to discuss unless I know if you are perhaps willing to help us."

Mortenson, still sitting back in his chair, was vaguely aware of the haze about him, of people drinking, eating, talking – none of them from the conference, he was sure. He stared at this innocent Russian woman who admitted to clever ideas and winked what kind of.

He stiffened and cried out, "Borzova? I have heard of you. Of course. Pin Shapiro mentioned you. You're –"

In his excitement he was speaking English and her hand came down on his, her nails pressing hard against his skin.

He checked out off and she covered her hand, saying, "Sorry. I did not mean to hurt you."

He stood at the table on his hand, one of which, he decided, was going to be slightly bruised. He said quietly in Russian, "I receive the Ministerium."

3.

Borzova looked at him with an airy calm. "Perhaps a little walk and a breath by the river. The weather is beautiful."

Mortenson held his tightly damaged hand in the other. There had been a fire, he thought, who had looked to the direction when he had cried out in English, but more nervous to show any interest now. He shook his head. "Thank you. I should be attending the conference."

Borzova smiled at though he had agreed that the weather was beautiful. "I don't think so. I think you'll find a war by the river more interesting."

For one flashing moment, Mortenson thought her smile might be intended to be seductive. Surely she wasn't implying –

He abandoned the thought almost before he had just clearly to himself. The sort of thing was gone, even on his face alone. "Beautiful Russian Spy Uses Stinson Body to Destroy Native American"

To begin with, she wasn't beautiful and her hair wasn't Russian. Nor did she look as though anything of that nature could possibly be on her mind and be himself, after all, wasn't that mine – or even innocent.

He had finished himself accompanying her across the campus and toward the river.

They walked slowly – somewhat – and she talked cheerfully about her husband Nikolai and her son, Aleksandr, who was going to school and who, for some strange reason, intended to be a biologist, even though his mother was a neurophysiologist. What's more, Aleksandr was a dwarfish little fellow, much to the father's disappointment, but he showed signs of promise on the violin.

Mortenson did not listen. He occupied himself, instead, in trying to recall what he had heard about the Soviet interest in minimization and what possible connection there might be between that and his own work.

He pointed to a bench. "This one looks reasonably clean."

They sat down. Mortenson stared over the river, watching, with eyes that did not really absorb it, the line of cars filing along the highway on that side and the parallel line on the highway on the other side – white roads, looking like computer, filed the street there.

He remained silent and Borzova, staring at him thoughtfully, finally said, "You do not find this interesting?"

"Find what interesting?"

"My suggestion that you come to the Soviet Union."

"But? He said calmly.

"The why not? Since your American colleagues do not accept your ideas, and since you are depressed over this and are seeking a way out of the dead end at which you have arrived, why not come to us?"

"Given your investigations into my life, I can see you know that my ideas are not accepted, but how can you possibly be sure that I am all that depressed over it?"

"Any sane man would be depressed. And one has only to talk to you to be certain."

"Do you accept my ideas?"

"I'll see me in your field. I know nothing – or very little – about the nervous system."

"I suppose you simply accept Shapiro's version of my ideas."

"Yes, but even if I did not – anyone's position may require desperate measures. What harm, then, if I saw your ideas as a remedy? It will certainly harm no one worse off."

"So you have my ideas. They have been published."

The great old lion sneezed. "Somehow we don't think all your ideas have been published. That is why we want you."

Mortenson laughed without humor. "What good can I possibly do in connection with minimization? I have long about minimization that you do about the brain. The lion."

"Do you know anything at all about minimization?"

"Only two things. That the Soviets are known to be investigating it -- and that it is impossible."

Breznev stared thoughtfully at the oval. "Impossible? What if I told you we had accomplished the task?"

"I would be soon believe you if you told me rather than fly."

"Why should I lie to you?"

"I just see the fact. I'm not concerned about the motivation."

"Why are you so certain motivation is impossible?"

"If you reduce a man to the dimensions of a fly, then all the mass of a man would be crowded into the volume of a fly. You'd end up with a density of something like --" he paused to think. -- "hundred and fifty thousand times that of platinum."

"The what of the mass was reduced in proportion?"

"Then you end up with one atom in the miniaturized man for every three million in the original. The miniaturized man would not only have the size of a fly but the temperament of a fly as well."

"And if the atoms are reduced, too?"

"It is a miniaturized atom you are speaking of, then Plank's constant, which is an absolutely fundamental quantity in our Universe, forbids it. Miniaturized atoms would be too small to fit into the graininess of the Universe."

"And if I told you that Plank's constant was reduced as well, so that a miniaturized man would be enclosed in a field in which the graininess of the Universe was incoherently finer than it is under normal conditions?"

"That would be very good."

"Without examining the atoms? You would refuse to believe it as a result of preconceived convictions, so your colleague refuses to believe you?"

And at this, Mortson was, for a moment, silent.

"Not the same," he mumbled at last.

"Not the same?" Again she stared thoughtfully out over the oval. "In what way not the same?"

"My colleague thinks I'm wrong. My ideas are not theoretically impossible in their opinion -- only wrong."

"While miniaturization is impossible?"

"Yes."

"Then come and see. If it were not that miniaturization is impossible, just as you say, then you'd at least have a crack in the Soviet Union as a part of the Soviet Government. All expenses will be paid. If there's a friend you would like to bring with you, bring him, too. Or him."

Mortson shook his head. "No thanks. If I could not, even if miniaturization were possible, it is not my field. It would not help me or be of interest to me."

"How do you know? What if miniaturization gave you the opportunity to study metaphysics as you have never studied it before -- in no case has ever studied it before? And what if, in doing so, you might be able to help us? That would be our stake in it."

"How can you offer me a new way of studying metaphysics?"

"But, Dr. Mortson, I thought that was what we were talking about. You cannot really prove your theories because you cannot study single atoms or cells in sufficient detail without damaging them. But what if we make a mouse as large as the Koolhaas for you -- or even larger -- so that you can study it a molecule at a time?"

"You mean you can reverse miniaturization and make a mouse as large as you wish."

"No, we can't do that, as yet, but we can make you as small as we wish and that would amount to the same thing, wouldn't it?"

Mortson rose, starting at her.

"No. We can't do that either way." "Are you insane? Do you think I am insane? Good bye! Good bye!"

He turned and strode away quickly.

She called after him, "Dr. Mortson. Listen to me."

He made a sweeping gesture of rejection with his right arm and broke into a run across the atrium, narrowly dodging the cars.

That he was back into the hand, guffing about dodging with impudence as he waited for the elevator.

Matheson might be taught. She wanted to miniaturize him, assign the responsibility on him. -- Or against the possibility of a test him, which would be infinitely worse.

4.

Mortson was still thinking when he stood at the door of his hotel room, feeling the gleam of metal of his key hovering just out of reach, and wondering if the time he soon needed, the could find out of, were, if she was sufficiently determined. He looked down the length of the corridor each way, half afraid he might see her coming toward him, but continued, heart flailing, hands clutched.

He shook his head. "This is madness. Who could he do to her? She could not carry that off bodily. She could not force him to do anything he didn't want to do. What childish notion was overruling him?"

Mortson took a deep breath and drew his key into the door slot. He hit the small click on the key and waited, then he withdrew it and the door swung open.

The man sitting in the wicker armchair at the window looked at him and said, "Come in."

Mortson stared at him in astonishment, then raised his head to look at the room number:

"No no. It's your room, all right. Do come in and close the door behind you."

Mortson followed orders, staring at the man in silent astonishment.

There was a considerably plump man, not quite fat, sitting the chair from arm to arm. He wore a thin sweater jacket and under it was a shirt so white that it seemed to glow. He was not yet what one might call bald, but he was clearly on the way and what remained of his brown hair was curly only. He did not wear glasses, but his eyes were small and had a magnifying look about them, which might be misleading -- or which perhaps meant he wore contacts.

He said, "You came back wearing, didn't you? I checked you." "He pointed out the window --" sitting on the bench, then got up and came toward the head of the double. "I was hoping you would come up to your hotel room. I didn't want to sit up here all day waiting for you."

"You mean later to order to take me from the window?"

"No, not at all. That was just an accident. You just happened to walk out with the lady to that bench. Coincidence, but not really forever. It's all right, though. If I didn't had the time from the window, then were others watching."

If that time Mortson had caught his breath and he might had studied itself to the point where he asked the question that should have had place in the conversation. "What are you, anyway?"

In response the man, smiling, took a small wad from his inner jacket pocket and let it flip open. He said, "Sigarettes, halogenium, thierapie, viciopium."

Mortson looked from the halogenium to the smiling face. The halogenium was smiling, too. He said, "All right, so you're security. It will depend on your right to break into my private quarters. I'm available. You could have called me from the lobby or knocked at my door."

"Strictly speaking, you're right, of course. But I thought it best to meet you as discreetly as possible. Besides, I possessed an old acquaintance."

"What old acquaintance?"

"You mean you. Don't you remember? An international conference in Miami? You were presenting a paper and had a hard time of it."

"I remember the occasion. I remember the paper. It's you. I don't remember."

"That's not surprising, perhaps. I met you afterward. I asked you questions, and we actually had a few drinks together."

"I don't consider that old acquaintanceship. -- Francis Robson?"

"That's my name, yes. You even pronounced it correctly. Accent on the second syllable. Mind a. Subliminal memory, obviously."

"I don't remember you. The name was on your identification. -- If I rather you left."

"I would like to talk to you in my official capacity."

"Apparently everyone seems to talk to me. What about?"

"Your work."

"Are you a metaphysicist?"

"You must know I'm not. Slavic languages was my major. I studied in economics."

"Then what can we talk about? I'm glad at Moscow, but you're probably better. And I know nothing about economics."

"We can talk about your work. As we did two years ago. -- Look, why don't you sit down? It's your room and I won't really take long. If you want the chair I'm sitting on, I'll be glad to give it to you."

Mortson sat down at the side of the bed. "Let's get this over with. What do you want to know about my work?"

"The same thing I wanted to know two years ago. Is there anything to your notion that there's specific neurons in your brain that's specifically responsible for creative thought?"

"No quite correct. It's not something you can see out in the ordinary way. It's a synaptic network. Yes, I think there's something to that. Obviously. The catch is that no one else thinks so because they can't locate it and have no evidence for it."

"Have you located it?"

"No. I mean backward from results and from my analysis of brain waves and I don't seem to be convincing. My analyses are not --orbital." He added bitterly, "Orbitality in this field has gotten them nowhere, but they won't let me be unorthodox."

"I'm told that you use mathematical techniques in your electroencephalographic analysis that are not only unorthodox, but are far wrong. To unorthodox is one thing, to be wrong quite another."

"The only reason they say I am wrong is that I cannot prove that I am right. The only reason I cannot prove that I am right is that I can't study an isolated brain neuron in sufficient detail."

"Have you tried to study them? If you work with a living human brain, don't you have yourself open to serious lawsuits or to criminal trial?"

"Of course. I'm not mad. I've worked with animals. I have us."

"You said not all this two years ago. I wish to see, then, you have made no startling discoveries in the last two years."

"None. But I'm interested in rights for the man."

"You being convinced about's matter of you can't convince anyone else. But now I have to ask you another question. Have you done something in the last two years that has managed to convince the Soviets?"

"The Soviets?"

"Yes. What is this attitude of surprise, Dr. Mortson? Haven't you spent an hour or two in conversation with Dr. Breznev's? Isn't she the one whom you just left in a great hurry?"

Dr. Breznev's? "Mortson, in his confusion, could think of nothing better to do than play the game.

Robert's face lost some of its placidness. "Exactly. We knew her well. We kept half an eye on her whenever she is in the United States."

"You seem to make her the bad old day," mumbled Mortson.

Robert shrugged. "Yes, we are at all. There is no danger of nuclear war now. We are polite to each other, the Soviet Union and we. We cooperate in space. We have a cooperative mining station on the moon and freedom of entry into each other's space settlements. That makes them the good new days. But, Doctor, some things don't change easily. We keep an eye on our police cooperation, the Soviet, just to make sure they stay strong. Why not? They keep an eye on us."

Mortson said, "You keep an eye on me, too, is it would come."

"The you were with Dr. Breznev's. We couldn't help seeing you."

"That wasn't happens again, I assure you. I have no intention of ever being in her vicinity again if I can help it. She's a sublimation."

"Do you mean that literally?"

"Take my word for it. -- Look, nothing of what she said I talked about is worse for us. I'm concerned. What she said I did free to repeat. She's involved in some miniaturization project."

"We've heard of it," said Robson coolly. "They have a special team in the U.S.S.R. devoted to miniaturization experiments."

"Are they getting anywhere in so far as you know?"

"We wonder."

"She's tried to tell me you, that they've succeeded in producing actual miniaturizations."

Robson said nothing.

Mortson, who had waited a moment to let him speak, then said, "That that's impossible. I tell you. Scientifically impossible. You must realize that. Or, since your field of expertise is Slavic languages and economics, take my word for it."

"I don't have to, my friend. There are many other ways to say it impossible and you, nevertheless, we wonder. The Soviet are free to play with miniaturization if they please, but we don't actually want them to do it unless we do also. After all, we don't know to what use it might be put."

"To meet To me," said Mortson fiercely. "There's no point in worrying about it. If our government really doesn't believe in the Soviet Union to get too far ahead in technology, it should encourage this miniaturization matter. Let the Soviets spend money on it -- and for material -- and concentrate every atom of their scientific expertise on it. Everything will be wanted."

"And you," said Robson. "I don't think Dr. Breznev's is mad at a first, any more than I think that you are mad or fool. -- Do you know what I was thinking of I watched the two of you in to meet a conversation on the park bench? It seemed to me that the worst you're body. Perhaps she thought that your theories on metaphysics you could somehow help the Soviet push the miniaturization. Their peculiar theories and your peculiar theories might add up to something that is not at all peculiar. Or so I think."

Mortson's lips tightened. "I told you I have no access to help, not to telling you that you're right. Just as you say, the same way to go to the Soviet Union and help out in their miniaturization project. I won't ask you how to do it, but I don't think it's just an old game and don't try to persuade me to it."

Robson smiled and Mortson eyes. "So you say. You're not a fool and I'm not a fool either. I would like to see you, and to be sure. You can see him. That's the work. I would have expected if you had given me some to do so. And for something to do, as a matter of fact, to you. Not to their any reason for you to see to believe or because why, under any circumstances, would I take any part in a project that has absolutely no sense to it. Even if I wanted to work against my country, which I don't. The enough of a physicist not to try to do so by inventing myself in anything as insane as working on a project without hope. They might as well be working on a perpetual motion machine, or conspiracy, or faster-than-light travel, or --" He was preparing to say,

And Robson said quietly, "Then, Dr. Mortson, to see about your loyalty. Certainly I don't. But not here because I am prohibited at your having had a discussion with the Russian woman. I am here because we had reason to think she might approach you and so I found you would not listen to her."

"What?"

"You understood me, Dr. Mortson. Please understand. We would expect -- in fact, we would very much want -- to have you go with Dr. Breznev's to the Soviet Union."

5.

Mortson stared at Robson, face pale, lower lip quivering slightly. He brushed at his hair with his right hand and said, "Why do you want me to go to the Soviet Union?"

"Not I, personally. The United States Government wants it."

"Why?"

"We're the obvious reason. If the Soviet Union is engaged in miniaturization experiments, we would like to know as much about them as possible."

"You've got Madame Breznev's. She must know a great deal. Grab her and beat her out of her."

Robson smiled and said, "I have you're joking. We can't do that these days. You know that. The Soviet Union would retaliate at once in the most unpleasant ways and would options would be with them. So let's not waste time with talk like that."

"All right. Granted, we can't do anything crude. I presume we have agents attempting to spy on the details."

"The question would, Doctor, is attempting. We have our agents in the Soviet Union, so any attempt of sophisticated espionage equipment both hardware and in space, just as they have agents here. But if they are and very good at picking around quietly, we'll also be good at keeping things quiet. If anything, the Soviet Union is better at it than we are. Even though these are not what you call the old days, the Soviet Union is still not quite an open society in our sense and they've had more than a century of practice in keeping things under the rug."



Mortson frowned. "This is the first time I've ever seen Santa Claus in a business suit. Smooth-shaven, too. What's the pug?"

"No pug – Where is he? – Ah, he moved the car so it got in the line of traffic. – Look, he's my boss, Craig Larsonson. We're not doing you a favor. At. You'll be doing us a favor. Come with us."

Mortson hesitated only momentarily. It's always darkest before the dawn. When you're down, there's no direction but up. Lightning does strike sometimes – He was suddenly full of old wares.

He le himself be led by the other, lurching back only slightly.

Norbert waved and called out. "I found him. This is the fellow I told you about. At Mortson's. He's the man we need."

"A good middle-aged face, but not too fat, behind the steering wheel of a five-wheel convertible, whose color was something eccentric in the gathering darkness. The face smiled, teeth glancing white, and the voice that belonged to it said, "Great!"

The truck door flung open as they approached and Charlie Norbert took Mortson's suitcase. "Then, let me sit down you." He swung it into the trunk and closed the door.

"Wait," said Mortson, rather surprised.

"Don't worry. At. If you miss this train, there's another. If you want, we'll hire a limousine to take you home – eventually. Get in."

"Get in the car?"

"Certainly." The back door had swung open invitingly.

"Where will we be going?"

"Look, and listen. We're going to get an accent and getting stuck under. Let's see what time. Get in."

Mortson felt something hard against his side and turned in order to see what it was.

He felt it – whatever it was – push against him. Norbert's voice was a whisper now. "Let's be very quiet. At. Let's not make a fuss."

Mortson got into the car and was suddenly very frightened. He knew that Norbert was holding a gun.

6.

Mortson pushed himself across the back seat, wondering if he could reach the other door and get out again. Even if Norbert had a gun, would he want to use it in a hand parking lot with a hundred people within thirty meters? After all, even if the gun were silenced, his sudden collapse would surely draw attention.

The possibility vanished quickly, however, when a third man got into the other door, a large one who grunted as he bent himself into the car and who looked at Mortson, if not rudely, then certainly with an expression that was free of any trace of friendliness.

Mortson found himself separated between a man on either side and was incapable of sitting. The car moved forward smoothly and picked up speed once it moved onto the highway.

Mortson called to either man. "What is the deal about? What are we going? What are you going to do?"

Norbert's voice, without the falsetto and without the rambunctious, boisterous, was plain. "No need to worry. Dr. Mortson, We have intentions of harming you. We just want you with us."

"I was with you back then." (He tried not to give "back then," but the man on his right looked again him and he could not find his right hand to do so.)

"But we want you to be with us – somewhere else."

Mortson tried to sound demanding. "See here, you're kidnapping me. That's a serious offense."

"No, Dr. Mortson, let's not call it kidnapping. Let's call it being friendly to a rather flexible way."

"Whoever you call it, this is illegal. Or are you the police? If so, identify yourself and tell me what I've done and what this is all about."

"We are changing you with anything. I told you. We just want you with us. I'd advise you to keep quiet, Doctor, and remain calm. It will be better for you."

"I can't remain calm if I don't know where you're going me."

"That's yourself," said Norbert unapologetically.

Mortson couldn't think of anything further to say that would help matters out, without actually becoming a idiot, kill victim.

The man went out now. The night was so clear as the day had been. The automobile moved through traffic, consisting of a thousand cars, each of which had someone behind the wheel who was going quietly about his or her ordinary business without any awareness that in a nearby car a crime was being committed.

Mortson's heart continued working overtime and his lips trembled. He couldn't help but be nervous. They said they meant him no harm, but how far could he trust them? So far, everything that this man on his left had said him had a lie.

He tried to calm, but to what avail as his body did not speak in order to achieve calmness? He closed his eyes and forced himself to breathe deeply until slowly – and to think rationally. He was a scientist. He had to think rationally.

He drew another deep breath. He finally had to keep saying so and they would be helpful.

There was a small lurch and his eyes flew open.

The car had turned off the highway onto a narrow dirt road.

Automatically, he said, "Where are we going?"

There was no answer.

The automobile lurching along for a considerable distance and then turned into a field, obscure and dark. In the glow of the car's headlights, Mortson made out a helicopter, its rotor turning slowly and its motor making only the slightest purr.

It was one of the new kind, its sound waves suppressed, its smooth surface absorbing, rather than reflecting, radio beams. Its popular name was the "blacktopper."

Mortson's heart sank. If they were using a helicopter, which was extremely expensive and quite rare, then he was being treated as an ordinary prey. He was being treated in a big fish.

He tried to say his life to himself helplessly.

The helicopter stopped and the headlights went out. There was still the faint purr and a low dim white light, hardly visible, marked the spot where the helicopter sat.

The large man at Mortson's right threw open the car door and, again with a grunt, lowered his head and faced his way out. His large hand reached in for Mortson.

Mortson tried to think away. "Where are you taking me?"

The man smiled his upper arm. "Come out. Enough talking."

The large man seized his right arm, half pulled out of the car. His shoulder hurt as it might be expected to do, considering that it had been nearly smacked out of its socket.

He bit his tongue the pain. It was the first time he had heard the large man speak. The words were in English, but the accent was thickly Russian.

Mortson felt cold. There were not Americans who had him.

10.

Mortson had entered the helicopter – though that was not an accurate description of what took place. To enter implies a voluntary action and he had been much more nearly pushed into the vehicle.

It had pulled in through the darkness as he sat between the same two men between whom he had in the car. It was almost as though nothing had changed, although the whirring of the rotors was distinctly more hypnotic than the purr of the automobile engine had been.

After an hour – or possibly less – they came out of the darkness of the air and drifted downward toward the darkness of the ocean. Mortson could tell that the ocean because he could smell it. He was vaguely aware of the fog of droplets in the air, and because he could make out, very dimly, the dark bulk of a ship – dark in dark.

How could the helicopter make its way out in the ocean and pinpoint a ship? – the right ship, he was sure. Even in his half-steps of despair, Mortson's mind could not help searching for solutions. Undoubtedly, the helicopter pilot had followed a identified prearranged radio beam. The beam served random but, given the fog, it could be found to have order and its source could be identified. Properly done, the prearrangement could not be penetrated even by quite an advanced computer.

Now was the ship more than a temporary stopping place. He was allowed to use the boat, given time a horizontal wall of broad and thick rope (which he found more welcome) – and was then released – with the communication handle had followed a identified prearranged radio beam. It was a two-way the command automatically, but except for the two men and, sitting in the seat, the two men who had been on either side of him in the car and in the helicopter, he was alone in the plane.

He remained motionless while they were on making off and then they spoke to about another procedure. Despite his dilemma, he responded not at all.

He had not had for the first time only twelve hours before, but he could be prepared from that first moment of meeting to the present moment in only twelve hours?

Russian set down in the sea next to his and in a low voice, "I am sorry, Dr. Mortson." She was speaking in Russian.

And, as though that were the signal, the sound of the airplane's engine dropped and he felt himself pressed against her waist as the plane moved smoothly upward.

Mortson stared at Natalya Brumson, trying to collect his thoughts. Surely, he felt a desire to say something to her in a more, impermissible way, but there was no chance of that.

His voice was a whim and even after he cleared his throat, all he could say was "I've been kidnapped."

"This could not be helped, Dr. Mortson. I regret this. I really do. I have no duty, you understand. I had to bring you back by permission if I could. Otherwise –" She let her last word hang.

"But you can't believe in the father. This is not the greatest country." He checked his lips to be certain attempt to refer his sense of indignation to the point where he could speak silently. "I am not a fanatic. I am not a fanatic. I will be advanced and American intelligence is perfectly aware that you wanted me to come to the Soviet Union. They will know I have been kidnapped – they may have it already – and your government will find itself in the middle of a kind of international incident it will not want to get off."

"No," said Brumson calmly, but her eyes glowed in the dark. "No, of course, you people have other feelings, but they have no objection. Dr. Mortson, the Soviet Union's intelligence operations are marked both by advanced technology and by a variety of clever study of American psychology. I have no doubt that American intelligence is just as advanced. It is this equality of expertise, which is shared by several of the other geographical units of the plane, that helps to keep us in cooperation. Each of us is fully convinced that no one else is at the head of a road of its own."

"A man knows what he's getting at," said Mortson. The plane was ascending through the night, quiet except toward the ocean waves.

"What concerns American intelligence most right now is our attempt at militarization."

"Attempt?" Mortson said with a note of cardiac amusement.

"Successful attempt – The Americans don't know that it is successful. They don't know if the militarization project may not be a mark behind which something altogether different is going on. They know we're doing something. To our they have a detailed map of the area in the Soviet Union where the experiments are proceeding – every building, every rock corner. They undoubtedly have agents who are doing their best to penetrate the project.

"Naturally, we're doing our best to counter all this. We are not ingenuities. We know a great deal about the American experiments in geophysics and it would be naive to take the attitude that we can probe, and that the Americans can't; that we can have our success, but they cannot."

Mortson withheld his eyes. Brumson's gaze was making him realize that his ordinary boldness was just that he was stupid. He had no reason to suppose there is anything of value in your morphological system. They must think we're following a false trail and will get nothing out of you, but they can have no objection to getting an American into the militarization project. If this American finds out it's all about, the information will prove valuable to them – Do you think they might mean in the father, Dr. Mortson?"

"I am sure how they would react," said Mortson carefully. "It was a matter of moment to me."

"The only one to Francis Brumson after you but me so suddenly – You see, we know even that. Would you care to tell me that he did not suggest that you play along with us and go to the Soviet Union in order to find out what you might do out?"

"I'm sure he would not play the spy."

"Doesn't he? Didn't he make that suggestion?"

Again Mortson ignored the question. He said, "And since you are convinced I am to be a spy, you will have me executed after I do whatever it is you want me to do, isn't that what happens to spies?"

"You've been viewing me very odd fashioned views, Dr. Mortson. In the first place, we will use to it that you don't find out anything important – anything at all, in the second place, you are not suitable a commodity to destroy. They are useful in training units for any agents of ours that may be in American hands – or in foreign hands generally. I believe that the United States takes such the same attitude."

"It's not all of our dear dear Dr. Mortson. I think you'll be back to work with us."

"What do you have in mind? Will you even see me still again? That's not! Keep me in solitary confinement? Do me to work, okay?"

Russian frowned and shook her head slowly in what seemed to be genuine shock. "Really, Doctor, what are those things you suggest? Are we back to the days when you were hardly practicing us to be an evil empire and inventing brave stories about us? I don't say that we might not be tempted to use strong measures if you intentionally refuse. Naturally I know sometimes, you know – But we would have to. I'm convinced of that."

"What concerns you?" Mortson asked slowly.

"You're a scientist. You're a brave man."

"I'm sure! Lady, lady, what do you know about me?"

"That you have a peculiar viewpoint. That you have upheld all this time. That you have watched your career go downhill. That you have overreacted nobody. And that, despite all this, you cling to your view and do not budge from what you are certain is right. Is not this the act of a brave man?"

Mortson smiled. "No. You're a kind of lawyer. Still, there are a thousand examples in the history of science who cling all their lives to some ridiculous view against logic, against evidence, against their own self-interest. Every day just another of them."

"In your case, you might be wrong, but you would still be brave. Do you know history is completely a matter of physical danger?"

"I know it is not. There are all kinds of history and physics," he said heavily. "Every one of those kinds of history is a mark of humanity or – at any rate, lady."

"Surely you do not consider yourself a coward?"

"Why not? In some ways, I believe myself by saying that I am sane."

"But most in your madhouse views concerning neurophysiology?"

"I would not be surprised."

"The only you think your views are correct?"

"Certainly, Dr. Brumson. That would be part of any madman's world it not."

Russian shook her head. "You are not a certain man. I've said that before. My conversation partner thinks you're right – or, if not right, at least a genius."

"Not her thing, certainly. Part of his madhouse, too."

"Shepherd's opinion is very special."

"To you, I'm sure – Look, lady, I am tired. I don't know what I'm saying. I'm not sure all this is mad. I hope it isn't. Let me just – just rest a little."

Russian sighed and a look of concern crossed her eyes. "Yes, of course, my poor friend. We wish you no harm. Please believe that."

Mortson let his head bow down on his chest. His eyes closed. Surely, he felt himself pushed gently to one side and a pillow placed under his head.

Time passed. A dimension time.

When he opened his eyes, he was still on the plane. There were no lights, but he knew without any doubt whatever that he was still on the plane.

He said, "Dr. Brumson?"

The signal instantly, "Yes, Dr. Mortson?"

"We're not being pursued?"

"Not at all. There are several of our own planes flying distant interference, but they have had nothing to do. Come, my friend, we want you and your government wants us to have you."

"And you still insist that you have militarization? That it is not madness? Or a hoax?"

"You will see for yourself. And you will see what a wonder it is, so that you will want to be part of it. You will demand to be part of it."

"And what will you be doing with it," asked Mortimer thoughtfully. "Something like to set an elaborate joke you are playing on me? Do you plan to make a weapon of it? Transport an army in a plane like that? Inflame each land with an invisible heat? This sort of thing?"

"How revealing!" She closed her mouth as though she were surprised open with disgust. "There was not enough fuel! Enough people! Enough resources?" Here we see not more important things to be with automation? Can't be for you are so misled and deceived that you see what is so obvious to me as research but? Imagine the study of it, first thing that it will make possible, the study of crystal chemistry and solid-state systems, the construction of ultra-miniaturized computers and devices of all sorts. Think further of what you might learn of physics if we can alter Planck's constant to suit ourselves. What might we not learn of cosmology?"

Mortimer struggled to sit upright. He was still weary, but there was an incipient dawn outside the plane windows and he could see Brennera very dimly.

He said, "Is that what you wish to do with it, that? 'Noble scientific endeavor'?"

"What would you recommend in wish if you had it? Try to achieve a certain military superiority and secure the land oil days?"

"No. Of course not."

"So that only you and noble and only was a worthy effort? Do you honestly believe that?—I may be, of course, that ultra-miniaturization has sufficiently succeeded, the Soviet Union may achieve a lead in the development of a space-oriented society. Think of transporting unimportant material from one world to another, of sending a million colonists in a spaceship that would have only two or three human beings of normal size. Space will acquire a Soviet coloring, a Soviet spirit—not because the Soviet people will dominate and be masters, but because Soviet thought will have won in the battle of ideas. And what is wrong with that?"

Mortimer shook his head in the darkness. "Then I certainly won't help you. Why should you expect me to? I wish I knew Soviet thought on the Universe. I prefer American thought and tradition."

"You think you said I don't know you for it. But we will persuade you. You will see."

"You want."

Brennera said, "My dear friend Albert— if I may call you that. I have said that we will be admitted for our program. Do you think you will be interested?— But let us have each discussion for another time."

She pointed at the plane windows at the gray overcast, which was just becoming visible.

"We are over the Mediterranean," she said, "and soon we will be over the Black Sea and then across the Volga to Makhalkidgal—Savlenkov, in English, oh?—and the sun will have risen when we land. That will be symbolic. A new day. New light. Symbolic you will be eager to help to establish this new day and I would not be surprised if you never wish to leave the Soviet Union again."

"Whose year ending me is easy?"

"We will fly you home freely if you ask us to—once you have helped us."

"I want help you."

"You will."

"And I demand now that I be answered."

"Now doesn't count," said Brennera cheerfully.

And they flew the last several hundred kilometers to Makhalkidgal.

## CHAPTER 5 — MALINKORAD

A plane is the most important piece on the chessboard — to a spy.

—Duchess Sainte

Francis Rodden was in his office early the next morning, which was Monday and the beginning of the week. That he had worked on Sunday was common enough not to surprise him. That he had slept at all during the night just completed did.

When he arrived, half an hour before the official start of the day, Jonathan Westbury was already there. The door did not surprise Rodden, either.

Westbury walked into Rodden's office without any ostension of the latter's arrival. He leaned against the wall, the pointer of his large hand behind his elbow, his left leg crossing his right, so that one of his left toes was digging into the carpet.

"You look nervous, Frank. Is what his superior thinking has you so disturbed?"

Rodden looked up at the other's check of coarse gray hair, which manifestly deprived him of any claim of his own to gloriolae of epigrams, and said, "I feel nervous, but I was hoping it didn't show." Rodden was very aware of having gone through the morning's think thoroughly and carefully and of having dressed with considerable judgment.

"It shows, though. Your face is the mirror of your soul. Some spots in the field you'd best muck."

Rodden said, "We're not all made for the field."

"I know. And we're not all made for desk work, either." Westbury ruffed his hairless nose as though he were anxious to file it down to normal size. "I take it you're worried about your scientist, what's his name?"

"His name is Albert Isaac Mortimer," said Rodden wearily. There was the president of the Department of our knowing Mortimer's name, as though everyone was anxious to emphasize that the project wasn't theirs.

"I've never met him. How does he get along with his other things, I wish I could see things from inside?"

"Yes, he's worried about his other work as well as his other things, I wish I could see things from inside."

"Who doesn't? Westbury on desk, "I wish I could see his one worrying. You're hounded like from the east, and I've been willing to let you do because you're a good man. I'm perfectly satisfied you've done it well because one thing about you is that you understand the Russians."

Rodden winked. "That's all that that. You've been watching too many twentieth-century movies. They're not all Russian, any more than all Anglo-Saxon. They're Soviets. If you want to understand them, try to understand how they think of themselves."

"Sure. Anything you say. Have you figured out what's so important about your scientist?"

"Nothing as far as I know. No one takes him seriously except the Soviets."

"Do you think the Soviets know something we don't?"

"A few things, I'm sure, but I haven't any notion of what they see in Mortimer. It's not the Soviets, either. It's one Soviet scientist — a theoretical physicist named Shapiro. It's possible that he's the guy who worked out the method of miniaturization — if the method has really been worked out at all. Scientists outside the Soviet Union are unimpressed about Shapiro. He's erratic and, to put it kindly, eccentric. The Soviets are all gung-ho on him, however, and all's gung-ho on Mortimer, though that may just be another sign of his eccentricity. That's the reason in Mortimer recently graduated from certainty to despairation."

"And how do you know that, Frank?"

"Only from rumors inside the Soviet Union."

"And?"

"And?"

"And how do you know that, Frank?"

"I don't know. Let's see what a woman."

"In any case," said Rodden, unwilling to fight the point, "there was a sudden multiplication of interest in Mortimer, on whom I'd been keeping tabs for a couple of years."

"The Shapiro, I suppose, had another business about Mortimer and persuaded the Russians. They would like him."

"Perhaps, but the funny thing is that Shapiro seems to have dropped out of the news recently."

"Or of force?"

"Or sign of that."

"Could he be, Frank? He's been leading the Soviets a line of garbage about miniaturization and they've caught on to it. I wouldn't want to be in his shoes. There may be the ground over days, but the Soviets have never learned to have a sense of humor about being made to look or feel foolish."

"It could be that he's gone underground because the miniaturization project is heating up. And that could also explain the sudden drop-out about Mortimer."

"What does he know about miniaturization?"

"Only that he's sure it's impossible."

"It makes no sense, does it?"

Rodden said cheerfully, "That's why we have to believe. There's always the hope it will shake up the pieces and that they may come together in a new way that will begin to make sense."

Westbury looked at his watch. "He should be there by now. Makhalkidgal. What a name! No more of any place back night anywhere in the world, is it? I guess he's done."

"Yes — and just the wrong piece to send, too, except he was the one that the Soviets wanted."

"Why is he wrong? Is he doubly idiotically?"

"I doubt that he has any ability. He's a man. All but might I've been thinking that it's all a mistake. He looks good and he's not very bright, except in an academic sense. I don't think he can possibly think on his feet — if he ever has. He's not going to be smart enough to find out anything. I suspect he'll be in one long pain from beginning to end and I've been thinking for hours now that we'll never see him again. They'll imprison him — or kill him — and I've seen him here."

"That's just outside of the night lines, Frank. No matter how dumb he is, he'll be able to tell whether he watched a demonstration of miniaturization, for instance, or what it was they did to him. He doesn't have to be a shrewd observer. He need only tell us what happened and we will do the necessary thinking."

"No, Jim, we may never see him again."

Westbury placed his hand on Rodden's shoulder. "Don't begin by assuming disaster. If I see that ability you be word. If something can be done, it will be done and I'm sure the Russians will be a case and we'll be in for it. It's more in a complex game and it doesn't work. It doesn't work. There are thousands other men on the march!"

Mortimer felt haggard. He had slept through much of Monday, hoping it would oil him of the worst of his jet lag. He had some gratification of the food that had been brought in toward evening, had perhaps even more gratification of a shower. Fresh clothing was given him that fit rather indifferently — but what of that? And he had spent Monday night alternately sleeping and reading.

And reading.

The man he thought of, the man criticized he was that Natalia Brennera was correct in her estimate that he was high only because the United States was satisfied to have him here. Rodden had argued too, but vaguely threatened him with further coarse invectives (how much deeper is trouble could he possibly go? if he did not go, why, then, should they object to his having been taken? They might object on principle or feel there was the danger of setting an undesirable precedent, but apparently their own eagerness to have him had overruled that.

What, then, would be the point in demanding to be taken to the nearest American consulate or in making wild claims of American nationality?

As a matter of fact, now that the deed had been done with American consent — surely with American connivance — it would be impossible for the United States to take action on his behalf or express any indignation whatsoever. Questions would inevitably arise as to how the Soviets had managed to spirit him off and there would be no answer other than: American complicity or American connivance. And surely the United States would not want to have the world come to other conclusions.

Of course, he could use this as his last best throw. It was a Russian had explained. The American government wanted information and he was to be asked permission to get it for them.

And if he was not? The answer would be to be fully enough to be fully get any information they didn't want him to know and if they thought that the information he managed to get for them couldn't avoid getting into one's hands, they would see to be fully enough to be fully gone.

The man he thought of, the man he felt that, dead or alive, he would never see the United States again and that the American intelligence community would bring in collective doubtless and write it all off as an unavoidable loss — nothing gained but, then again, nothing lost but.

Mortimer answered himself:— Albert Isaac Mortimer, Ph.D., assistant professor of metaphysics, originator of a theory of thought that remained unaccepted and all ignored. Failed husband, failed father, failed scientist, and now failed pawn. Nothing much to go.

In the depth of the night, in a hotel room in a town he didn't even know the location of, in a nation that for over a century had summed the natural enemy of his, however much a spirit of reluctant and suspicious cooperation might exist in the last few decades, Mortimer found himself weeping out of self-pity and out of sheer childish helplessness — out of a feeling of utter humiliation that no one should think him worth struggling for or even waiting upon ever.

And yet — and here a small quip of pride managed to surface — the Soviets had wanted him. They had gone to considerable trouble to get him. When persuasion had failed, they had had to resort to use force. They could possibly have been certain that the United States would eventually look the other way. They had risked an international incident, however slightly, to get him.

How long would this last? Even though they might be under the impression that his theory of thought was correct, Mortimer himself had advised that it remained a fact that all the evidence he had gathered was circumstantial and hardly indisputable — and that no one had been able to confirm his more useful findings. What would happen if the Soviets found that they, too, could not confirm them or if, on close consideration, they found it all for naught, was impossible, was unimportant to mankind?

Rodden had not thought that thought highly of Mortimer's reputation, but Brennera was anxious with him who thought he might do.

And if Brennera thought and acted wisely, what would the Soviets do? If their American spy team of no use to them, would they even hit him comprehensively in the United States (his next humiliation, in a way) or hide their own dirty thinking him, by imprisoning him indefinitely — or worse.

In fact, it had been some Soviet functionary, some specific person, who must have decided to kidnapping him and risk an incident and if the whole thing turned out, what would that functionary do to save his own neck — undoubtedly at the expense of Mortimer's?

By dawn on Tuesday, when Mortimer had been in the Soviet Union for a full day, he had convinced himself that every path into the future, every alternative route that could possibly be taken, would end in disaster for him. He watched the day break, but his spirit remained in deepest night.

11.

There was a strange knock at his door at 8 a.m. He opened a crack and the soldier on the other side pushed it open farther, as though to indicate who it was who controlled the door.

The soldier said, more kindly than necessary, "Maksim Brennera will be here in half an hour to take you to breakfast. Be ready."

While he dressed hurriedly and made use of an electric razor or rather electric shaver by American standards, he wondered why on Earth he had been faintly assembled at having the soldier speak of Maksim Brennera. The word's "Communist" had long passed out of use.

It took him half a minute to think to himself, where was the soldier who was to bring him to breakfast, in the matter of the first of his own names or which he should himself?— Except that that was what people did he know.

Brennera was not unknown here. She knicked more gently than the soldier had and when she entered said, "How do you feel, Dr. Mortimer?"

"I feel kidnapped," he said stiffly.

"Ands from that. Here you had enough sleep?"

"I may have a cut left. Frankly, mortuus, I'm in no mood to tell. Who do you want of me?"

"At the moment, nothing but to take you to breakfast. And please, Dr. Mortimer, do believe that I am so much under compulsion as you are. I assure you that I would rather, at this moment, be with my little Aleksandr. I have neglected him only in recent months and Nikolai is not pleased at my absence, either. But when he married me, he knew I had a career, so I keep telling him."

"Ah, but that would be — but I cannot, for so you breakfast. We could eat here, but you would feel imprisoned. Let us go on to the dining room and you will feel better."

"Well? There are seldom meals will be here, we won't stay?"

"Regulation, Dr. Mortimer. This is a high-security camp. They must guard you until someone is charged is considered that it is safe not to guard you — and I would be difficult to convince them of that. It is their job not to be convinced."

"I'll be," said Mortimer, shagging himself into the jacket they had given him, which was rather tight under the armpits.

"They will see no way themselves will us, however."

"But if I suddenly break away or even just move in an unauthorized direction, I assume they will shoot me dead."

"No, that would be bad for them. You are valuable alive, not dead. They would pursue you and, eventually, win you — But then, I'm sure you understand that you must do nothing that would be workably troublesome."

Mortimer frowned, making little effort to hide his anger. "When do I get my own baggage back? My own clothes?"

"No, no. The first outfit of clothes is to use."

The dining room, which they reached by an elevator and a rather long walk along a deserted corridor, was not very large. Combined a dozen tables, each one setting six, and it was not crowded.

Brennera and Mortimer were alone at their table and no one offered to join them. The two soldiers were at a table near the door and though they each ate enough for two, they fed Mortimer and their eyes never left him for more than a second or two.

There was no one. Food was simply brought to them and Mortimer found he had to guard over the quantity. There were two half-boiled eggs, boiled potatoes, cabbage soup, and carrot, along with thick slices of dark bread. They were given out in individual portions, but were placed in the center of the table when each person could help himself.

Perhaps, thought Mortimer, they bring enough food to feed an ant, since he sees me as the only man here, we should only consume a third. And after a while, he had to admit that with a full stomach he felt a little mollified. He said, "Maksim Brennera —"

"Why are you call me Natalia, Dr. Mortimer? We are very interested how and we will be colleagues for perhaps an extended period of time. The repeated 'Maksim' will give me a headache. My friends even call me Natalia. It could come to that."

the method, but Morison felt subtly independent to be irritated. He said, "Madame, when I feel friendly, I will certainly act friendly, but as a victim and an involuntary prisoner here, I prefer a certain formality."

Brunette smiled. She set off a stable chair, bent forward and bowed graciously. Then, overlooking, she said, "Let it be as you wish, but please open me the window." Let me have my professional title – and I don't mean 'academician.' You may rely on – But I interrupted you."

"Dr. Brunette," said Morison, more coldly than before. "You haven't told me what is your name of me. You mentioned administration, but you haven't and I know that that is impossible. I think that you speak of it merely to irritate – to irritate and to irritate anyone overlooking us. Let us stop that, then. Surely here we have no need to play games. Tell me who I may really have. After all, eventually you must, since you apparently expect me to be of some use to me and I can't be that if I am left completely ignorant of what it is that you want."

Brunette shook her head. "You are a hard man to convince, Dr. Morison. I have been useful with you from the start. The project is one of administration."

"I cannot believe that."

"Why, then, are you in the city of Manhattan?"

"Didn't you? Let's see?" said Morison, feeling a pleasure in hearing his own voice sound the pleasure in English. "Perhaps because it is a small city."

"As I have had periods, occasions to say, Dr. Morison, you are not a serious man. Still, you will not be in doubt long. There are a few people you should meet. One of them should, in fact, be here by now."

Morison said, "I realize that as one approaches us. Every once in a while, people at the other tables look at me, but then they look away if they catch my eye."

"They have been warned," said Brunette absently. "We will not waste your time with instructions and almost everyone here is an involuntary act for you are concerned. But come on me. When is he?" She rose. "Dr. Morison, excuse me. I must find him. I will not be gone long."

"Is it safe to leave me?" said Morison caustically.

"The soldier will remain. Dr. Morison. Please do not give them cause to react. Neither is our their time and they are trained to follow others without the painful anxiety of thinking, or they might easily hear you."

"Don't worry. I'll be careful."

She left, moving hurriedly out the door after exchanging a few words with the soldier at the guard.

Morison watched her go, then glanced over the dining room nervously. Having found nothing of interest, he bent his eyes upon his changed hands on the table and then stared at the still-visible portions of unaccommodated food before him.

"Are you all through, comrade?"

"Morison looked up sharply. He had decided 'comrade' was an archaism, hadn't he?"

"A woman was standing looking at him, with one hand on her hip in a negligent manner. She was a somewhat plump woman in a white uniform, slightly stained. Her hair was washed brown, as were her eyebrows, which arched distastefully.

"Who are you?" asked Morison, frowning.

"My name's Valeri Paloma. My business is housekeeping serving women, but I'm a former and member of the party. I brought you this food. Didn't you notice me? Aren't I beautiful your service, perhaps?"

Morison stared at her. "You're very nice. I have other things on my mind – but you had better have the food. Brunette also it appeared to be coming here, I think."

"Ah! And the Turk? He'll be back, too, I suppose?"

"The Turk?"

"You don't think we have Turkmen any longer in the Soviet Union? Think again, comrade. This Brunette, the granddaughter of pirates and a long line of pirates, considers herself quite a lady. I'm sure," she made a sound with her lips like a long "jig-sh-ch," followed with contempt and a touch of hatred.

Morison shrugged. "I do not know her very well."

"You are an American, aren't you?"

Morison said sharply, "Why do you say that?"

"Because of the way you speak Russian. With that accent, what would you be? The son of the Tsar Nicholas the Tenth?"

"What would you be, my good Russian?"

"It takes as though you looked if it were. You can hear an American kilometer away or even as he goes, 'A glass of vodka, please.' He is as loud as an Englishman, of course. But you can hear two kilometers away."

"Well, then, I'm an American."

"And you'll be going home someday?"

"I certainly hope so."

The serving woman nodded her head quickly, pulled out a rag, and wiped the table thoughtfully. "I would like to visit the United States someday."

Morison nodded. "Why not?"

"I want to go."

"Of course."

"And how does a simple, loyal serving woman go over?"

"I suppose you must apply for one."

"Apply? If I go to a bureaucracy and I say, 'I, Valeri Paloma, wish to visit the United States,' he will say, 'Why?'"

"And why do you want to go?"

"To see the country. The people. The wealth. I am curious how they live – that would not be reason enough."

"Say something else," said Morison. "Say you want to write a book about the United States as a known to Soviet youth."

"Do you have any more books?"

She shrugged and began to wipe the table again, steadily absorbed in her work.

Morison looked up. Brunette was standing here, her eyes hard and angry. She uttered a harsh monosyllable that Morison didn't recognize but that he could have sworn was an epithet and not a very polite one, either.

The serving woman flushed badly. Brunette made a small gesture with her hand and the woman turned and left.

Morison noticed that a man stood behind Brunette – short, thick necked, with narrowed eyes, large ears, and a broad-shouldered, muscular body. His hair was black, longer than used for a Russian, and I was in wild disarray, as though he checked at a great deal.

Brunette made no move to introduce him. She said, "Was that woman talking to you?"

"Yes," said Morison.

"She recognized you to be an American?"

"She said my accent made me obvious."

"And she said she wants to visit the United States?"

"Yes, she did."

"What did you say? Did you offer to help her go there?"

"I refused her to apply for a passport if she wanted to go."

"Nothing more?"

"Nothing more."

Brunette came with Brunette. "You must pay an attention to her. She's an ignorant and uneducated woman. – Let me introduce to you my friend, Adakly Yuzvatsarnach Dzhafar. This is Dr. Albert Isaac Morison, Adakly."

Dzhafar emerged a clumsy bear and said, "I have heard of you, Dr. Morison. Academician Dzhafar has spoken of you often."

Morison said coldly, "I am honored – but will see, Dr. Brunette, if the serving woman agrees or not, it should be better to have her replaced or transferred."

Dzhafar laughed heartily. "This is a chance, Comrade American – which I respect to what she called you..."

"No, actually."

"Then she would have sooner or later, but we not interrupted you. This woman, I suspect, may be an intelligence operator and is one of those who keeps a close eye on us."

"But why?"

"Because of an operation like this, she can be trusted entirely. When you Americans are engaged in breakthrough science, you are not kept under close observation."

"I am here," said Brunette coldly. "I have never been engaged in any breakthrough science that my government has been in the last hundred years – but what I am going to do is, why does that woman act as she does if she is an intelligence agent?"

"This is a guess, comrade. It is only an intelligent guess and so we who can say someone else has seen it."

Morison nodded. "Well, it's your money, not mine."

"As you say," said Dzhafar. He turned to Brunette. "Natsika, have you told him yet?"

"Please, Adakly."

"Now come, Natsika. As my father used to say, 'If you must pull a tooth, it is in addition kindness to pull it cleanly.' Let's will him."

"I must tell him we're involved in administration."

"I am all right," said Dzhafar. He sat down, pulled his chair over to that of Morison, and leaned toward him. Morison, with his personal space invaded, automatically withdrew. Dzhafar came closer still and said, "Comrade American, my friend Natsika is a woman, and she is convinced that you will want to be here to help us in the field of science. She says that we can persuade you to do gladly what she aims. She is wrong. You will not be persuaded any more than you were persuaded to come here voluntarily."

"Adakly, you are being harsh," suggested Brunette.

"No, Natsika, I am being kinder – which is sometimes the same thing. Dr. Morison – or Adakly, to avoid formality, which has" – he shuddered dramatically – "since you won't be persuaded and since we have no time, you will do what we want by force, as you was brought here by force."

Brunette said, "Adakly, you promised you wouldn't."

"I do not care. I have thought since I promised and I have decided that the American must know what he faces. It will be easier for us – and it will be easier for him, too."

Morison looked from one to another and his brow tightened so that it grew difficult to breathe. Whatever it was that planned for him, he knew he would be given no choice.

14.

Morison continued to be silent while Dzhafar, unconcerned, proceeded to eat his own breakfast with relish.

The dining room had doors of iron grating set for the serving women. Valeri Paloma, who carried off the remains and was wiping down the chairs and tables.

Dzhafar caught her eye, beckoned to her, and indicated that the table was to be cleared.

Morison said, "So I have no choice. No choice in what?"

"I told her, Natsika not even told you that?" replied Dzhafar.

"She told me on several occasions that I was to be involved in administration problems. But I know – and you know – that there is no administration problem except that of trying to turn an impossibility into fact – and I certainly can't help you in that. What I want to know is when you really have for me to do."

Dzhafar looked amazed. "Why do you think administration is impossible?"

"Because it is."

"And if I tell you that we have it?"

"Then I am done with you."

Dzhafar turned to Brunette, who drew a deep breath and exhaled.

Dzhafar rose. He said, "Come. We will take you to the Green."

Morison bit his lip in vexation. Small Brunette looked large. "I do not know what Brunette would you've want."

Brunette said, "We have an underground laboratory here. We call it the Green. It is one of our proudest works, we used in ordinary conversation. The Green is the site of our administration project."

15.

Outside an air jet roared them. Morison blinked, adjusting his eyes to the sunlight. He regarded the jet curiously. It lacked the elaboration of American models and seemed little more than a shell with small nose and with a complex engine in front. It would be absolutely useless in cold or wet weather and he wondered whether the Soviets had an enclosed version for these times. Perhaps this was just a summer machine.

Dzhafar took the controls and Brunette directed Morison into the seat behind Dzhafar, while she took the seat in the right side. She turned to the panel and said, "Go back to the hotel and wait for us then. We will take full responsibility for your journey. She handed them a printed slip of paper on which she scribbled her remarks, the date, and, after consulting her watch, the time.

When they entered Manhattan, Morison discovered that it was smaller than he, as well as noisier. There were more of Brunette – much more cities high – with a deadly monotony about them. There were had clearly been built for those who worked on the project – Brunette to say they worked with the help of an administration – and it had been built without undue expense. Each house had its own vegetable garden and the streets, although paved, had asphalted sidewalks about them.

The traffic clogged on the job of air pollution against the ground. There was a small cloud of dust, which was, for the most part, left behind as they progressed smoothly forward. Morison could not see it was not comfortable for the pedestrians they passed who, one and all, took careful notice as it approached.

Morison felt the discomfort in fact when they passed an air jet moving in the other direction and was inundated in the dust.

Brunette looked amazed. She coughed and said, "Do not be concerned. We will be vaccinated soon."

"Vaccinated?" asked Morison, coughing also.

"Yes. Not so much for us, for we can live with a little dust, but the Green must be vaccinated first."

"So must my lungs. Wouldn't it be better to have these air jets enclosed?"

"They prevent an explosion of more elaborate models and perhaps contacts they will attract. Meanwhile, this is a new town and it is built in the region, where the climate is said. The heat is advantages – and its disadvantages, too. The northern green vegetables, as you see, and they have some animals, too, but large-scale agriculture must wait until the community is larger and there are irrigation facilities. For now, it doesn't matter. It is administration that concerns us."

Morison shook his head. "You speak of administration to others and my thought has you might almost wish me into believing it."

"Believe it. You will have the demonstration Dzhafar arranged."

Dzhafar said from the seat at the controls, "And I had trouble doing so. Once again I had to speak to the Central Coordinating Committee – may what is left of that party have left out. As my father used to say, 'Ages have been invented because politicians were needed.' There is a possible in our two thousand kilometers away and make policy..."

The air jet glided smoothly forward to the rather sharp ending of the town and to the hotel. Two rocky mounds that suddenly loomed before them.

"The Green," said Brunette, "is located inside that. It gives us all the rooms we want, from us from the vapors of weather, and is impervious from aerial surveillance, even from spy satellites."

"Bye, see! Bye are cheap!" said Mortimer indignantly.

"It is merely illegal to call them up, see! Here," she huck Duchovne.

The air got heated as it made a turn, then landed in the shadow of a sticky cloth in the body of the man!

"All out," said Duchovne.

He turned forward, the other two following, and a door opened in the hallway. Mortimer didn't see how it was done. It didn't look like a door; rather it seemed an integral part of the rock wall. It opened just as the covers of the Perry Three had with the intimacy of the words "Open Sesame."

Duchovne stepped in one and gestured for Mortimer and Brewster to cross inside. Mortimer went up at the hallway ending suddenly into a rather darkly lit chamber in which the eyes took hold of various to make. It was so diverse, even had an elaborately detailed entrance.

Mortimer felt as though he'd stepped from the Earth onto the moon. He had never been in the moon, of course, but he was familiar, as was virtually everyone on Earth, with the appearance of the underground lake settlements. This had precisely that other-worldly air about it, windows, except of course, the gravity was Earth-normal.

#### CHAPTER 4 - GROTTO

Small can be beautiful. An eagle may at times go hungry, a pet canary, never.

-Duchovne Sauter

16.

In a large and well-lit workshop, Brewster and Duchovne began to remove their outer clothing. Mortimer, alarmed at the prospect, held back.

Brewster smiled. "You may keep your underclothing on, Dr. Mortimer. Not too worrying this, except your shoes, but that has, I promise, them is nothing to your pockets. Place your shoes at the base of the bin. By the time we leave, it will all be cleaned and ready for use."

Mortimer did as he was told, trying not to observe that Brewster had a most elegant figure, resembling which the second study museum. Amazing, he thought, what clothes will always when not designed to reveal.

They were washing now, with lavish application of soap – faces to the ears and arms to the elbows – then brushing scrupulously at their hair. Again Mortimer hesitated and Brewster, smiling, said, "The brushes are cleaned after each use, Dr. Mortimer. I don't know what you may have heard of us, but some of us understand hygiene."

Mortimer said, "All this just to get into the Grotto? Do you go through this every time?"

"Every time. That's why we are just briefly. And even when staying within, there are frequent ablutions. – You may find the next stop unpleasant, Dr. Mortimer. Close your eyes, take a deep breath, and hold it if you can. It will take about a minute."

Mortimer followed orders and found himself strangely buffeted by a swirling white. He staggered dazedly and collided with one of the bins. He held on tightly. Then, as suddenly as it started, it was over.

He opened his eyes. Duchovne and Brewster looked at though they had just on night sleep. He felt his own hair and knew he must look the same. He reached for his tooth.

"Dear ladies," said Brewster. "Their water will have to go through."

"What was that about?" said Mortimer. He found he had to clear his throat twice before he could speak.

"I mentioned that we'd have the dirt vacuumed away from us, but that's only the first stage of the cleaning process. – Through this door, please." She held a open for him.

Mortimer emerged into a narrow bar with its ceiling, the walls glowing phosphorescently. He tilted his eyebrows. "Very nice."

"Some energy," Duchovne said, "and that's very important. – Or are you referring to the technological advancement? Americans seem to do so on the Soviet Union expecting everything to be homemade lamps." He checked and added, "I admit we haven't caught up with you in every respect. Our brushes are very primitive compared with yours."

"You strike back without wanting to be struck," said Mortimer. "That is a rare sign of an uncorrupt conscience. If you were anxious to demonstrate advanced technology, I might have pointed out that it would be very simple to place the process going from Manhattan to the Grotto and to use closed air-jets. We would need less than."

Duchovne faced forward, but Brewster put in sharply. "Dr. Mortimer is quite right, Arkady. I don't like your feeling that it is not possible to be honest without being rude. If you cannot be both honest and polite, keep your tongue on your own side of your mouth."

Mortimer grinned angrily. "What have I said?" Of course the American doctor is right, but he knows anything he can do when decisions are made. Mortimer by whom who can smell his of money without wanting the compensation? As any old father would say: "The trouble with communism is that it can be very expensive!"

"That's not enough," said Brewster. "We could save a great deal of money, Dr. Mortimer, by installing a water meter and having air jets, but it is not always easy to persuade them who hold the purse strings. Surely you have the same trouble in America?"

She was watching eyes as she tilted and Mortimer followed her to a small chamber. As the door closed behind them, Duchovne held out a bracelet to Mortimer. "Let me tie this around your right wrist. When we hold up our arms, you hold up yours."

Mortimer felt his weight lighten momentarily as the chamber door dropped.

"An elevator," he said.

"Clever guess," said Duchovne. "Then he clipped a band to his mouth and said in a muffled tone, "That I cannot be rude."

They stepped unobtrusively and the elevator door opened.

"Identification?" came a peremptory voice.

Duchovne and Brewster raised their hands, at which Mortimer did as well. Under the purple light that suddenly suffused the elevator, the three bracelets glowed in patterns which were new. Mortimer noted, exactly alike.

They were advised down another corridor and into a room which was both warm and damp.

"We will have to have a final washdown, Dr. Mortimer," said Brewster. "We are accustomed to this and stepping is routine for us. It is easier – and reassuring – to do it as a group."

"If you can stand it," said Mortimer glacially, "I can."

"It is unimportant," said Duchovne. "None of us are strangers to the night."

Duchovne scuffed out of his underclothes, stepped over to a portion of the wall where a small red light was glowing, and placed his right thumb immediately above it. A narrow panel in the wall slid open and revealed three garments hanging flaccidly to one side. He placed his underclothes at the bottom.

He seemed oddly unshocked about being made to see chest and shoulders were dark with hair and there was a long-headed scar on his right forehead. Mortimer wondered idly how that might have come about.

Brewster did the same as Duchovne had done and said, "Pick a light that is on, Dr. Mortimer. It sets open to your identification and then, when you touch a light, it will close. After that it is open only to your identification, please remember your locker number and you won't have to press every locker in order to find your own."

Mortimer did as he was told.

Brewster said, "If you need to see the bathroom first, you can go there."

"It's all right," said Mortimer.

With that, the room was swept with a damp mist of water droplets.

"Close your eyes," called out Brewster, but it was unnecessary for her to say so. The initial sting of the water forced his eyes closed at once.

There was soap in the water or, at any rate, something that stung his eyes, stung him in his mouth, and irritated his nostrils.

"Lift your arms," called out Duchovne. "You wouldn't think, it comes from all directions."

Mortimer lifted his arms. He knew it came from all directions. It came from the floor, so he he could feel by the slightly uncomfortable pressure on his soles.

"That long does this last?" he asked.

"The long," said Duchovne, "but it is necessary."

Mortimer counted to himself. At the count of 38, it seemed to him that the "Mortimer" on his lips ceased. He opened his eyes. Yes, the other two were still there. He continued to count and when he reached 128, the water stopped and he was bathed in unaccountably hot and dry air.

He was panting by the time that stopped and he realized he had been holding his breath.

"What was all that for?" he said, looking away unconcernedly at the sight of Brewster's large but firm breasts and fading pink color in Duchovne's baby chest.

"We are dry," said Brewster. "Let's get dressed."

Mortimer was eager but was almost immediately disappointed by the nature of the white clothes in the locker. They consisted of a blouse and pair of light cotton, the pants held by a cord. There was also a light cap to cover the hair and light sandals. Through the cotton was opaque, it seemed to Mortimer that nothing or nothing was truly left to the imagination.

He said, "Is that all we wear?"

"Yes," said Brewster. "We work in a clean, quiet environment at cross temperature and, with absorbent clothes, we can't expect much in the way of fashion or expense. Indeed, having a certain understandable reluctance, we could easily work in the mud. But enough – come."

All out as first they stepped into what Mortimer recognized at once as the main body of the Grotto. It stretched away before him – between and beyond outer pillars to a distance he couldn't make out.

He could recognize none of the equipment. How could he? He was entirely a theoretician and when he worked in his own field, he used computerized devices that he had designed and modified himself. For a moment, he felt a rush of longing for his laboratory at the university, for his books, for the smell of the animal cages, even for the smell of distilled fies collages.

There were people everywhere in the Grotto. There were a dozen nearby and others farther off and the impression was of the mixture of a human art hall crowded with machinery, with humanity, with purpose.

No one paid any attention to the newcomers or to each other. They were about their work in silence, their steps muffled by their sandals.

Again Brewster seemed to read Mortimer's mind and when she spoke it was in a whisper. "We keep our counsel here. None of us knows more than it is good for him – or her – to know. There must be no leaks of significance."

"But surely they must communicate?"

"When they must, they will – naturally. It reduces the chance of catastrophe, but it is necessary."

"This kind of compartmentalization slows progress," said Mortimer.

"It's the price we pay for security," said Brewster, "so if no one talks to you, it is not a personal matter. They will have no reason to talk to you."

"They'll be curious about a stranger."

"I have seen it that they know you are an outside expert. That is all they need to know."

Mortimer frowned. "How can they expect an American to be an outside expert?"

"They don't know you're an American."

"My accent will give me away at once if it did to the serving women."

"But we will not do to anyone, except for those to whom I will introduce you."

"As you wish," said Mortimer indifferently.

He was still looking around. Since he was here, he might as well learn what he could, even if it should turn out to be trivial. When – if – he returned to the United States, he would surely be asked for every detail he had observed and he might as well have something to give them.

He said to Brewster's ear. "This must be an expensive place. What fraction of the national budget is expended here?"

"It's expensive," said Brewster, admitting nothing further, "and the government likes to limit the expense."

Duchovne said softly, "I had to work for an hour this morning to persuade them to allow a small additional experiment for your benefit – may the Committee catch the chickens."

Mortimer said, "The chicken is larger crows, even in birds."

"May it be returned for the Committee."

Brewster said, "Arkady, if these experimentally intensive experiments of yours get back to the Committee, it will do you no good."

"I'm not afraid of those pigs, Natscha."

"I am. What will happen to next year's budget if you infuriate them?"

Mortimer said, with sudden impetuosity, but speaking even more softly, "What concerns me is neither the Committee nor the budget, but the simple question of what it is I am doing here."

Duchovne said, "You are here to witness a civilization and to be given an explanation of why we need your help. Will that satisfy you, Comrade Ann – Comrade Obedient Expect?"

17.

Mortimer followed the other two to something that looked like a small old-fashioned train carriage on very narrow-gauge tracks.

Brewster placed her hand on a smooth panel and a door slid open smoothly and without noise. "Please get in, Dr. Mortimer."

Mortimer held back. "Where are we going?"

"To the administration chamber, of course."

"By railroad? How big is this place?"

"It is large, Doctor, but not so large. This is a matter of security. Only certain individuals can use this device and only by using it can one penetrate into the core of the Grotto."

"Are your own people so untrustworthy?"

"We live in a complex world, Dr. Mortimer. Our people are increasingly, but we do not wish to subject large numbers to temptations they need not face. And if someone persuades one of us to go – elsewhere, as we have persuaded you, it is safer if their knowledge is limited, you see. – Please get in."

Mortimer wanted to compare which with some difficulty. Duchovne followed him with equal results, saying, "Another example of uncorrupt character, why is not?" Because the Americans spend billions of dollars on a project and they just sit around if they saw a few hundred in odd places at the cost of making hundreds of people miserable."

Brewster got into the train car. Mortimer could not see her, she manipulated the controls or, at the moment, if there were controls to manipulate. It was probably controlled by a computer. The carriage began to move silently and Mortimer did the right hand and got the window.

There was a small window at eye level on either side, but not of clear glass. Mortimer could see a small section of the curves outside in a window, very poorly focused mirror. Apparently, the windows was not meant for vision, but were merely intended to reduce what might otherwise be an unacceptably light exposure to those with chromophytic tendencies.

It seemed to Mortimer that the individuals he could make out through the glass paid no attention to the moving carriage. Everyone here, he thought, it well-meaning. To show any interest in any procedure with which they were having directly to do must apparently be a sign of disinterest – or worse.

It seemed to Mortimer that they were approaching the wall of the covers and the carriage, with another small jerk, stopped. A section of the wall slid aside and the carriage, with yet another jerk, picked up speed and moved through the opening.

It gave dark almost at once and the dim light in the carriage's ceiling did little more than change night to dark.

They were in a narrow tunnel into which the carriage fit with apparently little room to spare, except on the left side where Mortimer, peering past Duchovne, thought he could make out another pair of rails. There must be at least two such carriages, he thought, with room to pass one another in the tunnel if both were in operation.

The tunnel was as dimly lit as the carriage and it was not straight. Either it had been carved through the hill in such a way as to follow lines of least resistance in order to save money or it was carved deliberately in some wise, artistic search for making things more secure by making them more complicated. The darkness inside and outside the carriage might save the same purpose.

"How long of this ride – call?" asked Mortimer.

Duchovne looked at him with the distance in inscrutable expressions. "You don't know how a railroad man, I see. I do not have an academic title, so why not call me Arkady? Everyone does here and why not? My father always said, 'What counts is the person, not the name.'"

Mortimer asked, "Why will. How long will this take, Arkady?"

"One long, Arkady," said Duchovne cheerfully – and Mortimer, having been led into five rooms informally, could not object to the name.

He surprised himself a little by finding he did not wish to object. Duchovne, even with his father's questions included, seemed to be uncomplacated, at least, and, under the circumstances, Mortimer welcomed a chance of refraining from the perpetual fencing match to which Brewster seemed to object him.

The carriage could not be moving at a speed faster than a leisurely walk, but there was a small hitch each time it took a curve on the track. Apparently, pure economics included bearing the curves unaided.

Then, with absolutely no warning, light flooded in and the cartage groined to a stop.

Morticia blinked as it stopped on. The room they were in was not as large as the one they had left and there was virtually nothing in it. There were only the tracks under the cartage that made a wide arc, and then had bowed toward the section of the wall from which they had emerged. He could see another oval cartage disappearing into the opening and the wall closing behind it. The cartage in which they had arrived made a slow circuit of the arc and came to rest near the wall.

Morticia looked around. There were many doors and the ceiling was comparatively low. Without distant evidence of the fact, he felt that he was in a three-dimensional checkerboard, with numerous small rooms on several levels.

Benetawa was waiting for him, wanting to observe his curiosity with a touch of disapproval. "Are you ready, Dr. Morticia?"

"Yes, Dr. Benetawa," said Morticia. "Since I don't know when I'm going or what I'm doing, I'm not ready. However, if you will lead the way, I will follow."

"That is perfectly understandable," said Benetawa. "This way, then. There is someone else you must meet."

They passed through one of the doors and into another small room. This one was very well lit and had its walls lined with thick cables.

In the room was a young woman who looked up when they came in, pushing aside something that seemed, from its appearance, to be some kind of technical apparatus. She was quite young in a pale and vulnerable way. Her figure had a cut short but with enough of a curve to it to keep her from looking too young. The scanty costume softened the view, which Morticia already knew to be unwholesome within the Gates, should he not be attractively dim and deeply thought, though without Benetawa's opinion. Her face was unmarred or perhaps enhanced (according to taste) by a tiny mark just under the left corner of her mouth. Her cheeks were high, her hands thin-fingered and graceful, and her expression did not appear as though she were much given to smiling.

Morticia smiled, however. For the first time since his kidnapping, it seemed to him that there might be a lighter side to this dismal situation in which he had been unceremonily plunged.

"Good day," he said. "It's a pleasant meeting you." He tried to give his Russian an educated sound and to get rid of what the serving woman had so easily detected as his American accent.

The young woman made no direct answer but, turning to Benetawa, said in a voice that was slightly hoarse, "Is this the American?"

"It is," said Benetawa. "This is Dr. Albert Bruce Morticia, professor of neurophysiology."

"A pleasure to meet you," said Morticia diplomatically.

Benetawa ignored the connection. "And this, Dr. Morticia, is Dr. Sophia Kallina, who is our electroacoustic expert."

"She scarcely looks old enough," said Morticia gallantly.

The young lady did not seem amused. She said, "I look, perhaps, younger than I am. I am thirty-one years old."

Morticia looked doubtful and Benetawa cut in quickly. "Come, we are ready to begin. Please check the circuit and set matters in motion. -- And quickly."

Kallina hurried out.

Doctors looked after her with a grin. "You glad she doesn't seem to like the American. It can save a hundred million potential competitors at least. Now if she also thinks the Russian and would come to realize that I am as Karelis-Franck as she is."

"You Karelis-Franck?" said Benetawa, leaved into a snarl. "Who would believe that, you madman?"

"She would," if she were in the proper mood."

"This would require an impossible result," Benetawa turned to Morticia. "Please do not take Sophia's behavior personally, Dr. Morticia. Many of our citizens go through an obligatory phase and feel to be very Soviet to dislike Americans. It is more than naïfety. It was, once, how we began to work together as a team, that Sophia will feel down her hooves."

"I understand completely. Things are similar in my country. At a matter of fact, at the moment, I'm not very fond of Soviet -- and unfortunately, I think, Red -- and feel unwell. -- I would make an exception for Dr. Kallina very easily."

Benetawa shook his head. "American like you or Russian like Arkady. At any rate, there is a peculiar machine way of thought that transcends national boundaries and cultural differences."

Morticia was amused. "So that I will be working with her -- or with anyone. I have grown tired of telling you, Dr. Benetawa, that I don't accept the existence of minimization and that I cannot and will not be assistance to you in any way."

Doctors laughed. "You know, we could almost believe Albert. He speaks so seriously."

Benetawa said, "Cheer up, Dr. Morticia. This is Kallina."

The rapid eye which Morticia, unthinkingly, observed for the first time. Dr. Kallina had rather attracted his attention till now and even after she had left he had been only glancing his eye on the door through which she had gone, waiting for her reappearance.

He turned to the edge of vision which Kallina was, apparently, a white cable of moderate size and great appearance, who was standing away a generous with the top concentration of her hand.

Morticia was aware of the slight trembling when she made use of the control cable, which he must have noticed, unconsciously, earlier and ignored.

He said, "Yes, I see her. A little."

"Not just a little, Doctor. She is a most unusual creature. Unique. She has made history in a far greater sense than has the coding of war and disaster that usually is thought of by your kind. If we exclude such purely incidental occasions as viruses, flu, and subclinical parasitic, Kallina is the first living creature that has been minimized. In fact, she has contributed enormously to our knowledge of the minimization of life forms and, in you can see, her expression here is so awfully affected but --"

Morticia said, "It is not worth it to be looking, but your statement that the cable has been minimized three times is not really evidence that this has indeed happened. It is not meant to cast doubt upon your integrity, but, it is case like this, I think you understand that nothing less than thorough the fact is sufficiently convincing."

"Certainly. And it is for that reason that -- at considerable expense -- Kallina will now be minimized a fourth time."

"If."

Sophia Kallina crossed back in and turned to Morticia. "Are you wanting to watch it in you being anything useful, or you?" And asked quietly.

"None so particular on me as all, Dr. Kallina. Nothing but the object I see, the single packet of which is empty. Even this identification number that has been given to me seems to be of plastic."

"It is merely that there is a strong electromagnetic field and sound would react."

Morticia said, "Any physiological effects?"

"None. Or at least none have yet been detected."

Morticia, who was waiting for them to give up their process of minimization and wondering how long they could carry on the third day was growing more conscious over the nature by the minute), said, with just a touch of malice, "Might not convergence lead to both defects should you ever get program, Dr. Kallina?"

Kallina finished. "I have a baby. She is perfectly normal."

"When you exposed during pregnancy?"

"Once."

Benetawa said, "To the inspection over, Dr. Morticia? May we begin?"

"You still maintain that you will minimize the rabbit?"

"Certainly."

"Then go ahead. I'll all eyes."

(How foolish of them, he thought cynically. They would soon be clearing, of course, that something had gone wrong, but where would they go from there? What was it all about?)

Benetawa said, "To begin with, Dr. Morticia, would you lift the cage?"

Morticia made no move to do so. He looked from one to the other of the three Soviet in complete and uncertainty.

Doctors said, "Go ahead. It is worth her, Albert. You will emerge over her hands, they and, after all, she has not even moved because she is afraid."

Morticia put his hands on either side of the cage and lifted. It weighed about ten kilograms, he judged. He grunted and said, "May I put it down now?"

"Of course," said Benetawa.

"Gently," said Kallina. "Do not disturb Kallina."

Morticia lowered it carefully. The rabbit, which had momentarily stopped feeding when the cage was lifted, sniffed the air curiously and returned unthinkingly to its unobstructed chewing.

Benetawa added and Sophia moved to one side of the room when a bank of control wires had hidden by the cables. She looked over her shoulder at the cage as though estimating its position, then walked over to move it slightly. She returned to the controls and closed a switch.

A whining sound made itself heard and the cage began to glimmer and shimmer as though something, all but invisible, had impinged itself between it and themselves. The chamber descended beneath the cage, separating it from the mass-up table on which it had been sitting.

Benetawa said, "The cage now reaches the minimization field. Check the display within the field will be unobscured."

Morticia stared and a little word of uncertainty began to coil within him. When they going to see some direct effects on him and make him think he had witnessed minimization? He said, "And how exactly did you produce that so-called minimization field?"

"That," said Benetawa, "is not meant to tell you. I think you understood what classified information is. Go ahead, Sophia."

The white lightened in pink and intensified somewhat. Morticia frowned in displeasure, but the others seemed to notice it mildly. In looking at them, he had taken his eyes off the cage. Now when he looked at it again, it seemed to have grown smaller.

He frowned and bent his head so as to see up one side of the cage with the vertical line of a cable on the opposite wall. He held his head steady, but the side of the cage shook away from the inflexible line. There was no mistake, the cage was distinctly smaller. He blinked his eyes for fraction.

Benetawa smiled matterly. "It is indeed shrinking, Dr. Morticia. Surely your eyes tell you so."

The white continued -- the thinking continued. The cage was perhaps half its original linear measurement.

Morticia said, with obvious lack of conviction, "There are such things as optical illusions."

Benetawa said that, "Right, my old professor for a moment."

The white lowered into white and the floor of the minimization field dimmed and faded. The cage sat on the table as before, a considerably smaller version than it had been. Inside was the rabbit still -- a smaller rabbit, but one that was proportional in every way to the original but had been, something so smaller leaves, with smaller pieces of corn distributed across the floor of the cage.

Benetawa said, "Is you honestly think that this is an optical illusion?"

Morticia was silent and Doctors said, "Come, Albert, accept the evidence of your senses. This experiment consumed considerable energy and, if you remain unconvinced, our dear administration will be annoyed with all of a few warning signals. What do you say, then?"

And Morticia, shaking his head in muffled confusion, said, "I don't know what to say."

Benetawa said, "Would you lift the cage again, Dr. Morticia?"

Again Morticia hesitated and Benetawa said, "The minimization field has not left it radioactive or anything like that. The touch of your unminimized hand will not affect it, nor will it cause of minimization affect you. You see?" And he placed her hand, firmly and gently, on top of the cage.

Morticia's hesitation was not just against that. Gently, he placed his hand on either side of the cage and lifted. He reclined in surprise, for a could not but touch over a kilogram in mass. The cage trembled in his grip and the minimized rabbit shrank, leaped to one corner of the cage and huddled there in agitation.

Morticia put the cage down and so made it as ready as he could remain, did so in its original position, but Kallina walked over and made a small adjustment.

Benetawa said, "What do you think, Dr. Morticia?"

"It weighs considerably less. Is there some way you pulled a switch?"

"Pulled a switch? You must explain the larger object with a smaller which you were watching, the smaller exactly like the larger in everything but size. Dr. Morticia, please."

Morticia cleared his throat and did it just as the great. He looked pleasantly even to himself.

Benetawa said, "Please notice, Dr. Morticia, that not only has the size been decreased, but the mass is proportionate. The very atoms of which the cage and its contents are composed have shrunk in size and mass. Fundamentally, Planck's constant has changed, so that nothing inside has changed relative to its own parts. To the table, ball, its food, and everything within the cage seems perfectly normal. The outside world has increased in size relative to the table, but, of course, it remains unaware of that."

"But the minimization field is gone. Why don't you lift the cage and its contents over to ordinary size?"

Benetawa said, "Dr. Morticia, in the first place, the minimization mass is constant. The fact of the great fundamental decreases the mass minimization process, a chamber going to stop the process, it takes every fifth energy is contained in it. And, secondly, the minimization field is not entirely gone. It is merely minimized and drawn inward so that it still keeps the atmosphere within the cage from diffusing outward and normal molecules outside from diffusing inward. It also allows the walls of the cage to be touched by unminimized hands. -- But we are not finished, Dr. Morticia. Shall we continue?"

Morticia, unthinkingly and easily, they drew experience, wondered for a moment if he had somehow been trapped into a kind of cage-obedience that would make this experience whatever he would be witnessing. He decided not, he said, "Yes, we will go to a great deal."

"Yes, we are, but hardly especially. If you repeat this in America, you will probably not be believed and nothing you say will give the slightest hint as to the cause of the minimization technique," Benetawa lifted her hand and Kallina again drew the switch.

The white returned and the cage began once again to shrink. It seemed to be going from now and Benetawa, as though leading Morticia's mind, said, "The further it shrinks, the less mass there is to remove and the more rapidly it shrinks further."

Morticia frowned himself eating, in a state of near-shock, at a cage that was a continuous action and still thinking.

But Benetawa raised her hand again and the white faded.

"Be careful, Dr. Morticia. It weighs only a few hundred milligrams now and it is a fragile object linked to anyone on our scale. Here. To do this."

He handed him a large egg-shaped glass. Morticia, without saying a word, took it and held it over the tiny cage. He might not have managed to make out what the moving object within it was if he had come upon it without prior knowledge, for his mind would not have accepted such an incredibly tiny rabbit.

He had some choice, however, made a small amount of mass with a mixture of confusion and fascination.

He laid up at Benetawa's said, "Is this really happening?"

"Do you still suspect an optical illusion or hypothesis or -- what else?"

"Doubt?"

"It is more doubt, Dr. Morticia, it would be a greater achievement than minimization. Look around you. Doesn't everything else look smaller? It would be an unusual thing indeed that would alter your sense perceptions of a single object in a large room of unchanged molecules. Come, Doctor, what you've witnessed is real!"

"Make it larger," said Morticia heartlessly.

Doctors laughed and nodded in a quick dash. "It'll weigh, the wind may well blow away Kallina, whenever Natalia and Sophia will both strike me with everything else in this room. If you wish to enlarge, you will have to wait."

Benetawa said, "The others are right. You see, Dr. Morticia, you have witnessed a scientific demonstration, not magic. If it was magic, I could snap my finger and the rabbit would be its normal self again in a normal cage -- and I believe you would have you were witnessing an optical illusion. However, it takes considerable energy to decrease Planck's constant a tiny fraction of its normal value, even over a relatively small volume of the Universe, which is why minimization is an expensive technique. To enlarge Planck's constant once again must result in the production of energy equal to that which had been consumed originally, for the law of conservation of energy holds even in the process of minimization. You cannot demonstrate that any faster than we can dispose of the heat produced, so that it takes considerable time to do so -- much more than to look to minimize."

"For while, Morticia was after the fact, the explanation, involving conservation of energy was convincing that the demonstration said. Chastened, would he not have to satisfaction about obeying the conservation of physics."

He said, "I believe to me, then, that your minimization process can scarcely be a practical device. At most it would only serve as a tool, perhaps, to hinder and expand general theory."

Benetawa said, "That's true that would be enough, but don't judge a technique by its limited phase. We can hope that we will have to be concerned those large energy changes, how to find methods of minimization and deminimization that will be more efficient. Even all the energy change here is just from electromagnetic fields into minimization and then into heat as deminimization? Might not deminimization be somehow brought into releasing energy as electromagnetic fields again. That would be easier to handle, perhaps."

"Here you required the second law of thermodynamics," asked Morticia with exaggerated politeness.

"Not at all. We don't expect an impossible 100 percent conversion. If we can convert 75 percent of the deminimization energy into an electromagnetic field -- or even only 75 percent -- that would be an improvement over the present situation. However, there is hope of a technique even more subtle and far more efficient and that is where you come in."

Morticia's eyes widened. "I'll have nothing about this. Why pick me out for your salvation? You would have done so well with a child out of kindergarten."

"Not so. We know where we are doing. Come, Dr. Morticia, you and I shall go to my office while Sophia and Arkady begin the tedious process of increasing Kallina. I will then show you that you have quite enough to help us make administration efficient and therefore a commercially practical venture. In fact, you will see quite clearly that you are the only person who can help us."

CHAPTER 4 -- COMEA

Life is pleasant Death is peaceful. It is the transition that is troublesome.

-- Dostoev's Sister

16

"This," said Nuala's Benetawa, "is my own portion of the Gates."



The set down in a rather heated structure that Mortson imagined she found perfectly comfortable, having realized it is her body over the years.

He set down in another chair, smaller and more ancient, with a seat covered not that was less comfortable than it looked. He glanced over the surroundings with a very cautious of his own office. There were ways that the computer and the laptop screen. (Mortson's was far more ornate than his own – the Soviet style scaled toward the ceiling and Mortson felt a momentary curiosity as to the screen and how far she could see as a virtual matter.)

There was also the same small round wooden table in the place of his own, the same distinct color they give due to the same occasional old-fashioned book in among the fixtures. Mortson tried to read the title of one but was too off her feet to see it. He had the impression it was an English language book, which would not have surprised him. He himself had several Russian classics in his library for an occasional reading of the language.

“You can lead,” said Mortson, trying not to sound certain.

“It is the one question in my life,” she said. “Not at all. And now, Dr. Mortson, I can help having realized that actually, in a few more hours with you. He is, of course, to correct even an individual individual and is to get to prison. But, sure, I ask again if, despite the conditions that brought you here, we might be pleasant and informed with each other?”

Mortson hesitated. “Well, call me Albert, then. But I will be mostly a conversationalist and not a sign of hypocrisy. I am not likely to discuss my kidnapping.”

Mortson checked her throat. “I’d like to persuade you to come to your own free will. If necessary, had not driven us so hard, we would have gone no further than that.”

“You are embarrassed by what you have done, then return me to the United States. Send me back now and I will be willing to forget the episode and will make no complaint to my government.”

Sheley Mortson’s head had had. “You know that cannot be done. Necessary still drives. You will see what I mean, shortly. But meanwhile, Albert, let us talk together, without assuming, in part of the global family of science that rises together to question of animality and other artificial distinctions among human beings – Surely by now you have accepted the reality of minimization?”

“I must accept it.” Mortson shook his head, almost angrily.

“And you see our problem?”

“Yes. It is the one question in my life?”

“Simply, however, if we have the energy over directly, despite if we can bring about minimization by plugging a wire into my will and not controlling so many things that we would if we were having a counter-idea?”

“Of course – but apparently it can be done. Or, at any rate, your people cannot do it. Why all the secrecy, then? Why not publish the findings on the state of the world? Secrecy seems to imply the possibility that the Soviet Union is planning to use minimization as a weapon of some kind, one powerful enough to make it possible for your country to find it feasible to break the mutual understanding that has led to peace and cooperation throughout the world for the last two generations.”

“That is not so. The Soviet Union is not trying to establish a world hegemony.”

“I hope not. Still, if the Soviet Union seeks victory, it is understandable that other states of the global alliance would begin to wonder if work complex.”

“The United States has secrets, has it not?”

“I don’t know. The American government does not confide in me. If it does have secrets – and actually I express it does – I disapprove of that, too. But tell me why there is any secrecy for secrets? What does it matter if you develop minimization, or, or, both of us in combination – or the Soviets, for that matter? We Americans tremble the airplane and the telephone, but you have both. We were the first to make the moon, but you enjoy your full share of the lunar softwares. You, on the other hand, were the first to crack the protein of human power and the first to build a solar power station in space and we participate fully in both.”

Mortson said, “All that you say to me. Nevertheless, for over a century, the world has taken it for granted that American technology is superior to Soviet technology. That is a constant return to us, and, if something is built and a thoroughly revolutionary minimization, it is clearly established that the Soviet Union had the way, then that would be most desirable for us.”

“And the global family of science that you appeal to? Is any member of that or any member of the Soviet empire?”

“I am both,” said Mortson with a touch of anger. “If it were my decision, then perhaps I would open our discussions to the world. However, I do not make the decision. My government does and I owe them loyalty. Nor do you American make it easy for me to be otherwise. Your constant bad American assumption of superiority drives us into a defensive posture.”

“The worst you could Soviet gain in their accomplishment is to have to call upon an American such as myself to help out?”

“Well, yes, does your work help, but it will at least give the United States a share in the achievement, which we shall acknowledge, Albert. You will be showing yourself a true American patriot and will improve your own reputation if you help us.”

Mortson smiled feebly. “A hello?”

Mortson shrugged. “It that is how you interpret it, I cannot stop you. But let us talk in a friendly manner and see what will come of it.”

“In that case, start by giving me some information. Now that I am forced to believe that minimization is possible, can you tell me the basic physics behind it? I am certain.”

“You know better than that, Albert. It would be dangerous for you to learn too much. How would we, but, be able to let you go back to your country? Besides, although I can operate the minimization system, even I don’t know the basics. If I did, our government could secretly risk having me visit the United States.”

“You mean to imply that you are psychologically not free to visit the United States again in kidnapping?”

“I am absolutely certain I would never succumb to you sufficiently.”

“And who are the people who do know the basics of minimization?”

“That also is not something that, in general, it is safe for you to know. However, I can tell the certain part about this in this matter. Pyotr Shapuro is one of them.”

“Olav Peter,” said Mortson, smiling. “Thankless I am surprised.”

“You shouldn’t be. I am sure you say ‘Olav’ only as one of your jokes, but it was he who first worked out the basic constants behind minimization. Of course,” she added thoughtfully, “it may very well be that that required a certain beauty – or, at any rate, a certain idiosyncrasy of thought. It is also Shapuro who first suggested a method of achieving minimization with a minimum expenditure of energy.”

“How? The conservation of minimization into an electromagnetic field?”

Mortson made a face. “I was merely giving you an example. Shapuro’s method is far more subtle.”

“Can he explain that?”

“Only roughly. Shapuro points out that the two great aspects of the unified theory of the Universe – the quantum aspect and the relativistic aspect – each depend on a constant that was a link. In quantum theory it is Planck’s constant, which is very tiny but not zero. In relativity, it is the speed of light, which is very great but not infinite. Planck’s constant was a lower limit to the size of energy transfer and the speed of light was an upper bound to the speed of information transmission. Shapuro maintains, furthermore, that the two are related. In other words, if Planck’s constant is decreased, the speed of light would increase. If Planck’s constant were reduced to zero, then the speed of light would be infinite.”

Mortson said at once, “In which case, the Universe would be Newtonian in its properties.”

Mortson nodded. “Yes. According to Shapuro, then, the reason for the enormous energy consumption of minimization is that the two limits are coupled. That Planck’s constant is decreased without the speed of light being increased. If the two were coupled, then energy would flow from the speed of light limit into the Planck’s constant limit during minimization and in the other direction during deminimization, so that the speed of light would go up as minimization proceeded and down again during deminimization. The efficiency should be nearly a hundred percent. Very little energy would then be required to minimize and re-expansion could take place very rapidly.”

Mortson said, “Does Shapuro know how minimization and deminimization can be carried through with the two limits coupled?”

“He said he did.”

“Did Peter ever? Does that mean he has changed his mind?”

“He rarely.”

“Then what has he done?”

Mortson hesitated. “Albert,” she said almost pleadingly, “as you go on fast. I want you to think. You know that minimization works. You know that it is possible, but not practical. You know that it would be a boon for humanity and I have assumed you that it is not meant for destructors or warlike use. Check we know that our national procedure is accepted, which we want for psychological reasons I have presented to you quite frankly. I am sure we will show minimization with all divisions of the globe.”

“Really, Nancy?” Would you and your nation visit the United States if the situation were reversed?”

“That?” said Mortson and sighed heavily. “It doesn’t come naturally to anyone. It is the weakness of humanity that we cannot read the secret into others. You must meet begin ourselves or the English record of cooperation we have enjoyed for so long will dwindle and we will be back to the nineteenth century with all its ills. Hence the United States feels so strongly that it is the strongest and most advanced nation, should it not be the first to risk the act of visiting?”

Mortson opened up her arms. “I can’t answer that. I am a private citizen and do not represent my nation.”

“As a private citizen you can help us, knowing that you will not be leaving your own country.”

“I can’t possibly have such a thing, since I only have your word for it and I don’t believe you represent your nation any more than I represent mine. But all this is irrelevant, Nancy. Even if I wanted to, how can I help you make minimization practical, when I know nothing about the subject?”

“By giving me what we will be back. That is, the Kalmus of the subject by the deminimization of Kalmus by that will give us together with me other what you need more. Then, after that, I will take you to our Shapuro.”

“You do not about that, Nancy. You will see just a whole again that it would be dangerous for us to meet anyone who really understood minimization. I might like to meet and the might come problems with my visits to the United States. Why, then, should I risk visiting Shapuro?”

Mortson said sadly, “Shapuro is an exception. I promise you that you will understand this when you see him – and you will also understand why we meet with you.”

“That,” said Mortson with all the conviction with which he had fully proclaimed the impossibility of minimization, “I will never understand.”

20

Lanch was in a will to rise, for steps of the walk, together with the entire ceiling, were electrified. Mortson had pointed it out with obvious pride and Mortson had refrained from making irrelevant comparisons with the United States, where electrification was widespread.

She did not express his amusement over the fact that despite the electrification there was a small but serious, shudder caused in the ceiling. He fully comprehended nothing in the light, but he undoubtedly made the one same less antipathetic.

As Mortson had predicted, with perfect accuracy, Mortson was introduced to a woman named “Olav Peter.” “Congratulations on the matter,” said Mortson.

Karav, who she clearly had been and who seemed to be to be unable to do so, had an air of almost girlish youth about himself. He shook hands with every courtesy and said, “I am most pleased to meet you,” in excellent English, spoken with a distinct American accent.

“You have been in the United States, I imagine,” said Mortson, also in English.

“I spent two years doing graduate work at Harvard University. It gave me a splendid opportunity to practice my English.”

“Nevertheless,” said Mortson in Russian. “Dr. Albert Mortson does very well in our language. Yet, and we meet give him a chance to practice it here in our country.”

“Of course,” said Karav in Russian.

Mortson had, indeed, almost forgotten that he was underground. There was no window in the room, but that was common enough in large office buildings even underground.

The work was not so dull after all. As the day advanced, she was able to concentrate and Natalia Kalmus seemed somewhat. She glanced occasionally at Mortson, but ignored Karav completely. Mortson watched everyone, but said very little. The usual custom to leave the two to Karav.

Karav said, “Dr. Mortson, I am all glad that I have returned to my work sufficiently.”

Mortson, who had been using the thick ceiling cup appreciatively, looked up with a quick smile. This was the first reference to his work, other than to their work, which she had served in the Soviet Union.

“Thank you for your interest, but Nancy and I really call me Albert and I will have difficulty in responding to different names. Let us all be as if we were three names but for the brief time that remains before I am returned to my own bed.”

“Hello us,” said Mortson in a low voice, “and it will indeed be a brief time.”

“No condition,” said Mortson in an equally low tone. “I wish to leave.”

Karav raised his voice, as though to force the conversation back into the track he had chosen. “But I must ask, Albert, that I have been unable to duplicate your observations.”

Mortson’s lips tightened. “I have had the complete from non-employees in the United States.”

“Now, why should this be? Academician Shapuro is greatly impressed by your theories and maintains that you are probably correct, at least in part.”

“Ah, but Shapuro will not say anything, will he?”

“No, he will, but he has an extraordinary fond for what is correct. I have never known him to say, ‘It seems to me that this must be right,’ is which whatever he is discussing himself proved to be right – or least in part. He says you are probably on the road to establishing an interesting theory mine.”

“A very strange! I don’t know what he means by that.”

“It’s what he said once in my hearing. Some private thought of his own, no doubt.” He cast a penetrating glance at Mortson, as though looking for an explanation of the remark.

Mortson simply shrugged it away. “What I have done,” he said, “is to establish a new kind of analysis of the cyphic waves originating in the brain and to have narrowed the search for a specific network within the brain devoted to creative thought.”

“There you may be a little over-optimistic. Albert. I have not satisfied myself that this network of yours really exists.”

“My results speak for me quite clearly.”

“By day and by night. It is somewhat hard for us to compare with information in the much more complex structure of the human brain.”

“Indeed I haven’t worked with the human brain anatomically, but I have analyzed human brain waves carefully, and these studies are at least consistent with my creative structure hypothesis.”

“This is what I haven’t been able to duplicate and what American researchers may not have been able to duplicate, either.”

Again Mortson shrugged. “Adequate brain wave analysis is, at best, a monumentally difficult thing: the quantum level and one who has given the years to the problem that I have.”

“Or possessing the particular computational equipment. You have designed your own program for the purpose of brain wave analysis, haven’t you?”

“Yes, I have.”

“And described it in the literature?”

“Certainly. I’d advanced results with an indicated program, they would be worth nothing. Who could analyze my results, lacking an equivalent computer program?”

“It is true that the International Geophysical Conference in Moscow last year, you are considerably more than one year ago and undoubtedly that the lack of confidence in your results has caused the program to be dropped. It is not the program of scientific activity.”

“Yes, that is false. I am sorry to hear. I have modified my program from time to time, but I have carefully described such modifications in Computer Technology. I have tried to publish the data in the American Journal of Neurophysiology, but they haven’t accepted my papers there last few years. If you refuse to check the matter in the A&N and don’t keep up with relevant Russian literature, that is not my fault.”

“And so –? Karav passed and forward in what seemed to be a neutral fashion. “I don’t know if I ought to be so because it may be something else that will anticipate us.”

“Oh ahead, there is here but four years, learned to accept all kinds of remarks both serious, and – worse of all – playing I am quite humiliated to us.” – This is good chicken Karav, by the way.”

“This is a great deal,” murmured Kalmus, almost under her breath. “Too history – but for the figures.”

“Hi,” said Dushov loudly. “But for the figures. That is an American remark that makes no sense in Russian. My father always said, ‘This body knows what it needs. This body knows what it needs. This body knows what it needs.’”

Kalmus closed her eyes in quite obvious distress. “A recipe for trouble,” she said.

Mortson noticed that Karav did not look at the young woman during this bit of dialogue. Not at all.

He said, “You were saying ‘Yes’? About something that might anticipate us, you thought?”

Karav said, “Well, then, it is true, Albert, at least that you actually gave your program to a colleague and that, using it in your computer, he was able to duplicate my results.”

“That’s true,” said Mortson. “At least my colleague, an able enough man, said he could not duplicate my results.”

“Do you suspect he was lying?”

“No. Not really. It’s just that the observations are so delicate that to attempt them while certain of failure may well lead, it seems to me, to failure.”

“Might one not argue the other way around, Albert, and say that your certainty of success leads you to imagine success?”

“Probably,” said Mortson. “That has been pointed out to me several times in the past. But I don’t think so.”

“One more remark,” said Karav. “This body has to repeat, but it seems to repeat. It is now that you have claimed that in your analysis of brain waves you have occasionally noted actual thought?”

Mortson did not look surprised. “There were some such claims in the past. I have said in a colloquial, more or less, that in concentrating on the brain wave analysis there are occasionally times when I seem to find thoughts leading my mind. I have a way of saying whether the thoughts are entirely mine or whether my own brain waves are consistent to those of the subject?”

“It is such a reasonable conclusion?”

“I suppose so. The brain waves produce tiny fluctuating electromagnetic fields.”

“All? It is this, I suppose, that made Academician Shapuro make that remark about a relay station. Brain waves are always producing fluctuating electromagnetic fields – with or without analysis. You do not measure –? I’m assuming it is what it is – the thoughts of someone in your process no matter how intensely he may be thinking. The resonance takes place only when you are bodily studying the brain waves with your programmed computer. It is probably also as a relay station, magnifying or intensifying the brain waves of the subject and projecting them into your mind.”

“There are no evidence for that except for an occasional fugitive impression. That’s not enough.”

"It might be. The human brain is far more complex than any other equivalent piece of matter we know of."

"What about dolphins?" said Duchesne, his mouth full.

"An exploded view," said Kewer at once. "They're intelligent, but their brains are devoted too entirely to the miniature of swimming to allow enough room for abstract thought on the human scale."

"There never needed dolphins," said Mortimer indifferently.

"Ignore the dolphins," said Kewer respectfully. "The concentration on the fact that your computers, properly programmed, may act as a relay station, passing thoughts from the mind of the subject you are studying to your own mind. If that is so, Albert, we need you and no other person in the world."

Mortimer said, frowning and pushing his chair away from the table, "There's a lot of talk about computers here, but they're no more than a chain of relay stations—by way of my computer—a chain I have never made and which, in fact I deny—what can their possibly have to do with automation?"

Bruno rose and looked at her watch. "It is time," he said. "Let us go and see Shapiro now."

Mortimer said, "What he says will make no difference to me."

"You will find," said Bruno with a hint of steel in his voice, "that he will say nothing—but will be entirely convincing just the same."

21.

Mortimer had kept his temper well so far. The Soviets were, after all, treating him as a guest and if he could overlook the small matter of his being carried off by force, he had little of which to complain.

But what were they getting at? One by one, Bruno and had introduced him to others—for Duchesne, then Kullback, then Kewer—for reasons he had not guessed. Over and over, Bruno and over, Bruno had hinted of his usefulness without actually saying what it might be. Now Kewer talked of it and was equally uncompromising.

And that was what was Shapiro. Clearly that was the catch. From this time Mortimer's chief ally, Bruno, was completely silent. Shapiro had seemed to be the whole matter. Like a chessboard, he was a man who had refused the automation process, he who seemed to detect a connection between Planck's constant and the speed of light, he who seemed to value Mortimer's metaphysical theories, and he who stands the record about the computer as relay stations that had apparently not left Kewer's conviction that Mortimer—and early Mortimer—could help them.

I remember the Mortimer, now, as never any Headquarters or engineers that Shapiro could present. If Mortimer insisted that he would not help them, what would they do when all the Headquarters and engineers had failed?

Crack down of force—or torture?

Brainwashing?

Mortimer quailed. He did not put his refusal on the basis that he would not. He would have preferred them that he could see. Surely that was a reasonable position on which to take his stand. What could neurophysiology—and a different, unaccepted bit of neurophysiology work at that—have to do with automation?

But why didn't they see that for themselves? Why did they act as though it was conceivable that a person like himself, who had never as much as thought of automation until some forty-eight hours before, could do something for them—then, the only experts in the field—that they could not do for themselves?

It was a rather lengthy walk along corridors and, lost in his own unaccountable thoughts, Mortimer did not notice that they were fewer in number than he had thought.

He said to Bruno suddenly, "Where are the others?"

He said, "They have work to do. We do not ask them to do what we want, you know."

Mortimer shook his head. "Come," they were not. None of them had been in automation. Always close-lipped. A long-standing Soviet habit, perhaps—or something that was ground into them through their work on a secret project in which even the scientist denied not step outside the narrow limits of their immediate work.

Were they coming to him as a makeshift American generalist? Nothing he had ever done, surely, would give anyone that impression. As a matter of fact, he was himself a narrow specialist, knowing virtually nothing outside of neurophysiology. —This was a surprising domain of modern science, he thought.

They had seemed another obvious, something he had scarcely bothered to notice, and they were now no another level. He looked around him and recognized characteristics that seemed to transcend national differences.

"Are we in medical wing?" he asked.

"A hospital," said Bruno. "The Gerts is a self-contained scientific complex."

"And why are we here?" "As I—" He stopped suddenly, as the horror of the thought came into him. We have to be changed up by some other medical means, made more computer?

Bruno had walked on for a moment, then stopped, looked back, and came toward him, saying something. "Now what is happening?"

Mortimer felt absurd. Was he to be kept separate from the experiment? "Nothing is happening," he murmured. "I am simply tired of walking endlessly."

"What makes you think we are walking endlessly? I told we were going to see Pyotr Shapiro. We are walking toward his room.—Come, we have only a few steps left."

They turned a corner and Bruno pushed him to a window.

He stepped to the side and looked in. It was a room and there were a number of people present. There were four beds, but only one was occupied and it was surrounded by equipment that he did not recognize. There were tubes and glassware extending toward the bed and Mortimer could do a few facemasks, who might be doctors, nurses, or medical technicians.

Bruno said, "There is Academician Shapiro."

"Which one?" said Mortimer, his eyes wandering from one of the figures to the other and finding no one who seemed similar in appearance to the scientist he recalled having met once.

"In the bed."

"In the bed? It's ill, dead?"

"Wrong, dead. He is in a coma. He has been in a coma for over a month and we strongly suspect it is an irreversible state."

"We're really sorry to hear that. I presume that is why you referred to him in the past tense before lunch."

"Yes, the Shapiro we knew in the past tense, unless—"

"Unless he recovers? But you just said the coma is probably irreversible."

"That's true. But neither is he brain-dead. The brain is damaged certainly, or it wouldn't be in a coma, but it is not dead and Kewer, who has followed your work closely, thinks that some of his thinking network is still intact."

"Ah," said Mortimer, the light breaking. "I begin to understand. Why didn't you explain this to begin with? If you had wanted to consult me on such a matter and had explained, I might have been willing to come here with you voluntarily. Yet, on the other hand, if I was to study his cerebral functioning and tell you, 'Yes, Your Honor is right, these what good will that do you?'"

"That will do no good at all. You don't yet begin to understand, my son, and I can't explain exactly what it is I want until you understand the problem. Do you quite realize what is buried there in the still-living portion of Shapiro's brain?"

"His thought, perhaps?"

"Specifically, his thoughts of the interconnection of Planck's constant and the speed of light. His thoughts of a method for making automation, automation rapid, low-energy, and practical. With those thoughts, you have humanity, thought will revolutionize science and technology—and society—more than anything since the invention of the atomist. Perhaps more than anything since the discovery of fire. Who can say?"

"Are you now trying not being mindboggling?"

"No, Albert. Does it occur to you that if automation can be tied in with vast acceleration of the speed of light, a spaceship, if sufficiently automated, could be sent to anywhere in the Universe at many times the ordinary speed of light. We will need faster than light travel. Light will travel fast enough for us. And we won't need antiquity, for a automated ship will have to aim none."

"I can't believe all that."

"You couldn't believe automatization."

"I don't mean I can't believe the results of automatization. I mean I can't believe that the relation of the problem is permanently locked in the brain of one man. Others will eventually think of it. If not now, then not year or two decades."

"No one will when you are not concerned, Albert. This world as we see going to have a few decades or even a few years. The Gerts which you see all about you has cost the Soviet Union as much as a million war. Each time we automate anything—even if it's just Kullback—we consume enough energy to run a stable town for a whole day. Already, our government leaders lack the courage and many scientists, who do not understand the importance of automatization or who are simply selfish, complain that all of Soviet science is being wasted for the sake of the Gerts. If we do not come up with a device to save an energy—no energy saving, too—this place will be shut down."

"Yes," said Bruno, "but perhaps the scientists who will share the key of low-energy automatization will be an American or a Frenchman or a Nigerian or a Uruguayan. It is a Soviet scientist who has it now and we don't want to lose the code."

Mortimer said, "You forget the global fellowship of science. Don't cut it up into segments."

"You would speak differently if it was an American who was on the edge of the discovery and you were asked to do something that might possibly give the credit to one of us. Do you remember the history of the American reaction when the Soviet Union was the first to put an artificial satellite into orbit?"

"Surely we have advanced since then."

"Yes, we have advanced a kilometer, but we have not advanced ten kilometers. The world as you see entirely global in its thinking. There remains national pride to a considerable extent."

"So much the worse for the world. Still, if we are not global and if national pride is something we are expected to retain, then I should have said. As an American, why should I be disturbed over a Soviet scientist being credit for the discovery?"

"I ask you to understand the importance of this to us. I ask you to get yourself to see what a moment and if you can give up indignation or do, when we can find no one that Shapiro knows."

Mortimer said, "All right, Stalin. I understand I don't agree, but I understand. Now—don't carefully, please—now that I understand, what is it you want of me?"

"We want you," said Bruno suddenly, "to help us find out what Shapiro's thoughts—his will bring and existing thoughts—are."

"How? There's nothing in any theory that makes this possible. Even granting that thinking networks exist, and that brain waves can be minutely analyzed, and even granting that I occasionally get a mental image, possibly imaginary, possibly an artifact—these remain no way in which the brain waves can be studied to the extent of interpreting them in terms of actual thoughts."

"No even if you could analyze, to detect the brain waves of a single nerve cell that was part of a thinking network?"

"I couldn't deal with a single nerve cell in anything approaching the necessary kind of detail."

"You forget. You can be miniaturized and be inside that single nerve cell."

And Mortimer stared at her in sick horror. She had mentioned something like this at their first meeting, but he had put it aside as nonsense—hoaxing, but nonsense, since automatization, he was certain, was impossible. But the automatization was not impossible and now the horror was undiluted and terrifying.

22.

Mortimer did not then, we would be at any time afterward, clearly recall the events that immediately followed. It was not a case of everything going black as much as everything being blotted.

He was still memory was that of lying in a couch in a small office with Bruno and looking down at him and with the other two—Duchesne, Kullback, and Kewer—behind her. These three came into focus more clearly.

He tried to struggle into a sitting position, but Kewer moved toward him and placed his hand on Mortimer's shoulder. "Please, Albert, stay awhile. Gather your strength."

Mortimer looked from one to another in confusion. He had been upset, but he did not clearly remember what he had been upset about.

"What happened? How—how did I get here?" He looked around the room again. No, he hadn't been here. He had been looking through a window at a scene in a hospital bed.

"You really," said Bruno, "are never quite yourself for a while. You seemed to undergo a shock."

How Mortimer remembered. Again he said he himself was not certain, since everything came to him. He recalled Kewer's restraining hand out of the way. He was sitting up now, with his hands on the couch on either side of him.

"I remember now. You wanted me to be miniaturized. What happened to me when you said that?"

"You simply refused and—cramped. I had you placed on a stretcher and brought here. It didn't seem to anyone that you needed medication, merely a rest and advice."

"No medication?" Mortimer looked vaguely at his arms, as though he expected to see needle marks through the sleeve of his cotton blouse.

"None, I assure you."

"Didn't say anything before I collapsed?"

"No, I don't."

"That is not advice you were. You are going to be miniaturized. Is that clear?"

"Is it clear that you are not?"

Duchesne sat down on the couch next to Mortimer. He had a full bottle in one hand and an empty glass in the other.

"You need this," he said and half-filled the glass.

"What is it?" asked Mortimer, lifting his arms to ward it off.

"Vodka," said Duchesne. "It's not medicinal, it's nourishing."

"I don't drink."

"There is a time for everything, my dear Albert. This is a time for a warming bit of vodka, even for those who do not drink."

"I don't drink out of politeness. I can drink. I can drink but I should drink only if I can see evidence of that. I will drink within five minutes. Completely drunk."

Duchesne's eyebrows went up. "So? What other purpose is there in drinking? Come, if you are badly enough you find yourselves. A very small amount will warm you, stimulate your peripheral circulation, clear your head, concentrate your thoughts. It will even give you courage."

Kullback's voice resembled a half-whisper, but was distinctly audible. "Do not expect miracles of a little alcohol."

Mortimer's head tilted sharply and he looked at her. She did not seem so giddy as he had thought her on their first meeting. There was a hard and unforgiving look about her.

Mortimer said, "I have never experienced myself as a congenial man. I have never presented myself as anything that would be help to you. I have maintained from the beginning that I could not do anything for you. That I am here at all is the mark of competition, as you all know. What do I owe you? What do I owe any of you?"

Bruno said, "When you are drinking. Take a sip of the vodka. You will not be drunk on it and we won't force more on you."

Albert sat up again, his head heavy in a small way. Mortimer, after a moment's hesitation, took the glass from Duchesne's hand and swallowed a bit of the liquor reluctantly. He felt a burning sensation in his throat, which passed. The taste was rather curious than offensive. He took a larger sip and handed the glass back. Duchesne took it and placed it on the table on a small table on his side of the couch.

Duchesne reached for the glass, but Bruno said, "No. That's enough, Albert. The liquor is getting stronger. We do not want you to become drunk. Here, a little more so you know how to do."

Mortimer could feel the warmth which while him, as it always had when, on rare occasions of social banquets, he had had some theory (or two) of my mental. He decided he might handle any argument the crowd produced.

"All right," he said, "say so," and he lay back in a firm and enjoyable line.

"I don't say, Albert, you owe us anything and I'm sorry that all this came as such a shock to you. We are aware that you are not a reckless man of action and we tried to break it to you as gently as possible. That being said, in fact, that you would see what was essential on your own, without any necessity of explanation."

"You were wrong," said Mortimer. "At no time would such a mad thing have occurred to me."

"You see our necessity, don't you?"

"You see our necessity, don't you?"

"You might not see it in the case of global cities."

"Global cities are an abstraction that I know, but I do not think it was the exercise my highly conscious body for an abstraction that doesn't seem to exist. The whole point of my necessity to be in Soviet science that it is due to my global cities."

"This consider American science," said Bruno. "If you help us, the will become an essential part of the victory. We will become a great Soviet American victory."

"Will my part be published?" demanded Mortimer. "Or will the thing be announced as purely Soviet?"

Bruno said, "You have my word."

"You cannot control the Soviet Government."



"Never enough," said Morrison calmly. "You were telling me about Yuri."

"What is there to tell? Yuri is not a man. It's from women to women, but I have heard—" He stared blankly at Morrison. "You know how one hour—one silent another who tells another and who is to know whether who comes out of the tunnel is anything like what went in. But I have heard that when Yuri was in the United States, being educated. Women-only, he met an American girl, he met La Belle American, they say, and one went over into Soviet Sophia. Perhaps that was it. Perhaps he came back different and perhaps he still dreams of his last love across the sea."

"And is that Sophia in ex disposed to Americans?"

Decker stared at the glass of vodka and tipped a little of it. "Our Sophia," he said. "No never liked American. This is not surprising. He trained toward Morrison, his breath heavy with food and drink. "Americans are not a lovable people—if I say so without offense."

"You are offhand," said Morrison evenly. He watched Decker's head sink slowly and come on and on as he kept going. His thought went unspoken.

Morrison watched her smile's corners as he then reached her back for the serving woman.

She came at once, her simple light-colored. She stared at the nervous Decker with rather more than half a wince. "Well, do you wish me to get a large glass of vodka and see them to carry our prices here to be had?"

"No just yet, Miss Paloma. As you know, I'm an American."

"As everyone knows. You have had to say those words and the others and others in this room and to each other and say, "An American."

Morrison smiled. He had always been proud of the party of his Russian and this was the second time the woman had seemed at it.

"Nevertheless," he said. "There have been enough here by force, against my will. I believe it was done without the knowledge of the Soviet Government, which would have disapproved of and prevented the action if they had known. The people here—Dr. Brumov, whom you have referred to as the Tutor—have acted on their own. The Soviet Government should be told of this and they will then act equitably to return me to the United States and prevent an international incident that nobody would want. Don't you agree?"

The waitress put her face to her and said: "And of what matter is to anyone other here or in the United States as to whether I agree or not? Am I a diplomat? Am I the international agent of Your Pater the Great Doctor?"

"You can be," said Morrison, calmly answering. "But the government does not do it."

"What is to be done, American? That I have had to say here, and to the President, and all will be well for you? What have I to do with the government? What's more—and to all nations, Comrade Foreigner—I do not wish you to talk me to the fashion again. Many of you, loyal citizens has been hopelessly compromised by foreign mathematics. I will, of course, report this to Comrade Brumov at once and she will see to it that you do not speak me in this fashion again."

She left in a huff and with a word and Morrison stared after her dismay. And then his head tilted to surprise and astonishment when he heard Decker's voice saying, "Alban, Alban, are you satisfied, my child?"

Decker's head was raised from his following arm and, though his eyes were a little bloodshot, his voice seemed to have lost its bitterness. He said, "I wondered why you were so anxious to fill my glass, so I grabbed a little and let myself collapse. It was all very interesting."

"You are not drunk!" said Morrison, giggling at the other's words.

"I have been more sober in my life, certainly," said Decker. "But I am not nervous, nor have I been. You see, didn't you have an exaggerated idea of the speed with which all accomplished Soviet citizens will fall unconscious with drink—which shows the danger of being a non-drinker?"

Morrison still found himself in a state of disbelief over the failure of the waitress to cooperate. "You see she was intelligently operative."

"Did I? Decker dragged. "I think I did surprised him, but perhaps an other thing. Brumov, she knows not here yet, my little Alban, and was probably under no illusion that I was drunk. It'd be for you to talk to a knock that she has—my loss in meeting with both. What would you have her say in such circumstances?"

"In that case," said Morrison, still in awe. "She will have heard what I said and will probably inform your government of the case of affairs. Your government, if proved an international incident, will then order me to file, probably with an apology, and I will have to see what the United States of your own accord."

Decker laughed. "You were your time, my dear tempter. You have remained a student of your government. Consequently, they may be willing to let you go on working, but regardless of possible consequences, not before you have been reintegrated and—"

"I don't believe anyone in authority knows you kidnapped me. They cannot operate since they find out."

"Maybe they don't know and maybe they will find their work when they find out—but what can they do? The government has invested too much money in the project to let you go before you have had a chance to make it practical, or that it might all be lost. They don't want it to be lost. What? Doesn't that seem logical to you?"

"No, because I won't help you." Morrison felt his face harden once again. "I will not allow myself to be intimidated."

"That will go up to Natalia. She will be furious with you, you know, and will have my job. You realize that you calmly attempted to have everyone in the project thrown into the government's bad graces, have some of us arrested—or worse. And this, after we had treated you with perfect consideration and kindness."

"You kidnapped me."

"But that was done with perfect consideration and kindness. Were you hurt in any way? Mistrust? You have tried to harm us. Natalia will enjoy you for that."

"Don't forget Natalia's anger!"

Decker raised his eyes up to the ceiling. "How little you know our Natalia. She doesn't do much things, I might, but she wouldn't, she's so much a gentle chicken heart as you are, my wicked Alban—in her own way, but she will force you to go along with us."

"What? How?"

"I don't know. I can never quite make out how she does it. But the managers. You will see." His smile developed a wolfish edge. And when Morrison saw that smile, he finally realized there was no escape.

26.

The next morning Morrison and Decker returned to the Green. They entered a large windowless celling for office, which Morrison had not seen before. It was clearly not Brumov's and it was very impressive, as anything with an ornate room of space is bound to be.

Brumov sat behind a heavy desk and on the wall behind her was a portrait of the Soviet Executive, looking grim. In the corner to her left was a water cooler and on the one to the right a microfilm cabinet. On the desk was a small word processor. That was all. The room was empty otherwise.

Decker said, "This is strange to me, you see. The microfilm cabinet and the desk, the picture on the wall, the water cooler and the one to the right a microfilm cabinet. On the desk was a small word processor. That was all. The room was empty otherwise."

"I have received the report," said Brumov quietly. "Please leave, Albany. I wish to be alone with Professor Albert Morrison."

"Is that safe, Natalia?"

"I think so. Albert is not, in my opinion, a man of violence.—Will I be safe, Alban?"

Morrison spoke for virtually the first time that day. "Let's not play games," he said. "What is it you want, Natalia?"

Brumov gestured with her hand imperceptibly and Decker left. When the door closed behind her, she said, "Why have you tried to negotiate with someone you thought was an intelligence agent working on me? Have we treated you so badly?"

"Yes," said Morrison angrily. "You have. Why can't any of you get through your head that hijacking me to the Soviet Union is not something I'm likely to appreciate? Why do you expect gratitude from me? Because you are afraid to head in the present? You probably would have—if my last, unbroken, hadn't been valuable to you."

"You are bad, unbroken, hadn't been valuable to us, we would have left you in peace. You know that and you know the necessity that drove us. We have explained it carefully. If you were simply trying to get away, I would understand, but your method of attempting escape while having developed our project and perhaps as a well—if you had succeeded. You helped our government would disapprove of our actions and be appalled. If that were so, what do you think would have happened to us?"

Brumov's eye lightened at her last remark. "I could think of no other way of escaping. You speak of driving me away. My wish drove me away."

"Alban, we have tried every reasonable way to persuade you to help us. There has been force, no threat of force, an embellishment of any kind after you had advised them, but that's not—"

"I suppose so."

"You suppose so? Is it true. But is he all failed. You will refuse to help us, I think."

"I will refuse and I shall continue to refuse."

"Then I am forced, very much against my will, to take the next step."

A bit of fear entered within Morrison and he felt his heart skip a beat, but he tried desperately to sound defiant. "Which is?"

"You want to get home, to go back to America. Very well, if all our preparations fail, you shall return."

"As you wish?"

"As you request."

"You're laughing, but I accept. I take you at your word. When will I leave?"

"The very moment we settle upon the way we're going to talk."

"When's the problem? Tell me that."

"That would be a little difficult. Alban. It would embarrass my government, which would have to deny having given permission for my action. I would be in serious trouble. It would be unreasonable for you to expect me to do that."

"What can you say instead?"

"That you can leave at any one moment in order to help us with our projects."

Morrison shook his head stubbornly. "That would be a least as difficult for me as submitting the kidnapping would be for you. There may be the good news days, but old habits die hard and the American public would be more than a little suspicious of an American scientist who went to the Soviet Union to help them with their projects. Old suspicions remain and I have my reputation to think of."

"You have to do this, admitted Brumov. "But from my point of view, I would rather you had the difficulty than that I did."

"But I won't allow it. Do you suppose I will hesitate to tell the truth to full detail?"

"But, Alban," said Brumov quietly. "Do you suppose anyone would believe you?"

"Of course. The American government knows that you asked me to come to the Soviet Union and that I refused. I would have had to be kidnapped to get here."

"I'm afraid your American government won't want to admit that, Alban. Would they want to say that Soviet agents had placed an American of our considerable background and carried him off by hand, and, as well without the force of American law being aware of this? Considering modern American high-tech, of which your people are all so proud, that would argue either incompetence or a little little treason on the part of your intelligence. I think your government would prefer to have the world believe you went to the Soviet Union voluntarily.— Besides, they would you go to the Soviet Union voluntarily, didn't they?"

Morrison was silent.

Brumov said, "Of course they did. The world you see that can do much about international justice. They're going to have all their eyes rolled to be intimidated. All they'll be able to report is that you watched a subtle underground organization, which they will consider to have been a bit of time from our part. They will consider that we carefully kidnapped you and you will have failed them badly. They will not feel bound to support you."

Morrison considered the matter to be silent. He said, "So you really intend to have me in the position of being considered a spy and a victim by your people? Is that what you're going to do?"

"No, indeed. Alban. We will tell the truth to us. So fact, it would like to protect you, even though you showed no signs of wanting to protest us. We would explain that our great scientist Pyotr Shapoval is a comrade, that he had spoken highly of your remarkable theory shortly before this request had reached him. We therefore called on you and asked you to see your theories and your expertise to see if you could bring him out of the coma. You can't object to that. It would help you to the world a great benefactor. Your government might well support this view. I would certainly protect them against possible embarrassment—and our government as well. And it is all about me."

"What about the internationalization?"

"That is the one place where we must avoid the truth. We can't mention that."

"But what would keep me from mentioning it?"

"The fact that no one would believe you. Did you accept the existence of internationalization and you saw it with your own eyes? No world your government want to spread the feeling that the Soviet Union had attacked the process and, better yet, that they had the process as well.—But then you are, Alban. We will send you home with an innocuous story that doesn't mention internationalization, doesn't embarrass either my country or yours, and believes you of any suspicion of being a traitor. Am you satisfied?"

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"What about the internationalization?"

"That is the one place where we must avoid the truth. We can't mention that."

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No voyage is dangerous to the one who waves good-bye from the shore.

— Delaney Santos

27.

Morticia felt numb all through lunch and just as it was the pressure was off. There was no disorienting voice prying on him, no intensity of explanation and persuasion, no ceiling of doom, no heads churning in.

Of course, they made it quite clear, in a cool business-like way, that he would no longer leave the Guests till the deed was done and that from the Guests there was, of course, no escape.

And even more sure is a whole enough world for us to exist. But had actually agreed to be exterminated!

They took him to a room of his in the Guests where he could view both films through a viewer provided for his personal use — even English-language book-films if he wanted the finer familiarity of books to view the next few hours. So he sat there with a book-film scrolling through the viewer engaged on his eyes and somehow it felt his mind really stretched.

He had actually agreed to be exterminated!

He had been told that he could as he pleased omit someone come for him. He could do as he pleased, that is, provided he did no pleasure in them. There were guests everywhere.

The feeling of normal had, Morticia was aware, much diminished. That was the use of numbers and, of course, the more one repeats a sentence to one's mind the more it loses meaning. He had actually agreed to be exterminated. The more it rang in his mind like the rattling of a bell, over and over, the more the horror of it faded. And left a more vacuum of non-orientation in its place.

He was distinctly aware that the door of his room had opened. Someone, he presumed dimly, had come for him, he removed his viewer, lifted his eyes languidly, and for a moment, felt a mild quirk of interest.

It was Sophia Kalliban, looking beautiful even in his blurred vision. She said in English, "A good afternoon to you, gentleman."

He glanced slightly. He would rather see Pamela than English and allowed with quiet surprise that he admired an accent.

He said softly in Russian, "Please, speak to Morticia, Sophia."

His Russian might be as disarming to her, for all he knew, as her English was to him, but he didn't care. He was here by their doing and if his shortcomings troubled them, that was their doing, too.

She dropped slightly and said in Russian, "Certainly — if that is what pleases you."

That she meant it him for a thoughtful while. He met their stare evenly enough for, at the moment, he did not see much cause when he did and looking at her was not such much different to him than looking at something else would have been — he looking at nothing would have been. The momentary impression of beauty that had come with her entrance had faded.

He said finally, "I understand that you have now agreed to accompany us on our voyage."

"Yes, I have."

"That is good of you. We are all grateful. In all honesty, I did not think you would do so, since you are an American. I apologize."

Morticia said with a touch of anger and spite, "The decision to help you was not voluntary. I was persuaded — by an expert."

"By Natchya Bereznaev?"

Morticia nodded.

"She is very good at persuading," said Kalliban, "Not very kind, usually, but very good. I, too, required persuasion."

"Why you?" said Morticia.

"I had other reasons — ones that were important to me."

"Indeed! What were they?"

"An important one?"

"There was a rather uncomfortable journey."

"Come, the link I have been given is to show you the ship," said Kalliban.

"The ship? How long have you been planning this? How long had time to build a ship?"

"For the specific purpose of testing Shapiro's brain from within? Of course not. It was meant for other, simpler purposes, but it is the only thing we have that we can use — C-moss. Albeit, Natchya thinks it will be wise for you to become acquainted with it, so to find it is possible that the down-to-earthness of the technology will reassure you to the task."

Morticia held back, "Why not see it now? Can't I have time to grow accustomed to the whole subject of personal extermination?"

"That is foolish. Albeit, if you had more time to sit in your room and brood, you would have more time to find your uncertainty. Besides, we have no time. How long do you suppose we can show Shapiro to his death debriefing with his thoughts debriefing with each moment? The ship embark on its journey tomorrow morning."

"Tomorrow morning," insisted Morticia, his door still open. He looked at his watch.

"In three hours, at the earliest, but we'll keep that as the time for you to see the vessel and simply pass it. Tomorrow morning the ship enters a human body. And you will be on the ship."

That, without warning, she slipped her check back. She said, "Your eyes were beginning to see special. Were you planning to faint?"

Morticia rolled his check, attaching with pain. "I wasn't planning anything," he mumbled, "but I might have fainted without planning it. He has no power field of breaking it now?"

"Here I really caught you by surprise, when you already knew that you have agreed to be exterminated and it is well-known that we have no time!"

She gestured impatiently, "Now come with me."

And Morticia, still rubbing his cheek and nothing with rage and humiliation, followed.

28.

It was back to the extermination area — back to the busy people, each concerned with their own affairs and paying no attention to one another. Through them all, Kalliban walked with an erect carriage and maintained the atmosphere, at that alien automatically when all defer to you.

On the one of the leading lights, Morticia could see that link still coming tightly on his check, which felt affirmed and which he focused to express, and all other control or even meant her path tumbled their heads in a kind of rudimentary bow and nudged a little backward as though to make sure she to inspect her pack. No one acknowledged Morticia's presence at all.

On one, through one room after another — and everywhere the feel of pure energy held in her check.

Kalliban must have sensed it, too, for he stepped to Morticia with a certain pride. "There's a solar power station in space, a major part of whose output is needed for Malindiqand."

And then they were open to before Morticia had a nice chance to realize what he was looking at. It was not a very large room and the object within it was not of impressive bulk. Indeed, Morticia's first impression was that it was a piece of artwork.

It was a streamlined object not much larger than an automobile, certainly shorter than a stretch limousine, though taller. And it was transparent!

Automatically, Morticia reached out to feel it.

It was not cold to the touch. It felt smooth and almost warm, but when he removed his hand, his fingertips were perfectly dry. He tried it again and as he ran his fingertips across the surface, they seemed to stick slightly. On top, he breathed open it. There was the shadow of condensing moisture on the transparent material, but it disappeared quickly.

"It's plastic material," said Kalliban, "and I don't know its composition. If I have a word probably come under the head of classified information category. The substance is so, it is stronger than steel — tougher and more resistant to shock — than Kevlar for Kevlar."

"Wings for a single purpose," said Morticia, for the moment he couldn't correctly identify the construction. "No such a thickness of plastic material could be possibly be strong as the same thickness of steel. It could be so strong, unless the volume."

"Yes, but when you are going!" said Kalliban, "There will be no pressure differential inside and outside the ship; thus, will be no automatic or even cosmic danger against which we must prepare ourselves. There will be about no nothing but self-collapse. This plastic will be simple procedure and it is light. The rest of it could perhaps fit it or fit it. That is what is important. As you can well understand, we must be sparing of mass. Every additional kilogram consumes considerable electromagnetic energy in maintenance and delivers considerably less in extermination."

"Will it hold a large enough crew?" said Morticia, peering inside.

"It will. It is very compact, but it can hold six and we will only be five. And it contains a surprising amount of animal galactery. Not as much as you would like, of course. The original plan — but what can we do? There are always pressures for economy, even exterminated ones, in this unique world."

Morticia said with a note of strong emotion, "How much pressure for how much economy? Does everything work?"

"I assure you it does." Her face had lit up. Now that the world mechanically had left temporarily only, Morticia felt sure, Kalliban was unmistakably good-looking. "Everything in it has been tested exhaustively, both singly and all together. Zero risk is impossible of diminution, but we have a reasonable close to zero risk here. And all with virtually no need. What with microscopes, fiber optics, and Malindiqand junctions, we have all we want in a total of less than five kilograms of devices all together. That is why the ship can be so small. After all, voyages into the microcosm are not expected to last for more than some hours, so we don't need complex arrangements, cycling equipment, abundant food and air supplies, anything other than quite simple devices for necessary functions, and so on."

"Indeed?"

"Indeed, Delaney?"

"You seem surprised?"

"I don't know why I should I presume he's qualified."

"Completely. He's an engineering design and he's a genius at it. You can't go by the way he speaks — No, you can go by the way he speaks. Do you suppose any of us could endure his crude humor and afflictions if he weren't a genius at something? He designed the ship — every part of it — and all its equipment. He invented a dozen completely new ways of lowering mass and introducing compression. You have nothing like it in the United States."

Morticia said softly, "I have no way of knowing what the United States may have or may not have in internal devices."

"I am sure they don't. Delaney is an unusual person, far all his love of presenting himself as a hero. He is a descendant of Sanyaz Drazzer Decker. You have heard of him, I suppose."

Morticia shook his head.

"Indeed?" Kalliban's voice returned to, "He is only the famous explorer who, in the time of Peter Great, explored Siberia in an extremely cold and cold time was a search of one exploring Siberia and North America, besides being Yuri Dering, a Dane in Berlin again, discovered the Bering Strait — And you don't know Delaney. That is, American. Indeed a Whittaker did it, you never heard of it?"

"That one needs everything, Sophia. I haven't studied exploration. There are many American explorers that don't know — and that you don't, either. He don't his finger at his right, remembering her ship and rubbing his cheek, one more time. "This is what I mean. You had things to find him on — technological things you should find advanced to pick up."

"Surely in Delaney was a great explorer — and not technological."

"Nothing to admit that I am glad to hear of him and marvel at his achievement. But my own hearing of him is not a fit occasion for Sanyaz American strategy. He advanced if you will?"

Kalliban's eyes fell, then lifted to his check. (Had she left a brain there? Morticia wondered.) She said, "The very correct you, Albeit. He need not have been that bad, but I didn't want you to fail. As that moment, I felt I would have to prefer to deal with an insensitive American. I did be unjustified anger pick me."

"I'll spare you meant well, but I see, with you had not struck so hard. Still, I will accept your apology."

"Then let us get into the ship."

Morticia managed to smile. Somehow he felt a little better dealing with Kalliban than he would have with Delaney or Kowen — or even Ivanova. A pretty woman, still quite young, drew somehow distant a man's mind from his studies more effectively than most things would. He said, "Assn you attend I might try to sabotage it?"

Kalliban pointed, "Actually, I'm not. I trust you have enough respect for a vessel of scientific importance to avoid doing any damage whatever. Besides — and for this certainly, Albeit — she has again undergo an extremely severe in the direct view and the slightest mistake in handling anything in the ship will set off alarms that will have great harm in a matter of seconds. We have strict laws against people handling or subverting, but sometimes they tend to forget themselves in their indignation. Please don't even think of touching anything."

She put a hand on the wall of the sphere and presumably closed a control, though Morticia didn't see her do it. A door — a rectangular cutout at the edge — opened. (The door's oval edge seemed to be double. Would it also set as an air lock?)

The opening was compact. Kalliban, smiling first, but in step, she held out a hand to Morticia, "Watched, Albeit."

Morticia not only stepped, but turned sideways. Once inside the ship, he found that he could not quite stand upright. When he bumped her hand gently, he looked up at the ceiling, startled.

Kalliban said, "We'll be doing our work sitting down for the most part, so don't be concerned about the ceiling."

"I don't think claustrophobes would like this."

"Are you claustrophobic?"

"No."

Kalliban nodded but smiled. "That's good. We have to some open, you know. What can I tell you?"

Morticia looked around. There was no sun, no pain. He sat down in the one nearest the door and said, "There are not exactly sunny either."

"No," admitted Kalliban, "Wright films could not be accommodated."

Morticia said, "Obviously, this ship was built long before Shapiro went into his coma."

"Of course. We've been planning to have exterminated personnel inside living time for a long time. This would be necessary if we wished to make truly important biological discoveries. Naturally, we expected that we would work with animals at the start and study the circulatory system in this detail. It is that part project that this ship was built. No one could possibly have guessed that when the time came to carry out the first such microvoyage, the subject would only be a human body but Shapiro himself!"

Morticia was still studying the interior of the ship. It seemed bare. Detail was surprisingly difficult to make out in the situation of transparency-no-transparency and extermination of the old type — ordinary, but microscope — compresses.

He said, "There will be five on the ship and I, Ivanova, Kowen, and Delaney."

"That's right."

"And what will each of us be doing?"

"Albeit will control the ship. Obviously, he knows how to do that. It's the child of his hands and mind. It'll be in the left three seat. To his right will be the other man, who has a complete map of the neurocirculatory pattern of Shapiro's brain. He will be the pilot. I will sit behind Albeit and I will control the electromagnetic pattern of the ship's surface."

"An electromagnetic pattern? What's that for?"

"My dear Albeit. We recognize objects by reflected light, a ship recognizes objects by emitted heat, a molecule recognizes objects by surface electromagnetic patterns. If we're going to make our way in a exterminated object against molecules, we must have the proper patterns in order to be treated as friends rather than foes."

"That sounds complicated."

"It is — but it happens to be my life study. Naturally will sit behind me. She will be the captain of the expedition. She will make the decisions."

"What kind of decisions?"

"Whatever kind you necessary. Obviously, she can't be persuaded to advance. As for you, you will sit in my pilot."

Morticia rose and managed to shift his position along the narrow side on the door side of the seat and across one seat back. He had been in Kowen's seat and now he was in what would be his own. He could feel his hand pressing as he imagined himself that she was on the following day, with the extermination process in progress.

He said in a muffled voice, "There is only one man, then — Yuri Kowen — who was exterminated and exterminated and was substituted by the process."

"Yes."

"And he mentioned no discomfort in the process, no sickness, no mental disturbance?"

"Nothing of the sort was reported."

"Would that be because he is a man? I would be glad to find it would be beneath the dignity of a man of Soviet science to complain?"

"That is foolish. We are not human of Soviet science and the one you speak of certainly isn't. We are human beings and creature and, in fact, if there were any discomfort that he felt, we would be compelled to describe it in full detail, since it might be that with modifications of the process we could remove that discomfort and make future exterminations less difficult. Hiding any part of the truth would be unethical, unethical, and dangerous. Don't you see that — since you are a scientist yourself?"

"Of course, but no individual differences. Yet Kowen never mentioned. Perhaps Shapiro did not see — again."

"The had nothing to do with individual differences," said Kalliban impatiently.

"We can't really tell, can we?"

"Then judge for yourself, Albeit. Do you think we would take the ship into extermination without a final warning — with and without human beings aboard? This ship was exterminated, empty, during the course of this past night — not to a very great extent, but enough to know that all is well."

As once Morticia managed appeared to get out of his seat. "In that case, if you don't mind, Sophia, I want to get out before it is wined with human beings aboard."

"But, Albert, it's too late."

"What?"

"Look out the ship at the moon. You haven't even looked outside since you got in, which, I suppose, was a good thing. But look out now. Go ahead. The walls are transparent and the pressure is complete for now. Please! Look!"

Morrison, startled, did so and then, very slowly, his knees bent and he leaned himself again. He asked (and even as he did so, he knew how foolish he must sound), "Do the ship's walls have a magnifying effect?"

"No, of course not. Everything outside is as it always is. The ship and I and you have been miniaturized to about half our former dimensions."

"Is

Morrison felt distress overcome him and he bent his head between his knees and breathed slowly and deeply. When he lifted his head again, he saw Kallinan watching him thoughtfully. She was standing in the narrow aisle, leaning slightly against a wall's corner to allow the ceiling to clear her head.

"You might have fainted this time," she said. "It would not have disturbed me. We are being dematerialized now and that will be more time-consuming than the miniaturization, which took no more than three or four minutes. It will take us longer or so for us to get back, so you will have ample time to recover."

"It was not a disaster so to do this without telling me, Sophie."

"On the contrary," said Kallinan. "It was an act of kindness. Would you have wanted the ship to study and as easily as you did if you had suspected that we would be miniaturized? Would you have inspected the ship as easily if you had known? And if you had been anticipating miniaturization, would you not have developed psychogenic symptoms of all sorts?"

Morrison was silent.

Kallinan said, "Did you feel anything? When you even assume that you were being miniaturized?"

Morrison shook his head. "No."

Then, almost by a common theme, he said, "You've never been miniaturized before any more than I have, have you?"

"No. Before the day, Kener and Shapiro have been the only human beings to have undergone miniaturization."

"And you yourself at all apprehensive?"

he said, "I wouldn't say that I was uneasy. We know from our experience with space travel that, as you said earlier, there are individual differences in reaction to unusual environments. Some astronauts suffer episodes of nausea under very gravity and some do not, for instance. I couldn't be sure how I would react. -- Did you feel nausea?"

"I didn't! I found out we had been miniaturized, but I suppose feeling queasy now doesn't count. -- Why planned this?"

"Natalie."

"Of course I should have asked," he said softly.

"There were reasons. She did not realize how you think. There was the voyage began. We couldn't be expected to deal with heretics as your past two began miniaturizing."

"I suppose I deserve that lack of confidence," said Morrison, his eyes looking away in embarrassment from those of Kallinan. "And I imagine she assigned you to come with me for the precise purpose of distracting my attention while all this was going on."

"That was my aim. She wanted to come with you herself, but with her, by now, I thought you might be anticipating mischief."

"Whence with you, I might be at my ease."

"At ease, as you say, detached. I am still young enough to distrust men." Then, with a touch of bitterness, "Most men."

Morrison looked up, eyes narrowing. "You said I might be anticipating mischief."

"Natalie, with Natalie."

"Why are you just now? All we see now is that everything outside seems enlarged. How can be sure that that is not an illusion, something designed to make me think I have been miniaturized and that it is heretics -- merely so that I may slip into the ship tomorrow?"

"That's ridiculous, Albert. You've just created something. You said I have just had my former dimensions in every direction. The strength of our muscle centers inversely with their cross-section. They are now half that normal width and half their normal thickness, so that they have half their half of one fourth the cross-section and, therefore, they would normally have. Do you see what I mean? Do you understand?"

"Yes, of course," said Morrison, amazed. "That is elementary."

"Our feet are as wide as half as tall, and half as thick, so that the total volume -- and mass and weight as well -- is half times half times half or one eighth what it was originally. -- If we are miniaturized, that is."

"Yes. This is the square-cube law. It's been understood since Galileo's time."

"I know, but you haven't been thinking about it. If I were to try to lift you now, I would be lifting one eighth your normal weight and I would be doing so with my muscles at one quarter their normal strength. My muscles compared to your weight would be twice as strong as they would appear to be if we were not miniaturized."

And with that, Kallinan thrust her hands under her armpits and, with a grin, lifted up to reveal from his waist

the hold him as while she stepped twice and then she lowered him. "It was easy," she said, putting a bit. "But I could do it. And since you may be willing yourself! Oh yes, but this is Sophie, probably a Soviet witchery; here do it to me."

Kallinan understood that it was not before that and that he was once smaller than ever and said, "Come, stand up and lift me!"

Morrison rose to his feet and into the aisle. He moved forward, turned, and faced her. The slight bending offered to him by the low ceiling made it an uncomfortable position for a moment, he hesitated.

Kallinan said, "Come, raise me under the arms. I was doubtful. And you surely be concerned about possibly touching my breasts. They have been touched before this. Come -- I'm lighter than you are and you're stronger than I am. Since I have lifted you, you should have no trouble at all lifting me."

Her did he. He couldn't lift with his full strength because of his slight, uncomfortable crouch, but he automatically applied the force he judged, through years of experience, would be suitable for an object her size. The rounded support, however, almost as though they were weightless. Despite the fact that he had been somewhat prepared for the possibility, he almost dropped her.

"Do you consider that an illusion?" Kallinan asked. "Or are we miniaturized?"

"We are miniaturized," said Morrison. "But how did you do it? I never saw you make a move that looked as though you might be using miniaturization controls."

"I didn't. By all means from outside. The ship is equipped with miniaturization devices of its own, but I wouldn't use them. That would be part of Natalie's job."

"And why the dematerialization is being controlled from outside, too, isn't it?"

"That's right."

"And if the dematerialization goes slightly out of hand, our brains will be demagnetized as Shapiro's was -- or worse."

"That's not really likely," said Kallinan, stretching her legs out into the aisle, "and it doesn't help to think about it. Why not just relax and close your eyes?"

Morrison permitted. "The damage is possible."

"Of course it's possible. Almost anything is possible. A three-meter-wide meteorite may strike two minutes from now, penetrate the mountain shell above us, flash into this room, and destroy the ship and us and perhaps the entire project in a few fleeting seconds. -- But it's not likely."

Morrison checked his head in his arms and wondered whether -- if the ship started warning -- he could find his feet before his brain processes dominated.

It.

Well over half an hour had passed before Morrison felt convinced that the objects he could see outside the ship were thinking and were reaching perceptibly toward their normal sizes.

Morrison said, "You think of it as possible."

"What?" said Kallinan, yawning. She had obviously taken her own advice about the advisability of relaxing.

"The objects outside the ship seem to grow larger as we drink. Digits set the wavelengths of light inside the ship also grow larger, becoming larger in wavelength, as we drink? Should we not see everything outside turn reddish, since there can scarcely be enough ultraviolet outside to expand and absorb the shorter-wave visible light?"

Kallinan said, "If you could see the light waves outside, that would indicate to how they would appear to you. But you can't. You see the light waves only after they've crossed the ship and impinged upon your retina. And as they enter the ship, they come under the influence of the miniaturization field and automatically shrink in wavelength, so that you see those wavelengths inside the ship exactly as you would see them outside."

"If they shrink in wavelength, they must gain energy."

"Yes, if Planck's constant were the same now inside the miniaturization field as it is outside. But Planck's constant decreases inside the miniaturization field -- that is the essence of miniaturization. The wavelengths, in thinking, maintain their relationship to the structure Planck's constant and do not gain energy. An analogous case is that of the atoms. They also shrink and yet the interrelationships among atoms and among the subatomic particles that make them up remain the same so to inside the ship as they would seem to be outside the ship."

"The energy conservation is becoming weaker in here."

"The energy conservation and the conservation of momentum come under the umbrella of the quantum theory. They depend on Planck's constant. As the gravitational field increases, Planck's constant changes. The gain in miniaturization of matter has never been quantified. I think, the gravitational change with miniaturization is evidence enough that gravitation cannot be quantized, that it is fundamentally inseparable in nature."

"I just believe that," said Morrison. "The conservation of matter energy seems to be broken enough to get away through the problem you're suggesting. There's really no way we can control field at all." "Of course we can't do it. We have been working in the moon. Surely, he couldn't do so if the book were being in the moon."

"Surely doesn't count," said Kallinan. "Bill Shapiro agreed with you, I think. It was his notion that since we had Planck's constant to the speed of light, it would make sense to think of miniaturizing and dematerializing as essentially energy-free matters, but that is not the case. The theoretical effect of being able to work out the connection between quantum theory and relativity and finally have a good unified field theory. And probably a simpler one than we could have imagined possible, he would say."

"Maybe," said Morrison. He didn't know enough to comment beyond that.

"Shapiro would say," said Kallinan, wanting to be sure. "But at dematerialization, the gravitational effect would be close enough to zero so to be entirely ignored that that the speed of light would be no greater than it might be combined instead. With mass virtually zero, inertia would be virtually zero and any object, like this ship, for instance, could be accelerated with virtually zero energy input to any speed. We would have, practically speaking, antiquity and faster-than-light travel. Chemical drives, he said, give us the Solar System, ion drive would give us the nearest stars, but relatively miniaturization would give us the whole Universe at a bound."

"It's a beautiful vision," said Morrison, contented.

"Then you know what we're looking for now, don't you?"

Morrison smiled. "Of that -- if we can read Shapiro's mind. And if he really had something there and wasn't merely dreaming."

"But the chances would be small."

"I am on the point of believing so," said Morrison in a low voice. "You are surely convincing. Why couldn't Natalie have used apparatus of that sort, rather than those she did use?"

"Natalie is -- Natalie. She is a highly practical person, not a dreamer. She gets things done."

Morrison studied Kallinan as she sat, sure in the seat to his left, looking straight ahead with an abstracted look that gave her profile the appearance of an impassive dramatic actress -- but perhaps not one who, like Shapiro, dreamed of conquering the Universe. With her, it was something closer to being perfect.

He said, "Your unhappiness is not my business, Sophie, as you've said -- but I have been told about you."

Her eyes flashed. "Ardely? I know it was he. He is a -- a --" She shook her head. "With all his education and all his genius, he remains a peasant. I always think of him as a bearded sot with a vodka bottle."

"I think he's concerned about you in his own way, even if he doesn't express himself properly. Everyone must be concerned."

Kallinan smiled as Morrison finally, as if looking for words back.

He pushed her gently, saying, "Why don't you tell me about it? I think it will help and I am a logical clinician, being the outside of the party -- I assure you I am reasonably."

Kallinan looked at him again, his eyes deeper gently.

"You?" she said. "Everyone may be concerned, except you. He is his feelings."

"He must have been in love with you at one time."

"Must he? I don't believe it. He has a -- a --" she looked up and spread her hands, which were shaking, as though groping for a word and having to settle for something entirely -- "vision."

"We're not always masters of our own emotions and affections, Sophie. If he has found another woman and dreams of her --"

"That is no other woman," said Kallinan, frowning. "None! He says that as an excuse to hide behind. The loved one, if it at all, only abstractly, because I was convenient at hand, because I carried a rugged physical mind, and because I was also involved in the project, so that he didn't have to be much time drifting with me. As long as he had his project firmly in hand, he didn't mind having me -- quietly, unobtrusively -- or at all moments."

"A hard case."

"Need not tell every moment of time. I told you he has a vision. His plan is to be the new Newton, the new Einstein. He wants to make discoveries so fundamental, so great, that he will have nothing for the future. He will take Shapiro's specifications and run them into lead cables. Your Kener will become the whole of the natural law and everyone else will be commemorating."

"Might that not be considered an admirable ambition?"

"Not when it makes him sacrifice everything and everyone else, when it makes him deny his own child? What do I matter? I can be neglected, denied I am an adult. I can take care of myself. But a baby? A child? To deny her father? To refuse her? To neglect her? She would distrust him from his work, she would make demands on him, she would consume a few moments of time here and there -- so he insists he is not the father."

"A genetic analysis."

"No. Would I drag him to court and force a legal decision upon him? Consider what his denied implied? The child is not a virgin birth. Someone must be the father. The father -- or, he states -- that I am promiscuous. He has not hesitated to give it as his opinion that I do not know the father of my child since I am long among the numerous possibilities. Shall I follow to make a man as low as he is the highly proud father of my child against his will? No, he can come to me and admit he is the father and apologize for what he has done -- and I may allow him a glance, now and then, at the child."

"Yet I have a feeling you will love him."

"It is that way comes," said Kallinan lightly. "It shall not be my child's."

"Is this ship your last, by permission to undertake this miniaturization?"

"And work with him? Yes, that is why. But they tell me I cannot be replaced, that what we may do for science has far above and beyond any conceivable personal feeling -- my regret, my love. Besides --"

"Besides?"

"Thinking, if I abandon the project, I lose my status as a Soviet scientist. I lose many privileges and prospects, which do not matter, and so does my daughter -- which matters a great deal."

"Did you have to be persuaded, too, to work with you?"

"No! Of course not. The project is all he knows and sees. He does not look at me. He does not see me. And if he does in the course of this attempt --" She held out her hand in appeal to him. "Please understand that I do not for a moment believe that this will happen. It is just a slightly romantic notion that I turn myself with for the love of pain. I suppose. If he should die, he would be even less aware that I would die with him."

Morrison felt himself smother. "Don't talk like that," he said. "And what would happen to your daughter in this case? Did Natalie tell you that?"

"She did not have to. I know that without her. My daughter would be named by the state, as the child of a Soviet martyr to science. She might be better off as -- Sophie named and looked after. But it's beginning to look quite normal to me. We should be out of the ship now."

Morrison changed.

"You will have to spend much of the rest of the day being medically and psychologically examined, Albert. So will I. It will be very boring, but it has to be done. How do you feel?"

"I feel better," said Morrison in a burst of honesty. "If you hadn't talked about dying -- I think I remember, when we make the trip into Shapiro's body, how far will we be miniaturized?"

"That will be Natalie's decision. To cellular dimensions at the very least, obviously. Perhaps to molecular dimensions."

"He anyone ever done that?"

"Not to my knowledge."

"Rubbing? Inanimate objects?"

Kallinan shook her head and said again, "Not to my knowledge."

"How, then, does anyone know that miniaturization is such an answer to his that, if it is, one of us can survive?"

"The theory says it and that we can. So far, every type of experimentation has fit with the theory."

"Yes, but there are always breakdowns. Wouldn't it be better of dematerialization were tested on a single half of plants, then on a rabbit, then on a --"

"Of course. But persuading the Central Coordinating Committee to allow the energy expenditures would be an enormous task and such experiments would have to be distributed over several months and years. We have no time! We must get into Shapiro immediately."

"But we're going to be doing something unprecedented, crossing into an untested region, with only the mystery of theory to --"

"Nasty, exactly. Come, the light is flashing and we must emerge and accompany the waiting physician."

But for Mortson the marginal euphoria of a safe deinstitutionation was waning away. What he had experienced today was in no way indicative of what he must face the next day. The nurse was entering.

#### CHAPTER 4 – PRELIMINARIES

The resident ultimately comes at the end. It's called "getting ready."

— Debra's Sister

11.

Later that evening, after a long – and tedious – medical exam, he joined the four Soviet researchers for dinner. The Last Supper, Mortson thought grimly.

Sitting down, he heard one, "This one will see the results of my examination!" He turned to Killian. "What they examine you, Saphir?"

"You, indeed, Albus."

"Did they tell you the results?"

"The medical exam as far as we're who you mean. I suppose they don't find they are anything."

"It doesn't matter," said Debra's family. "My old father used to say, 'God never has the wings of an eagle, good over the legs of a donk.' If they said anything, it was because they had nothing but to report."

"Does the bad news," said Brantner's, "would have been reported to me – and only to me. I am the one who must decide who will accompany me."

"What did they tell you about me?" asked Mortson.

"That there is nothing important wrong with you. You will be coming with us and in twelve hours the admission will begin."

"Is there anything unexpected wrong with me, then, Nadya?"

"Nothing worth mentioning, except that you display, according to one doctor, a 'typical American bad temper'."

"Bad," said Mortson. "One of our American traditions is that of being bad tempered when doctors show a typical Soviet lack of concern for their patients."

Nevertheless, the applications over the case of this child had not, as it did so, literally the applications over his impending deinstitutionation ever higher.

His signed consent, eating slowly and without much of an appetite.

12.

Yuri Kriev was the first to rise from the dinner table. For a moment he remained standing, leaning forward over the table, a slight frown on his features, youthful face.

"Nadya," he said, "I must take Albus to my office. It is necessary that we discuss tomorrow's task and prepare for it."

Brantner said, "You will remember, please, that we must all have a good night's sleep. I don't wish you to forget the passage of time. Do you want Albus to go with you?"

"I don't need him," said Kriev's laughter.

"Nevertheless," said Brantner's, "there will be two guards at your office door and you will call out if you need them."

Kriev turned from the restaurant and said, "I want to meet them, Nadya. Do you want to come with me, Albus?"

Mortson, who had been watching them both from under lowered eyelids, rose and said, "It is his going to be a long trip! I'm tired of being sheltered from point to point in the Groms."

Mortson knew well he was being suspicious. Not it didn't seem to bother Kriev, who responded just as amiably, "I think a professor would be used to playing back and forth across a university campus."

Mortson followed Kriev out the door and together they stumped along the corridor in silence. Mortson was aware that a certain point two guards still in behind them. He heard additional footsteps keeping time with his own. He looked back, but Kriev did not.

Mortson said impatiently, "Shut longer, Yuri!"

"That is a foolish question, Albus. I have no intention of walking you past our destination. When we get there, we will be there. If we are still walking, it is because we are not there yet."

"I should think, with all his walking, you might assume golf carts or something of the sort for the carters."

"Anything will allow me to make my attempt," Albus's Cousin, "you are so far that one cannot talk or to prevent that you must be carried."

Mortson thought, If I were the poor woman with the child, I would shoot off fireworks to celebrate the denial of falsehood.

They reached Kriev's office at last. At least Mortson assumed it was his office when Kriev barked the word "Open" and the door did smoothly open in response to his whisper. Kriev's smile through teeth.

"What if someone imitates your voice?" asked Mortson curiously. "You don't have a very distinctive voice, you know."

Kriev said, "It also scans my face. It will not respond to other separately."

"And if you have a cold?"

"One time when I had a cold, I could not get into my office for three days and I finally had to have the door opened mechanically. If my face were bruised or scarred by accident, I might also have trouble. Still, that is the price of security."

"But are the people here – impostors – that they would steal your papers?"

"People are people and it is not wise to entrust even the best of them. I have things here assigned to myself and they may be viewed only when I decide to allow it. This, for instance," His chin had very well cared for and maintained. Mortson noticed – he might notice other things for his work, but one himself) noted an extraordinarily large and thick volume, which, in turn, rested on a stand that had been clearly designed for it.

"What is that?" asked Mortson.

"That," said Kriev, "is Academician Shapiro – at least the essence of him," He opened the book and flipped the pages. Page after page (all of them, perhaps) were filled with symbols arranged in diagnostic fashion.

Kriev said, "I have it on microfilm, of course, but there are certain circumstances in having it in a printed volume," He pulled the pages almost lovingly.

"I still don't understand," said Mortson.

"This is the basic structure of Shapiro's brain, translated into a symbolism of my own devising. Fed into the appropriate software, it can reconstruct a three-dimensional map of the brain in intimate detail on a computer screen."

"Amazing," said Mortson, "if you are serious."

"I am serious," said Kriev. "I have spent my entire career on this task, translating brain structure into symbols and symbols into brain structure. I have invented and advanced this science of cartography."

"And you said Shapiro is your subject?"

"By accident," said Kriev. "I have spent my entire career on this task, translating brain structure into symbols and symbols into brain structure. I have invented and advanced this science of cartography."

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The Dethlorer got up, wiped his forehead with his sleeve, and said, "All right, Connelin Indian, Comanche gentleman, and Comanche American, the Genesis voyage we face is about to begin." He fixed an anchor in his left ear, raised a tiny microphone before his mouth, and said, "All operational within. Is all operational outside?" "Very well, then, with us good fortune, commences all."

Nothing seemed to happen and Morrison cast a quick look at Kallitina. She was still transfixed, but the woman in the alcove of Morrison's head turning toward her, for the said, "Yes, we are minimizing."

The blood rained in Morrison's ears. This was the first time he was consciously minimizing.

## CHAPTER 4 - ACTERY

It is a correct view taking you where you want to go, said again.

- Dethlorer's Suite

16.

Morrison's eyes remained, for the most part, focused on the screen before him, on the computer, and on the screens he had installed. The software – the one material object of the living ship.

Long ago? It was less than a hundred hours ago that he had thrown his way through a dull veil in his last day of the confinement and wondering whether there was any way to save his position at the university. And now a hundred subjective years had passed in those hundred objective hours and he could no longer clearly visualize the university or all of the life of self preservation he had been leading there toward the end.

He would have given a great deal to have broken out of the dull cycle of endless entering a hundred hours ago. He would give a great deal more – to break back into time, to wake up and to find the last hundred hours (or years) had never taken place.

He glanced through the transparent wall of the ship, there at his right elbow, his eyes half-closed as though he were actually checking to see anything. He was reluctant. He did not want to see anything larger than it should be. It would interfere with his will to hope to minimize the minimization process but broken down or that the whole thing had – someone – been an illusion.

His eyes opened. They couldn't do he that well.

He shook down into his seat and looked at zero. It was enough. He knew that the minimization process was going in reasonable way.

The screen inside the ship was oppressive, unshakable. Morrison felt he had to hear a voice, even if only his own.

Kallitina, at his left side, was the one to whom he could speak most easily and the night he the best of a difficult choice, perhaps. Since Morrison did not want Dethlorer's nihilist possibility, or Brannan's one-dimensional concentration, or Krewer's dark intensity, he recalled to Kallitina's frozen concern.

He said, "How will we get one Shapiro's body, Sophia?"

It took a while, it seemed, for Kallitina to hear him. When she did, her lips moved pathetically and she said in a whisper, "Idiotcy."

"Then, as though with a superior effort, she apparently decided that she must be comprehensible, as she turned to him and said, "When we are small enough, we will be placed into a hypothetical matrix and ejected into Academia's Shapiro's left control entry."

"We'll be taken up into the air," said Morrison, quickly.

"Not at all. It will be complex, but the problems have been thought through."

"How do you know? This has never been done before. Never in a hypothetical matrix. Never time in a human body."

"True," said Kallitina. "But problems like this – much simpler ones, of course – have already been planned for a long time and we have had extended sessions over the last five days on this mission. You don't think that Arkady's announcements before minimization began – the ones about roles and so on – were new to us, do you? We have heard it all before, over and over. It was for your benefit, actually, since you have attended an seminar, and for Arkady's, too, since he knows his moment in the sun."

"Tell me, then, what will happen?"

"I will explain events as they occur. For now we do nothing until we are in the confinement range. It will take another twenty minutes, but not everything will be so slow. The number we get, the faster we get, the faster we can minimize, in proportion – Here you felt any bad effects yet?"

Morrison mentally recalculated the rapid beating of his heart and the pulsing of the lungs and said, "None." "Then, looking that to be an amiable optimistic remark, he added, "At least so far."

"Well, then," said Kallitina and closed her eyes in thought to indicate that she was tired of talking.

Morrison thought that might not be such a bad idea and closed his eyes.

He might have actually felt his weight or he might simply have gone into a protective state of total unconsciousness, withdrawing from reality, for it seemed that no time had passed when he was brought to by a slight jet.

He opened his eyes wide and found himself a centimeter or so above the seat. He had the odd sensation of drifting with such vagrant puff of wind.

Brannan had moved over to the seat behind him and placed her hands on his shoulders. She pushed down firmly and said, "Alphas, get your seat belt. Sophia, show him how. I'm sorry, Alpha – we should have given you over all this – everything – before we started, but we had little time and you were nervous enough as it was. We did not wish to reduce you to either helplessness by flooding you with information."

To his own surprise, Morrison had not been feeling helpless. He had rather enjoyed the sensation of drifting up and.

Kallitina reached a spot on her seat edge between her knees and a belt around her waist flipped away. It had not been there, Morrison was sure, when he had closed his eyes and now it was again no longer there. He frowned. With a snap, into a waist he saw, the twisted toward Morrison and said, "This, here to your left, in your left alpha." Morrison couldn't help noting that, now unaided, she lifted up from her seat slightly as the moved toward him.

She pressed the spot – a somewhat darker circle in a light background – and a flexible network of clear plastic that sat on a frame box, wiggled and then tilted. He had not been there, Morrison was sure, when he had closed his eyes and now it was again no longer there. He frowned. With a snap, into a waist he saw, the twisted toward Morrison and said, "This, here to your left, in your left alpha." Morrison couldn't help noting that, now unaided, she lifted up from her seat slightly as the moved toward him.

"It is now time to pass down into the hull where things are better known to us," Kallitina stated before moving down to indicate to the place and Morrison found the pressure of her body against her to be pleasant.

She did not seem to be aware of it and, being completely bare, she pulled herself back into her seat and behind herself.

Morrison glanced quickly around, squaring upward and forward as far as his belt would let him, and passed, with difficulty, over Krewer's shoulder. All this was behind.

He said, "We've minimized to the point where we have very little weight, is that it?"

"In only weight about twenty-five milligrams each," said Brannan, "so that you might as well consider yourself weightless. Then, too, the ship is being tilted."

Morrison looked at Kallitina accurately and Kallitina shrugged slightly and said, "I told you I'd describe things as they happened, but you seemed to be asleep and I thought it wiser to let you enjoy that way. The jet of the clamp works you and lifted you out of the seat."

"The clamp?" He looked to one side. He had been conscious of a shadow on both sides, but walls were supposed to be opaque and he had dismissed the sensation. Now he suddenly remembered that the ship's walls were transparent and realized that the light on either side was blocked.

Kallitina smiled. "A clamp gripping and helping to keep us steady so that we do not duck up uncontrollably. It links us across, but it is a very small and delicately padded clamp. And we are being put into a small circle of light and shadow. We are also being held steady by an extremely fine scaled optical system in a short matrix. This pushes us against the matrix so that, with the clamps, we are held three ways."

Morrison looked up again. (Again, outside the ship the weight here has been totally through portions of the wall as indicated by the clamp up by the overhead matrix view, notwithstanding, not visible.) Morrison could see occasional glimmers of silver and shadow and realized that the relative extent there was no way to judge such carefully with his eyes. If the pressure that approached the ship were as themselves minimized as they assumed the field, they would believe as though they were long cables waves and he would have seen nothing at all.

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"But we all face death if something goes wrong."

"Didn't you know that?" said Brannan calmly. "Have you been uneasy about this fantastic, voyage-of-one-cosplay-for-the-pleasure-of-being-annoyed? But we are not alone in this. If things go wrong and the stored energy of miniaturization is released, it will not only destroy us, but it may damage the G-16s to some extent. For sure that many an antimatter-powered person out there is holding his or her breath and wondering if he or she will survive an explosion. You see, Adher, even those who are not undergoing the risks of miniaturization are not altogether safe."

Duchown turned and grinned widely. Mattison noted that one of his upper incisors was wiggled and did not touch the rather rubbery rest of the other tooth.

"Concentrate on the thought, my friend, that if something goes wrong, you will never know. My father used to say, 'Since we all must die, what better can we ask for than a quick and painless death?'"

Mattison said, "John Carter said the same thing."

Duchown said, "Yes, but we never even knew there was such a thing as 'Die, Mom!'"

"There will be no death," said Kanan solemnly, "and it is foolish to speak of it. The equations are correct."

"Ah," said Duchown. "There was a time of superstition where people relied on the protection of God. Thank Equation we now have Equation we rely on."

"No funny," said Kanan.

"I didn't mean to be funny. You -- Natsuba, they're studying that for us to proceed."

Brannan said, "There really will be no further need to speculate. Here we go."

Mattison prepared for one rapidly-propagating blamoff, but he felt nothing happen. Up from, through the round circle he had made one expanded and grew dimmer and dimmer as it moved very slowly backward until it could no longer be made out.

"An interestingly" about miniaturization. It was the final of questions now made to reduce their energy, even though the answer was obvious.

"Yes," said Kallidon, "and we are expending no energy in doing so. We are not heating the water molecules. We are being carried along by the water flow in the middle of the cylinder process is slow."

Mattison was coming to himself. It kept his mind more efficiently occupied than studying the second hand of his watch would have done.

When he reached a hand, he said, "How long will it take?"

"How long will what take?" asked Kallidon.

"When do we reach the bloodstream?"

Duchown said, "A few minutes. They are going very slowly, just in case there is some kind of miniaturization. As my father once said, 'It is cleverer, but better to creep along the dimensional path than to leap over the cliff!'"

Mattison groaned, then said, "Are we still miniaturizing?"

Brannan answered from behind him. "No. We are done in the cellular stage and that is far enough for our needs now."

Mattison was surprised to find that he was breathing. After all, so much was happening and so many new things seemed to think about that he had somehow blocked the reason to remain in terror. He was not terrified, at least not to an acute stage -- yet for some reason he continued to tremble.

He attempted to will himself to sleep. He tried to let himself drop, but that required more than an effort of will. It needed gravitational pull and there was none to speak of. He closed his eyes and closed his breathing. He even tried breathing, under his breath, the absurd snoring from Burbank's Nook Symphony.

Finally he felt himself forced into comment on the matter. "Too easy," he said. "I seem to be shaking."

Duchown exclaimed, "Ah! I wondered who would be the first to mention it."

Brannan said, "It's not you, Adher. We are all shaking slightly. It's the ship."

Mattison was at once relieved and high. "It something wrong with it?"

"No. It's just a matter of scale. It's small enough to feel the effect of Brownian motion. You know what that is, don't you?"

It was a purely statistical question. Because so small, every event through which random motions of physics is known. Brownian motion was, for almost Mattison, and yet Mattison found himself exploring it in his own mind -- not to work, but as a kind of sport.

Every object suspended in a liquid is bombarded all sides by the atoms or molecules of the liquid. These particles strike randomly and therefore unevenly, but the momentum is so small compared to the total that it is unnoticeable and has no measurable effect. As an object grows smaller, however, the momentum becomes greater among the smaller and smaller number of particles striking the object in a given time. The ship was small enough now to respond to the slight excess of collisions -- first in one direction, then in another -- randomly. It moved slightly in consequence, a random trembling.

Mattison said, "Yes, I should have thought of that. It will get worse if we continue to decrease it."

"Actually, it won't," said Brannan. "There will be other counteracting effects."

"I don't know of any," said Mattison, frowning.

"Nevertheless, there will be such effects."

"Laws in the Equations," said Duchown in an affectedly plain tone. "The Equation knows."

Mattison said, "I think this could make me sick."

"It couldn't make," said Brannan. "But there is a chemical treatment for that. We have been aboard with the same chemical that sometimes now against space sickness."

"No!" said Mattison indignantly. "The only haven I have found, I haven't even been there yet!"

"We add you in little as possible of the discomfort and dangers out of concern for your comfort, Adher. As for treatment, you command your dose with your backdoor -- how do you do that?"

Mattison, who had begun to feel a bit squishy with all this talk about sickness, decided that he felt fine. Accordingly, he thought, the remedy returned over the body by the mind.

He said in a low voice, "Tolerable."

"Good," said Brannan, "because we are now in Academician Shapiro's Bloodstream."

It.

Mattison stared through the transparent wall of the ship.

Blood?

His first impulse was to expect redness. What else?

He peered out, squinting his eyes slightly, but could see nothing, even in the glancing light of the ship. His sight as well here was in a nebula, drifting down the calm surface of a pond on a dark and cloudy night.

Mattison's thoughts suddenly turned. In the absolute sense, the light within the ship had the wavelength of gamma rays -- and very fast gamma rays at that. Yet the wavelengths were the result of miniaturization, ordinary visible light and so the equally miniaturized matter and optic waves of the people within the ship were still light rays, and had the property of light rays.

Of course, just beyond the hull of the ship where the miniaturization field ended, the miniaturized photons enlarged to ordinary light waves photons and there was reflected back by the hull boundary was caused. The others might be accustomed to this paradox-ridiculous situation, but to Mattison the grasp of the effect of a miniaturized bubble within us of accuracy was disturbing. Was the boundary visible, marking off the miniaturization from the outside? Was there a discontinuity somewhere?

Following his line of thought, he whirled to Kallidon, who was just over her shoulder. "Sighs, when our light leaves the miniaturization field and expands, it must give off heat energy, and when it's reflected back into the ship it must absorb energy in order to be miniaturized and the energy must come from us. Am I right?"

"Possibly, Adher," said Kallidon without looking up. "Our use of light results in a small but steady loss of energy, but our reserves can supply that. It is not a significant drain."

"And we're steady in the bloodstream?"

"None fear. We are. Naturally, you'll probably find the internal lights in a while and you'll see the outside more clearly than."

Almost as though that was a signal, Brannan said, "There's now we can relax for a few minutes." The light dimmed.

At once, objects outside the ship came dimly into view. He could not make them out clearly yet, but they were innumerable in something homogeneous, something with objects floating in it, as would be true of blood.

Mattison stared intently, straining at the constraint of his seat belt. He said, "But if we are in the Bloodstream, which is at a temperature of thirty-seven degrees Celsius, we're --"

"Our temperature is conditioned. We'll be quite comfortable," said Kallidon. "Really, Adher, we've thought of these things."

"Perhaps you have," said Mattison, slightly offended. "But I haven't been privy to these thoughts, have I? How can you condition the temperature when you don't have a cold skin?"

"We don't use our skin. Our bodies come open, and the ship was specially fitted to absorb all of radiating particles which, under miniaturized conditions, have a mass of very nearly one. They therefore travel at virtually the speed of light, penetrating matter as easily as neutrons do and carrying off energy with them. In fact there is second they are an outer space, so that the effect of its transferring heat from within the ship into outer space and we keep cool. Do you see?"

"Yes," murmured Mattison. It was legitimate -- the principle of heat loss, and so there was need to building in some of miniaturization.

Mattison noticed that the controls of the ship, immediately under Duchown's hand, were hidden, as were the instruments before Kallidon. He straightened to take himself in to see a control or screen from Kanan. It contained what Mattison thought might be a map of the circulatory system of the body. For a moment, before his body ceased its fight against the twisting of the hull and he sank down in his seat again, he saw a small dot in the system, which, he believed, was a device to mark the position of the ship in the left normal cerebral artery.

It was pointing a little from his offset and had to wait a few moments to regain control of his breath. The reason in which his own computer seemed was diminished and he decided that he felt from his face by eating his left hand. Then he looked out.

Far to the distance, Mattison could see something that looked like a wall, a barrier of some sort. It reached, then approached, then receded again over and over, rhythmically. Automatically, he looked at his watch for a few seconds. "Is clearly the pulsation of the arterial wall."

He said to Kallidon in a low voice, "Obviously the passage of time is not affected by miniaturization. At least the pulsation of the heart is -- just what is ought to be, even though I view it with miniaturized eyes and time is with a miniaturized watch."

It was Kanan who answered. "Time isn't quantized apparently, or at least it isn't affected by the miniaturization field, which may be the same thing. That's convenient. If we had to take a shifting time flow into account, things might become substantially complicated."

Mattison suddenly stopped and turned his thoughts in other direction.

If they were made to move, and the ship was moving faster every second by the count, the forward movement would have to be in space, say, until far back extension of the distant heart -- on the scale of that present size. And if that was so, he ought to feel these spots of strain.

He closed his eyes and tried to hold it still as possible, to concentrate on all except for the trembling of the Brownian motion -- which, after all, he could not see or way control.

Ah, he could feel it. A slight but distinct push backward as the spot started, a slight push forward as it came to an end.

But why was the spot not more annoying? Why was he not yanked backward and forward in a jolting fashion?

And then he thought of the man he no longer possessed. With his remaining nose to slip, his inertia was similarly tiny. The vicinity of the normal field of the bloodstream carried an immense cushioning effect, so that the spots were all but lost in the Brownian motion.

And, over or slightly, Mattison felt himself relax. He felt something inside himself tighten a bit. The miniaturized environment was unexpectedly benign.

He looked through the ship's transparent hull again, his eyes focusing on the volume between himself and the arterial wall. He could see nothing, faintly reddish. No, no bubbles, but things of substance -- many of them. Some turned white and changed again when they did so, so they were not spheres. They were disks, he now realized.

The red here was in fact an abnormality. Why was he not in identifying them, since he knew he was in a bloodstream? -- But then he knew the answer to that, too. He could not really compare of himself as being a bloodstream, a few centimeters in diameter to suppose he was in a substance making its way through an artery. He would naturally expect to see the familiar rigidity of an ocean and would be probably puzzled at anything he did not fit his imagination.

He tried to see the red particles of the blood -- the erythrocytes -- and felt recognition there.

Of course, they weren't but fairly spherical. Each one showed some chromatic light to produce color. Got them to look, through millions and billions of them, and they would absorb enough such light to appear red -- a natural blood, anyway, and they were in an artery now. Once the cells withdrew the oxygen carried by the red corpuscles, the individual corpuscles would turn fairly black, and in black, blue-purple.

He watched the erythrocytes with interest and saw them quite clearly now that he had recognized them for what they were.

They were biconcave discs, the centers depressed on each side. To Mattison, they were continuous, considering that, under normal conditions, they were microscopic, perhaps were and a half-micrometer in diameter and a side over two micrometer thick. Now here they were, visible objects the size of his hand.

There were many of them in sight and they had a tendency to pile together in ridges. These weren't ones, however. Some corpuscles would pool off the ridges and others would add on and there were always some single corpuscles in view. These that were in sight today to slip, they weren't moving relative to the ship.

"Take a," said Mattison. "Now we're simply going with the flow."

"That's right," said Kallidon. "You're moving?"

"I take a," said Mattison. "Now we're simply going with the flow."

But, after the red corpuscles seemed faintly stationary relative to the ship, Mattison noticed one corpuscle drifting slightly toward the ship, carried perhaps by a bit of microtubule or by a cushion-puff of Brownian motion. The corpuscle flattened slightly and immediately against the plate of the ship and then reformed.

Mattison named it Kallidon. "Did you see that, Shapiro?"

"The red corpuscles nothing?" Yes."

"Why didn't it miniaturize? Surely it missed the field."

"No, quite, Adher. It bounced off the field, which extends a small distance beyond any miniaturized object, such as our ship, in every direction. There's a certain repulsion between normal matter and miniaturized matter, and the greater the extent of miniaturization, the stronger the repulsion. That's why very tiny objects such as miniaturized atoms or subatomic particles grow together without interacting with it. It's also that which keeps the miniaturized state maintainable."

"How do you mean?"

"Any miniaturized object is always surrounded by normal matter, unless it is in deep space. If nothing were to keep normal matter out of the field, each matter would forever be miniaturizing and, in the process, absorbing energy from the miniaturized object. The drain would be significant and the miniaturized object would quickly disintegrate. In fact, it would be impossible to induce miniaturization in the first place, since the energy extracted into the miniaturizing object would build up and stay. What we would then be trying to do, in effect, would be to miniaturize the entire Universe -- Of course, the explosion isn't extremely strong as our. If a red corpuscle collided with sufficient force, the colliding surface might undergo some miniaturization."

Mattison turned back to the view and, almost at once, something that was obviously a deformed red corpuscle drifted into view.

"Ah," said Mattison. "Is that an example of how this operation can be used eventually?"

Kallidon had several Mattison in a better view in the direction he was pointing. The check his head. "I don't think so, Adher. Red corpuscles have a limited life of about a hundred and twenty days. The poor things wear out and break down. In the volume of blood we can see, several dozen would break down every minute, so that new and changed red corpuscles would be a common sight. -- And that's a good thing, too, for it means that if we were to use power and risk through the bloodstream, breaking up a few red corpuscles, or even a few millions, it would make no difference to Shapiro. We couldn't possibly break down red corpuscles in a more even appearing that of natural breakdowns."

Mattison said, "What about phlebotomy?"

"Why do you ask?"

"That must be a phlebotomy I see then." He pointed. "It's bent-shaped and only half the size of the red corpuscles."

A pulse and then Kallidon nodded. "Ah, yes. I see it now. That's a phlebotomy. There should be one in every twenty red corpuscles."

The was about eight. The phlebotomy was in a curved, reaching out for rings as he passed, and each red corpuscle was an ordinary iron ring, the occasional phlebotomy would represent the curved heart ring.

Mattison said, "My, my. Sighs, in that phlebotomy are more fragile than red corpuscles and when they break they start the clotting process. If we break down, we'll start a clot-forming in the artery. Shapiro will then have another stroke and carry off."

Brannan was about to turn the check between Mattison and Kallidon, interrupted by this point. "On the other point," he said. "Phlebotomy are not as fragile as all that. They can strike an artery and rebound without harm. The danger of another stroke lies in the arterial wall. The phlebotomy are moving much faster relative to the base wall of the arterial artery than they are relative to us, but the inner wall of the artery may be layered with cholesterol and lipid plaques of all kinds. The surface is therefore much rougher and more than the smooth plastic half of our ship. It is the arterial wall that the ship might snag -- not here. And even the isn't too numerous a danger. A single phlebotomy -- or even a few hundred of them -- might be broken and still be insufficient to start the clotting process in a way that doesn't depend on. Massive quantities of phlebotomy must break to start the clot."

Mattison watched a phlebotomy that swamled now and then, behind the numerous red corpuscles. It wanted to see if it would make contact with the ship and, if it did, what would happen. The phlebotomy, did not stop but continued at a distance.

It then occurred to Mattison that the phlebotomy appeared to be large in his hand. How could that be if they were half the diameter of the corpuscles and red corpuscles were themselves as large as his hand? His eyes caught out of a red cell, and, even enough, a normal considerably larger than his hand.

He said, troubled. "The objects out there are getting larger."

"We're still miniaturizing, obviously," called out Kanan, apparently annoyed at Mattison's seeming inability to draw the proper conclusion from an observed fact.

Brannan said, "That's right, Adher. The contrary is happening as we progress and we want to keep pace with it."

"We don't want to get stuck in the pipe," said Duchown gently. "By being too fat. There, an another thought struck him, he added, "You know, Natsuba. I've never been thin in this in my life."

Brannan said, interested. "You are so fat as ever. Actually, on the scale of Plank's constant."

Mattison was in no need for any more. "But how far do we miniaturize, anyway?"

"Down to molecular size, Adher."

And all of Mattison's apprehensions melted away again.

It.

Mattison felt himself in his father's radius at once that they were still miniaturizing and, at the same time, being reformed as Kanan for making it plain he recognized the folly. The trouble was that all these others had been being and thinking miniaturization for years and he himself, a newcomer to the concept, was still trying to strain it into his subjective brain. Couldn't they speak to him with difficulties?



41.

Mortson was applied. The entire ship was encased by something that looked precisely like fog – a gray granular fog, which a multidisciplinary, fairly diverse than the rest, with its way around them. Mortson knew that this must be the nucleus of the white cell.  
Knox stepped out eagerly. "Apparently, once the white cell gets itself for equilibrium, the rest is automatic and nothing will stop it. – What now, Nerdley?"

Bromera replied quietly. "I admit I hadn't expected this. The facts is true."  
"What the differences?" said Dehaves. "Ornington. We're no more. What can this thing do to us?" Knox struck in. It is not a consciousness!"

Knox said. "I am not to depart. We're to stand exactly right and do nothing except as possible to defend it."  
"Is that good," said Dehaves. "I wish there the joy of the attempt. The ship's wall is not designed to anything a white cell has. After a while, it will reject us as indigestible matter."

"How will it know?" asked Kulliton.  
"How will it know what?" snapped Dehaves.  
"How will it know we are indigestible matter?" It was opened into activity by our hatched charge pattern."

"Which you intended."

"Yes, he is someone remarkable, the white cell, once stimulated, apparently has to go through a whole cycle of activity. It is not a thinking device. It is entirely autonomic." Kulliton was frowning now and looking around at the others. "It seems to me that the white cell will continue trying to digest us until it is given the appropriate stimulus that will get its equilibrium mechanism into reverse and allow it to eject us."

Bromera said. "But we can have the charge pattern of a real response again. That you mean to stand stationary completely?" It almost seemed calm."

"I think it's too late for that," said Kulliton. "I don't differ, though we're about standing up to Bromera." The red composite pattern kept its unmodified, but since it is regulated by some means, it would seem that the pattern alone is insufficient to evoke action. After all, here we are, we are not being ejected!"

Her eyes – all five pairs of eyes, in fact – steadily surveyed the wall of the ship. They were stopped by the steady cell.

"I think," Kulliton went on, "that there's a charge pattern to the kind of indigestible matter left by the nucleus the white cell is designed to reject and that that alone would be a trigger for rejection."  
"In that case," said Dehaves, "you're the pattern is water, Sophia, my little chicken."

"Giddy," said Kulliton. "If you will let me what it is because I don't know. I can't just try patterns at random. The number of possible patterns is astronomical."

"As a matter of fact," said Knox. "Can we be sure the white cell rejects anything at all? Perhaps indigestible matter becomes part of its granular material and remains within it until it is removed and discharged in the spleen?"

Bromera said sharply (perhaps unglad down with the knowledge that she was responsible for their present situation, though Mortson). "There is no point in holding. It has a constructive suggestion?"

Dehaves said. "Can we see on the visualization screen and have a copy of the white cell?"

"No," said Bromera sharply. "Do you know the direction which we are heading in the moment? Inside this food vacuole may be slowly moving; it may be drifting through the cell's substance. If you track your way toward, you may damage the wall of the blood vessel and the brain itself."

Knox said. "For the matter, while cells can wriggle out of a capillary, working their way between the cells that make up the capillary wall. Since the path we have taken has led us into an anomalous breach that has narrowed to just capillary size, we can't even be sure that we're still in the bloodstream."

"Yes, we can," said Mortson suddenly. "The white cell can pinch itself small, but it can't pinch so small. If it squeezes out of the vessel, it would be forced to leave or be killed. – And that would be a good thing, except that I don't do it."  
"There you are," said Dehaves. "I should have thought of a cone. Nerdley, make us bigger and crack the white cell open. Give an indignation like it has never had!"

Again a sharp negative from Bromera. "And crack the blood vessel open, too? The blood vessel is fairly small now, not much wider than the white cell."  
Kulliton said. "If actually will get to touch with the Green, someone there might have an idea."

"There was chance for a moment and then Bromera said in a half-angry way. "Not just yet. We have done something foolish – well, there – and you know as well as I do that it would be better for all of us if we didn't do it."

"We can't see Green," said Knox methodically. "The fact is that I don't know where we are by size. I can't rely on the white cell drifting with the bloodstream or with maintaining any given speed for that matter. Once we are lost, it may take considerable time to locate ourselves and we may need help from the Green to do it, too. In that case, how do we explain being lost?"

Mortson said. "Here about the air-conditioning?"

There was a pause and Bromera said. "What do you mean, Albert?"

"Well, we're sending automated substrate particles out of the ship and into interplanetary space. They carry heat away from the ship, I've said, so that we remain cool even in the all-pervasive warmth of the body we're in. The coolant must be something the white cell is not designed to reject. If we turn up the air-conditioning and become colder still, there may come a time when the white cell will be uncomfortable enough to eject us."

Bromera smiled this over and said evenly. "I think – possibly – that might work."

Dehaves said. "Don't bother thinking. I've turned up the air-conditioning to maximum. Let's see if anything happens besides all of us getting frowny."

Mortson watched the fog inside. He was well aware that he was not in the others. He was not in any way out of communication either – an isolated experiment. Not was he being his main over the face of Shapiro and so – Tripping his own existence, it occurred to him that having come to get, having been stimulated and finding himself in a small central bubble, he suddenly had an urge to check his notes. Had he come this far in order to turn back and spend the rest of his life, looking up an imaginary thread and therefore nearly in contact and crying at the depth of his mind. "Should it be much?"

"Yes, we had had the full program in our memory, we wanted to ensure the program was delivered without interruption. When we were to abort it, Dehaves's eyes looked on our thoughts. "I don't think this tells us much about what's happening."

Mortson was conscious of a blinding light, and observed as he became aware that this comes uniformly was a really inadequate shield against the sudden onset of vision.  
And perhaps the white cell "wriggle" this, too, for the fog thinned and it still appeared in it. Then, in another moment or two, the surroundings were clear and the white cell was a ball of fog in their ear, drifting away – or perhaps crawling away – aimlessly, from an unpleasant experience.

Bromera said (sounding a little dumbfounded). "Well, it's gone."  
Dehaves looked both hands high in the air. "A waste – if we had a small volume of vodka with us – to our American here. It was an excellent suggestion."

Kulliton looked at Mortson and smiled. "It was a good idea."  
"As good as mine was had," said Bromera. "But at least we know that your technique can do what I should. Sophia – as long as we know enough. And as for you, Albert, cover the air-conditioning assembly before we all catch pneumonia. – So you see, Albert, we have already done well to take you with us."

"Perhaps," said Knox rightly. "But in the meanwhile, I think the white cell took on an occasion. We are not where we were and I do not know exactly where we are."

Bromera's lips tightened and she asked with some difficulty. "How can you not know where we are? We were inside the white cell only a few minutes. It couldn't have moved us into the forest, could it?"

Knox seemed at least equally upset. "No, we're not in the forest. Madam!" (He came down heavily on the horrific, going to the French pronunciation. But I suspect the white cell, dragging with it, has turned into a branching capillary so that we are now out of the mainstream of the aorta – which was not just quite a capillary – that we were carefully following.")

"Which capillary did it turn into?" asked Bromera.  
"That is what I don't know. There are a dozen capillaries it might have turned into and I don't know which one it was."

"Doesn't your old marker –?" began Mortson.  
"My old marker," said Knox at once. "Works by dual encoding. It'll know where we are and the speed at which we're progressing, it will move along with us, turning when I tell it to turn."

"Yes, marker," said Mortson mechanically. "It only makes you position similar to your own position – so that that's that?"

"It is not a magical marker," said Knox firmly. "It was to mark out place and keep track of it, but we have the confusion of the three-dimensional complexity of the bloodstream and the neural network, but we have to guide it. At the stage, it's not complex enough to guide itself. As an emergency, we've had to be forced from inside, but that's time-consuming process."

It seemed to him for some time to ask a classically foolish question and the answer seemed not to be Dehaves. He said. "Why should the white cell have turned off into a capillary?"

Knox turned out. Speaking so rapidly that Mortson could hardly make out the Russian, he said. "And how should I know that? Am I privy to the thought processes of a white cell?"

"That's enough," said Mortson sharply. "We're not here to fight with each other." (He raised the quick look that Bromera had then toward him and he chose to interpret it as representing gratitude.)

"Actually," he went on. "No relation is simple. We're in a capillary. Very well. The current is a complex path in capillaries, so where as the difficulty lies in making sense of the immense microscopic organs? If you put them in reverse, we will just back out this capillary and eventually – not a very long eventually, either – we will be back at the junction point and in the aortic arch. Then we continue upward until we get to the proper network and into the proper capillary. We have lost a little time and spent a little power, that's all."

Mortson said seriously. "We are not drifting at all on this fact? It's a perfectly natural course of procedure. If you had been driving a car and accidentally turned into a narrow alley and found it the wrong one, wouldn't you back out?"

Bromera was shaking her head. "About. I'm sorry. We have no reverse."  
"What?" Mortson stared at her blankly.  
"We have no reverse. We have only a forward drive. Nothing more."

Mortson said. "There is a possibility to – No reverse gear at all?"

"None."

Mortson looked around at the other five faces and then burst out. "Of all the stupid, incompetent, malfunctioning creatures. It's only in the Zoo!"

He stopped.

Bromera said. "Think the thought. You were going to say that it's only in the Zoo that each such situation would be allowed to pass?"

Mortson confessed that said promptly. "I was going to say that you, it might be in the simplest creature, but I'm sorry – and the answer may be yes, or no?"

"And do you think we are angry, Albert?" said Bromera with half-glared upon him. "Do you know how long we've been working on a ship like this? Year after year? Since civilization first seemed to become a practical possibility, we have been thinking of creating a bloodstream emerald and exploring the working mammalian body – if not the human body – from within."

"But we were not planned and the mind we designed, the mass expensive and the program gone, and the mass engineers the background to Moore became in response. I can't blame them; they had to balance the expense of the project against other expenses in nature that were far less problematical than mineralization was. So, as a result, the ship grew simpler and simpler in concept, as we cut one first this, then that, then the other thing. Do you remember when you Americans were building your first dinettes? When you planned and what you got?"

"In case, we ended up with an improved car. For illustrative only. We planned on one the bloodstream and for current carry, so there it would. When we had all the information we could get, we would drive dematerialization. This would kill any animal which we had been studying – it would only be an animal, of course, but even so some of us spent our time. That was all the ship was planned for. Nothing more. We had no way of knowing that we would suddenly be faced with a situation in which we had to invade a human body, in which we had no specific, open in the brain, in which we would have to emerge without killing the body, in which we had to – and all we had was this ship, which was meant for the job at all."

The anger and contempt on Mortson's face had vanished into a frown of concern. "What did you do?"

"We worked as fast as we could. We improved the mineralization means and a few other things, designed that at any moment Shapiro could, and equally sophisticated – or more so – than our heavy work came so to make some faint mistakes. Well, I don't think we made any faint mistakes, but still the information means we ended up with were to be used for acceleration only when absolutely necessary – they had originally been designed only for lighting, air-conditioning, and other low-energy uses. Of course, we lacked the time to do a complete job, so – no reverse gear."

"That would mean reverse and then we're in the hole. About all, we had to complete with with the realistic needs of agriculture, commerce, industry, crime control, and half a hundred other departments of government all checking at the national pace. Of course we had enough."

Dehaves smiled and said. "And how are we? As my good father used to say. 'Only completion can set former suffer. Who else would be such a hurry to hear bad news?'"

"Your father is telling me nothing I don't know. Actually. At least with that remark, I'm afraid to ask, but can we simply turn the ship?" Mortson asked.  
Dehaves said. "You are sure to be afraid in the first place, the capillary is too narrow. The ship has no room to turn."  
Mortson shook his head impatiently. "You don't have to do it in the ship's present case. Think it a bit. Mineralize it. You're going to have to mineralize anyway before getting inside a cell. Do it now and turn it."

"Unbearable," admonished Mortson to himself. Then aloud. "How could you come to begin the project with us inadequate at all?"

Knox said. "We had no choice but to use some existing ship design. The others were no more responsive." "Look, don't you come to begin the project with us inadequate at all?"

Bromera, her face expressionless, her voice emotionless, said. "Of the proper cells, I will take full responsibility."

Kulliton looked up and said. "Nerdley, weighing blame will not help us. Right now, we have no choice. We must go ahead. Let us move on, mineralize if we have to, and that means likely cell to come."

"Any cell?" said Knox in a stiffed fury, and addressing no one. "Any cell? What good will that do?"

"We might find something useful anywhere we go. Nerdley," said Kulliton.  
When Knox made no response, Bromera said. "In these any objection to that, Yarr?"

"Objections? Of course there's objections." He did not turn, but his very back seemed stiff with anger. "We have two billion neurons in the brain and someone is suggesting that we wander among them blindly and choose one at random. It would be a rather task to drive against Earth's trends in an automobile and randomly choose some human being on the way side in the hope that he might be a long hair brother. Much easier. The number of human beings on Earth is a little more than half the number of neurons in the brain."

"That's a fair analogy," said Kulliton, carefully turning her face toward Bromera. "We are not trapped in a blind search. We are looking for Peter Shapiro's thoughts. Once we do find them, we need only move in the direction in which the thought emanates."

"If you're looking for Mortson's thoughts, that's hard. If you might expect your partner to be the direction in which the thought emanates, that's not the case."

"Nerdley," said Knox. "I had planned on a cone that would have taken us directly to an appropriate location in the particular neural network that is related to Albert's research. The bloodstream would have carried us there and wherever someone picks it, the ship would have followed. And now –" (He lifted both his arms and shook them in the interrogative gesture.)

"Nevertheless," said Bromera, her voice muted. "I don't want us to have any choice but to do what Sophia suggests. If that fails, we may find a way out of the body and perhaps try again another day."

"Well, Nerdley," said Mortson. "There just may be another way to remedy the situation. It is all possible for one of us to go outside the ship and into the bloodstream?"

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Mortson did not expect an affirmative answer. The ship, which had seemed to him earlier to be a marvelous example of high technology, had now shrunk in his imagination to a stopped-down cone of which nothing at all could be expected.

It seemed to him, there were any practical conditions, so do Kulliton had suggested – no any brain cell they could reach. But if that failed, it would mean getting out of the body and trying again, as Bromera had just said, and Mortson did not feel to be physically capable of going through this again. He would try any wild chance to prevent that.

"It is possible for one of this ship, Nerdley?" he asked again in a hoarse broken voice. (The others were no more responsive.) "Look, don't you come to begin the project with us inadequate at all?"

Bromera finally seemed to consider his request or the question. Her face expressionless that she could not evade. "We have no choice. One thing out for recommending the plans say. It should be under the back of your neck, back here, in fact."

She unclipped herself and went into a crouched, that seemed to get her into a horizontal position, her light coming clinking like silver.

"It's here, Albert," she said. "I presume it has been checked – I mean, against green cones. There would be holes, no obvious ones. I don't know that it's been field-tested."

"How could it be?" said Mortson. "I take it this is the first time the ship – or anything – has been in a bloodstream."

"I imagine it must have been checked in warm water adjusted to the proper viscosity. I shame myself for not checking on this, but of course there was no thought at any time of anyone leaving the ship. I had even forgotten the suit existed!"

"Do you at least know if the suit has an air supply?"

"Indeed it does," said Bromera with some asperity. "And it has a power supply that makes it possible for it to have a light of its own. You mustn't think of it as an inter-connection, Albert. – Through," she said with a rueful sigh. "I suppose we – at least, I – have given you some reason to think so."

"One, the suit has oxygen?"

"Yes, as well as food and fuel. It is meant for maintaining in fact."

"In that case," said Mortson, "there is perhaps a way out."

"What are you thinking of, Albert?" asked Kulliton.

Mortson said. "Suppose we mineralize a bit further so that the ship can run easily without exiting the capillary walls. Someone then gets into the suit, moves outside the ship – assuming you have an air lock of some sort – and, propelling himself by means of the Rippers, tries the ship. Once the ship is turned, the person gets back into the ship, which is now facing in the correct direction. The matter is stated and we push our way back against the bubble capillary contents to the junction with the aorta and then back to our original path."

Bromera said thoughtfully. "A desperate remedy, but our condition, too, to depart. Have you ever done any such thing, Albert?"

"Come," said Mortimer. "That's why I thought of this."

"And none of us here — which is why we didn't think of it. In that case, Albert, unclasp yourself and let us get this out on you."

"Oh no!" Mortimer squealed.

"Of course. It is your idea and you're the one with experience."

"Yes or the Mademoiselle."

"We have experience in the Mademoiselle, but the rest of us don't work here. It is yours!"

"No," said Mortimer strongly. "This thing is your baby — you know. I've done the thinking that got you out of the water, and I've just done the thinking that could get you out of your present fix. That's my share. You do the thing. One of you."

"Ah-ha," said Bismarck. "We're all in this together. In fact, we are neither Swiss nor American; we are human beings trying to survive and to accomplish a great task. Who does what depends on who can do what best, and nothing more."

Mortimer caught Kalliban's eye. She was smiling very slightly and Mortimer thought he could read admiration in her smile.

Grasping safely at the belly of being influenced in so childish a manner by a stranger for admiration, Mortimer knew he would agree to his mistress's of his own suggestion.

44.

Bismarck had the cut on Liza's ship itself. It was transverse, and, except in the head portion, it lay wrinkled and flat. To Mortimer, it looked unpleasantly like a life-sized caricature of a human being drawn in outline by a child.

He reached out to touch it and said, "What is it made of? Plastic, was it?"

Bismarck said, "No, Albert. It is thin, but it is not weak and it is astonishingly tough and firm. No foreign material will cling to it and it should be perfectly waterproof."

"Shouldn't I scratch Mortimer underneath?"

Duchess interrupted. "It is ludicrous! I seem to recall it was tested some time ago."

"You seem to recall it."

"I thank myself for not having checked it personally on going over the ship, but I was, forgive me, careless. There was no thought —"

Mortimer bitterly exclaimed, "You saw your father meet him and you saw that self-blame is a cheap penalty for incompetence. As usual!"

Duchess replied calmly, "I am not incompetent, Albert."

Bismarck said, "We will have our fight when this is all over. Albert, there is nothing to worry about. Even if there were a microscopic leak, the water molecules in the plasma outside are far larger in comparison to the cut than they would be under normal conditions. A leak in a normal cut might let in normal water molecules, but that same leak in a mineralized cut would not allow those same water molecules, nor gases in comparison, to enter."

"The water comes," murmured Mortimer, looking for advice.

"Of course," said Bismarck. "We can insert a standard oxygen cylinder right here — small one, but you won't see them for long — an absorption cabinet for carbon dioxide here, and a battery for the light. So, you see, you will be equipped."

"But the same," said Krieger, leaning to look at Mortimer disapprovingly. "You had better do it as quickly as possible. It's warm out there — fifty-seven degrees Celsius — and I don't think the cut has a cooling mechanism."

"No cooling mechanism?" Mortimer looked at Bismarck questioningly.

Bismarck shrugged. "It is not easy to cool an object in an isothermal medium. This entire body, which is as large as a mountain to us, is all at a constant temperature of thirty-seven. The ship itself can be cooled by means of the microtitanium engines. We can build an equivalent device into the cut, but then, as we keep saying, you won't be out for very long — Still, you had better take off the suit your wearing now, Albert."

Mortimer demurred. "It's not heavy. Just a thin layer of cotton."

"It's not proper with it on," said Bismarck. "You will be sitting in wet clothes when you return to the ship. We have no spare clothing we can offer you."

"Well, if you insist," Mortimer said. "Then to conserve the water and fresh air inside to keep by me piece off his legs, something which proved surprisingly difficult in his nearly negligible mass."

Bismarck was writing his discomfort, said, "Actually, please help Albert into the cut."

Duchess worked his way, with difficulty, over the back of his seat to where Mortimer floated. It was a cramped position, against the hull of the ship.

Duchess helped Mortimer into the lap of the seat at a time, though the seas, working together, were scarcely less chaotic than Mortimer himself had been. Everything about us, Mortimer thought, is designed to work in the presence of difficulty.

Duchess maintained a stinging composure as they struggled. "The material of the cut," he said, "is precisely that of the ship itself. Entirely Swiss, of course. Though, for all I know, you have a similar material in the United States — also Swiss. I am sure." He glanced on a small note of inquiry.

"I wouldn't know," murmured Mortimer. His legs lay wrinkled in way into a sheath of thin plastic. It didn't stick to his leg, but moved smoothly along, yet it somehow gave the impression of being cold and was without, in reality, being either. He had never encountered a surface quite like that of the plastic cut and he didn't know how to suggest the sensation.

Duchess said, "When the seams close, they become virtually a single piece of material."

"How do they open again?"

"The electromotor can be controlled once you're back in the ship. For now, most of the exterior of the cut has a mild negative charge, balanced by a positive one on the inner surface. Any portion of the cut will cling to any positively charged area on the ship's surface, but not so strongly that you can't pull them off."

Mortimer said, "What about the sea and of the ship when the engines stop?"

"You need not be concerned about them. They are working at minimum power for our cooling and illumination and any particles emerging from them will pass through you without inflicting your presence at all. The oxygen cylinders and waste absorption work automatically. You will produce no bubbles. You need only breathe normally."

"One must be grateful for some technological thoughts."

Duchess frowned and said firmly, "It is well known that Swiss specialists are the best in the world and the Japanese are second."

"But this is not a question."

"It is needed on one in many ways." Duchess made an effort to pull the headpiece down.

"Why," said Mortimer, "what about your suit?"

Duchess paused. "Why would you need a suit?"

"To communicate."

"You will be able to see us, and we will be able to see you. Everything is transparent. You can signal to us."

Mortimer drew a deep breath. "In other words, no radio."

Bismarck said, "I am sorry. Albert. It is really only a very simple suit for small tanks."

Mortimer said stoutly, "Still, if you do a thing, it's worth doing well."

"Not in business," said Bismarck. "It is then, if you do a thing, it's worth doing cheaply."

There was an absence of comment and silent agreement, though Mortimer said under to wipe wet hair. He said, "How do you plan to get me out of the ship?"

Duchess said, "Right when you're standing, the hull is double."

Mortimer turned sharply to look out, of course, over Bismarck. He could not seem to remember for three seconds meaning that he was essentially sightless. Duchess helped him control his body at some cost to himself (We must look like a pair of clowns, Mortimer thought.)

Mortimer found himself staring, at last, at the indicated portion of the hull. Now that his attention was drawn to it, it did seem fairly less transparent than the other portions, but that night will have been his imagination.

Duchess said, "Held still. Albert. My father used to say: 'It is only when a child has learned to hold itself that it can be considered a creature of some.'"

"Your father was not considering zero-gravity conditions."

"The air lock," said Duchess, ignoring Mortimer's comment. "It is needed on the way to our new sea surface mechanism. The inner layer of the hull will pull back, then move around you and seal. Most of the air between the layers will be sucked out — we can't afford to waste air — which will give you a strange feeling, no doubt. Then the outer layer will pull open and you will be outside. Simple? — Now, let me close your helmet."

"What else do I get back?"

"The same way, no return."

Now Mortimer was closed in completely and a definite electromagnetic sensation helped steady him, as the cushions of his bagged to wipe out the swirling sensation of space.

Duchess was pushing him against the hull and Krieger, having managed to stare about in his work, was helping. The two men remained calmly in their seats and were staring intently.

Mortimer did not for a moment feel that they were staring at his body; he wished they were, in fact. That would be relatively benign. He was absolutely certain they were watching to see if the air lock would work, if his helmet would remain alive for more than a few minutes once he was outside the ship.

He wanted to cry out and call off everything, but the impulse to do so remained only an impulse.

He felt a slippery motion behind him and then the whispering of transparent sheets before him. It was like the sea hull creeping itself around his waist and chest, but here the sheet encircled him entirely, head to toe, side to side.

It clung to him more and more tightly, as the air between was pumped out. The material of his suit seemed to retain normal air as the air inside it pushed against the developing vacuum outside.

And then the outer layer of the hull behind him whipped away and he felt a soft breeze that was tantamount normal and into the blood plasma within the capillary.

He was out of the ship and on his own.

## CHAPTER 11 — DESTINATION

Going there may be most of the fun — but only if you get there in the end.

—Duchess Santar

45.

Instantly, Mortimer felt the swirling, warmth and gasped. As Krieger had said — the temperature was 37 degrees Celsius. It was the heat of a comfortable summer day and there was no cooling. No shade, no breeze.

He found himself getting his bearings. Clearly, Bismarck had remembered the air filter while he had already checked out the cut. The vital part of the capillary was further away. He could see only a bit of it, far behind himself and the wall was a huge, cloudy object. A red capillary, of course. There a plastic was draped between the red capillary and the wall, but very closely.

All of them — red capillary, plastic, himself, the ship — was moving along with the main moving center within the capillary. If one judged by the slow drifting motion of the ship in the wall.

Mortimer wondered why he felt the Bismarck motion so little as he felt. There was linked the sensation of movement and the other objects in sight appeared motionless. Even the table of the capillary wall seemed to shift somewhat, in a rather peculiar manner.

But there was no time to be kindly analytical. He had to get things done and get back within the ship.

He was a meter or so from the ship. (A meter? Surely subjective. How many microtitanium — how many millimeters of a meter was he separated from the ship in microtitanium? He didn't pause to try to work out an answer to the question. He recalled his fingers to get back to the ship. The plasma was distinctly more viscous than mercury — approximately so.

The heat continued of course. It would never stop until the body he was in remained alive. Mortimer's forehead was getting more — except, he had to get outside.

His hand reached out to the place where he had felt the ship, but it reached nothing. It was absent as though it were rubbing into an ordinary cushion of air, although he was still in there. There was nothing between the top portion of the hull of the ship and his raised hand except, at best, a film of fluid.

A moment of thought and he was what he was happening. The outer skin of his suit carried a negative electric charge. So did that portion of the hull he was touching. It was repelling him.

There were other portions of the hull, however. Mortimer told his hand along until he was aware of reaching the plastic. That was not in itself enough, however, for his hands moved along the area as though it were infinitely slippery.

And then, almost with a click, his left hand found. It had passed a region of positive charge and remained in place. He tried to pull free first by a gentle backward push and then more forcefully. His right as well became riveted to the spot. His left farther along with his right hand. Anchor star and he might be able to pull his left hand free.

Click. Anchor star was his right hand, he pulled as he felt. Nothing happened. The clung to the hull, crystallized them.

Draps of transparent material drew his forehead and cheeks to his temples.

He stooped suddenly, signaling his legs to an actuary of effort.

They were looking at him, but he could be gotten to be trapped hands? The red capillary that had been companion to the ship since he had emerged from a drilled shaft and snuggled him against the hull. His chest, however, did not cling. Luckily, it was not set against a positively charged region.

Kalliban was looking toward him. Her lips were moving, but he could not get word — not Bismarck, at any rate. She did something with her computer and his left arm pulled free. Fortunately, she had weakened the intensity of the charge.

He nudged his hand in what he hoped would be interpreted as a gesture of thanks. Now it would only be necessary to work his way back, positively charged area by positively charged area, until he reached the rear of the ship.

He began the motion and found himself more or less poised, but not so much this time by the hand pull of the electromagnetic interaction as by the wall's pull of the red capillary.

Mortimer thrust at with his hands and used to tug Bismarck's pink leader. The static surface film of the cut still gave and held him out, but retained more strongly. The more he pulled, finally, Mortimer was pushing inwardly, not, as he tried, he was, toward him against the ship.

He pushed each his hand, which was difficult, but not more so, because as he was, his weakened shoulder would be shifted free by adhesion or by the force which would surely come over him if he could not get out of the his own body, was producing — and, all the more so because of the effort he was making to free himself of the red capillary.

He tried his arm again and brought it down, the plastic flapped off sideways. It clung through the public of the capillary, pushing it like a balloon. The surface tension of the film pulled the opening wider and wider. Morter created — and the red capillary began to shrink.

Mortimer felt as though he had killed an ineffective being creature and experienced a pang of guilt — then decided that there were millions of others in the circulatory system and that a red capillary could hold 120 days of functioning anyhow.

Now he could pull back toward the rear.

No leg followed on the inner surface of his suit. Why should it? The surface was so warm to his work and nothing would cling to the plastic anyway. What would have been leg was probably collecting in little pools of excess in this corner and flat of the suit, around him as he hid.

He was back at the rear now, back where the ship's surrounding faded because the join of each of the three microtitanium engines broke the smooth flow. Here he was as far from the center of gravity of the ship as possible. (With luck, the other four would move closer to the rear of the ship as they could. — He wished he had thought to make that explicit before getting into the suit.) What he had to do was to find positively charged areas that would hold his hands back and then — push!

He was finding a little dirty. Physics? Psychology? The effect was the same, either way.

He found another dirty track and followed it up to a propellant tank and there there there was a way to climb back to my end again. It felt a square of dry against the truth, but had designed a suit automatically, better than some of all.

He found the handholds against the hull and pushed his feet. Would this work? The same he was trying to be was only microtitanium in quantity, but he had to be disposed. — What? Mortimer? He knew that the square-side law gave him a tremendous advantage, but how much efficiency could he get out of his push?

But the ship moved. He could not that by the motion of the clinging to the capillary wall. He could now reach that wall with his feet, so the ship must be lying across the capillary. He had named it 90 degrees.

When his feet reached the capillary wall, he pushed with perhaps impulsive urgency. It was to push to reach to the wall, the results might be unacceptable, but, he was aware he had little time left and he could not think beyond that. Fortunately, he had rebounded as though they had sunk into spongy rubber and the ship tilted a few times.

Then stuck.

Mortimer looked up. Mouthy, repeating and willing himself to see. (He was almost just the ability to breathe in the squall damp heat of the earth's interior.) It was another red capillary. Surely it was another red capillary. They were as closely spaced in capillaries as — or can on a busy city street.

This one he did not see. The finger on his right hand came down at once, carving open a vice crush, and this time he did not spend a microsecond of worry over the number of an instant object. His legs worked again and the ship moved.

He hoped it was sliding in the same direction as before. What if he had managed to see beyond square down to his red attack on the red capillary and he was simply pushing the ship back into the wrong direction? He was almost beyond caring.

The ship was now parallel to the long axis of his capillary. Groping, he tried to steady the sides. If they were moving forward toward the piece of the ship, then the ship was moving backward with the current and it was facing the junction of the vessels.



"Your father is better off where he is," said Kauer. "Don't dig him up again."

"Ah," said Brannon slowly. "So we are ultimately safe enough to make. You were right?"

"That all right," said Dedmore. "My father used to say. "The closer the offshore is when a storm, when he was cooled down, equate as much he has offered in his eye." I am not sure that I can always follow that advice, but in honor of my father, I will give you Yurt's exact amount this time." He had over his controls, his face pale.

Mortson had learned the abbreviation (not Kauer being born – obviously because he was under a great mistle with only half an ear. His mind slipped back to something else, to Dedmore's confused chatter and Brannon's waiting hand.

He lowered himself into his seat, clasping himself in for stability, and turned his head toward Brannon. "Nasty! A question?"

"Yes, About?"

"Those minimized particles related into the second, unminimized Universe –?"

"Yes, About?"

"Essentially, they demonstrate."

Brannon hesitated. "As Achady told you, they do."

"When?"

She shrugged. "Typically. Like the inductive breakdown of a single atom."

"How do you know?"

"Because it's so."

"I mean, what experiments have been conducted? Nothing has ever been minimized to the extent that we are now minimizing, so surely you can't know what happens to such minimized particles by direct observation."

Brannon said, "We've observed events at atomizations we have reached and in that way determined what seems to be the laws of behavior of minimized objects. We anticipate –?"

"Empiricism aren't always necessarily when they go well outside the realm of direct study."

"Of course."

"You compared spontaneous deminimization to inductive breakdown. Is there a half-life of deminimization? Even if you can't tell when a particular minimized particle will deminimize, can you tell when half of a particular large quantity of them will?"

"We have half-life figures and we think they are expressions of first-order kinetics, or radioactive half-life sort of."

Mortson said, "Can you generalize from one type of particle to another?"

Brannon paused for lips and, for a moment, seemed lost in thought. Then she said, "It would seem that the half-life of a minimized object varies inversely with the intensity of deminimization and also with the initial mass of the object."

"So that as we are minimized to smaller and smaller sizes, the less time we are likely to remain minimized, and the smaller we are to begin with, the less time we are likely to remain minimized."

"That's right," replied Brannon softly.

Mortson looked at the young girl. "I didn't get it right," Mortson. "You're not anxious to tell me things. You don't volunteer information. Tell me, does the rate of deminimization –"

Brannon said, "I am. I am being and I tell him on occasions out of necessity or out of defiance in my position or personality. But I am also a scientist and I would not make scientific facts for any but the most compelling reasons."

"Then what it amounts to is this. Even this ship, although it is much more massive than a helium nucleus, has a half-life."

"A very long one," put in Brannon's quickly.

"But the fact that we are so immensely minimized has curtailed this very long half-life."

"Still leaving it long."

"And what about the individual components of the ship? The molecules of water that we drink, the molecules of air we breathe, the individual atoms that make up our body? They could here – must here – very short –?"

"Not," said Brannon hastily, coming to find order behind his busy jumble to deny something. "The atomization field overlaps where it deals with particles sufficiently close together, and that as it is, or nearly as it is, relative to each other. An extended body – such as the ship and everything it contains – is treated as a large but single particle and has a half-life of deminimization to reach. Those atomizations differs from radioactivity."

"Ah," said Mortson. "So when I was out of the ship and out of contact with it, could it be that I was there a separate particle with a much smaller mass than the ship and its contents and that I had a deminimization half-life much smaller than we have now?"

"Yes, we are," said Brannon, "whether the distance between yourself and the ship was great enough to make you a separate body. Firstly it did, for the time you were out in contact."

"And then had a shorter half-life – much shorter."

"Possibly – but then you were out of contact only a matter of minutes."

"Well, then, when is the half-life of this ship at the present level of deminimization?"

"We can't really speak of the half-life of a single object."

"Yes, because half lives are statistical. For any particle, deminimization can come, spontaneously, at any time, even after a very short time and even though the half-life of a large number of similar particles would be quite long."

"For spontaneous deminimization to come after a very short time when the statistical half-life is long is extremely improbable."

"So we are improbable, is it?"

"No," said Brannon. "It is not impossible."

"So we can suddenly deminimize in five minutes, or even in one minute, or even in I take my next breath."

"In theory."

"Did you all know?" His eyes darted around the ship. "Of course you all know. Why was I not told?"

Brannon said, "We are cautious, About, working for science and for our nation. We know all the dangers and accept them. We have been forced into this and you don't have the nerves that drive us. It is indeed possible that if you knew all the dangers, you would have refused to enter the ship voluntarily under any persuasion or that, being brought on board ship by force, you would be altogether useless to us out of –" She paused.

"Out of short flight, you were going to see," said Mortson. " Surely I have a right to be told. There is reason for that."

Kallina interrupted her own little talk. "We mean to stop tonight or about that. There is no ship in an inadequate state. It is to be halted the ship around at the side of his life. Where was his fear there? It is his life he had to be tested in inside and didn't let it prevent him from doing what had to be done."

Dedmore said, "And just to see you who did not hesitate to go, to the job, that Americans were all ready."

"Then I was wrong. I was speaking hastily and I ask, About's pardon."

"It is this point that Mortson caught Kauer's eye. The man was staring around in the glow and glimmering at him. Mortson did not pretend to be a seaman at making facial expressions, but felt that he could, at a glance, tell what was eating Kauer. The man was judicious – fairly and quite impressively judicious.

44.

The ship continued its slow way along the capillary toward the destination Kauer had marked out: the diptic circle. It was not depending on the current now, which was slow indeed. The engines were going, as Mortson could tell, in two different ways. First, it revealed the ship to have it move along actively, rather than drift passively, and it further distanced the already surprisingly small effect of Brannon's motion. Second, the ship was oversteering out not completely after another.

In most cases there were nudges for one side and the red compasses then rolled backward between the ship and the wall. Occasionally, a red compass would be set too soon and disappear and it would then be pushed forward for a while until it came. The dials would flip backward, leaving the ship's hall unmarked. With at least five million compasses in every cubic millimeter of blood, it didn't matter how many were disrupted and Mortson had become hardened to the change.

Mortson deliberately brought the red circle, rather than of the chance of spontaneous deminimization. He knew there was no appreciable chance of capturing or retaining the same few moments and, even if it happened, it would destroy many. Mortson: Surely by first train would be place so quickly that there would be no conceivable way of saving it.

He saw Sophia, he had had feeling and more slowly. He had felt himself in the bloodstream! He had felt himself in the bloodstream! He had felt himself in the bloodstream!

But he preferred to think of other things just the same.

Kauer's look? What was nothing within him and nothing his quest? He had abandoned Sophia with the utmost care. Did he really think the child was not safe? People needed to reason to come to an emotional conclusion and the suspicion of being wrong, just behind the conclusion definitively and immovably in place. Pathetically. Think of Lorenz in 'The Winter's Tale'. Shakespeare always got these things right. Kauer would push her away and him for the wrong he had done her. He would push her into another man's arms and him for being pushed – and be judicious in addition.

And she? Did she know of the journey and play upon? Would she deliberately turn to Mortson, an American, to see Kauer into captivity? Tenderly putting the American with the west wind. Defending him against all every step. With Kauer, a witness to everything.

Mortson's lips tightened. He didn't like to be a witness, but he had from one to another to produce maximum pain.

It was none of his business, after all, and he shouldn't take sides. But how was he going to not take sides? Sophia Kallina was an attractive woman who reacted with silent zeros. Yurt Kauer was a threatening man who reacted with a compressed feeling of anger. He could neither help bring Sophia nor help thinking Yurt.

He had noted Brannon's staring at him greatly and wondered if the were misinterpreting his thoughtfulness and silence. Did he feel he was brooding about the possibility of death by deminimization – which he was mentally trying not to do?

"It is none of your business, are you?" said Mortson. "So what can you do to give a possibility of deminimization that is spontaneous, unpredictable, unmanageable?"

"Spontaneous and unpredictable, I agree, but who said unmanageable?"

"Can you stop it, then?"

"I can't. We each have our jobs here. Achady minimizes the ship. Yurt directs it to the destination. Sophia gives the ship its electric pattern. You will study the brain waves. As for me, I do back here and make decisions – my major decision up to now was a mistake. I admit that – and I watch the heat flow."

"The heat flow?"

"Yes. Before the deminimization takes place, there is a small evolution of heat, characteristic of games. It is that motion that is deminutizing it, that is what the delicate balance and, after a small delay, starts the process of deminimization. When that happens, if I am fast enough, I can intensify the deminimization field in such a way as to subvert the heat and neutralize the remaining."

Mortson said dubiously. "That has that ever been done – actually been done under field conditions – or is it simply theory?"

"I had been done – under exactly similar conditions of deminimization of course. Well, I have trained it and my reflexes are sharp. I hope we to be caught short."

"Was spontaneous deminimization that put Sophia into a coma, Nasty?"

Brannon hesitated. "We don't really know whether it was an unfortunate encounter with the laws of nature or human error – or both. It may have been a slightly greater violation than the remarkable pair of equilibria that you read and nothing more than that. It is not something I can analyze in detail with you, for you don't have the needed background in the physics and mathematics of atomizations, nor would be permitted to give you that background."

"I understand. Classified material."

"Of course."

Dedmore broke in. "Nasty, we have reached the diptic circle – or so Yurt says."

"Of course," declared Brannon.

45.

Coming to a halt took a while.

Mortson noted, with some mild surprise, that Dedmore did not seem concerned in the process. He was checking his instruments but he was making no effort to control the motion of the ship.

It was Kallina who was deeply involved now. Mortson looked to his left, studying her at the best over her instrument, his hair falling forward but he long enough to get in her way, her eyes inert, but the flag gleaming carrying the keys of her compass. The graphic patterns on the screen she was watching made no sense to Mortson, of course.

"Achady," she said, "move forward just a little."

The finite career in the capillary barely ended the ship. Dedmore supplied a small burst of power. Mortson felt his almost motionless body move slightly backward, since there wasn't sufficient inertia to give it a real job. "The source of red compasses between the ship and the further wall of the capillary drifted backward.

"Stop, stop," said Kallina. "Through."

"I can't stop," said Dedmore. "I'm only out the screen and that I've done."

"It's right," said Kallina. "There is no way." She added the other two words with a slight afterthought of "I think." Then, "Yes, I do have it."

Mortson felt himself moved forward very slightly. Then he noted the nearby red compasses, together with an occasional plastic, dials forward and pass by him.

In addition, he became aware of a total cessation of the Brannon motion, that fact made her had given as good as he was able to ignore – until it stopped. Now his absence was noticeable and it produced the same sensation within Mortson as the sudden cessation of a continuous flow beam would have. He retired usually. It was as though his heart had stopped, even though intellectually he knew it had not.

He asked, "What's happened to the Brannon motion, Sophia?"

She replied, "We've drifted to the wall of the capillary, About."

Mortson looked if the ship was one piece with the capillary wall, so to speak, the bounding wall molecules that produced the Brannon motion would lose their effect. Their impacts would work toward instead on some section of comparatively inert wall, instead of a tiny ship the size of a blood platelet. Naturally, the bounding would cease.

"How did you manage to drift the ship, Sophia?" he asked.

"The usual method there. The capillary wall is partly positive, partly physiological or electrostatic. There are positively and negatively charged groups there and I had to direct a pattern sufficiently complex, and then produce a complementary pattern on the ship, negative where the wall is positive and vice versa. The result is that the ship is moving with the current, so that I have to direct a little ahead and produce the complementary pattern before we pass. I refined these each occasion and then we hit a region where there were no suitable patterns at all, so I had to get Achady to move to ahead to hit into a better region... – But! make it!"

"The ship had a reverse push," said Mortson. "There would have been no problem, would there?"

"That," said Kallina, "and the next ship will have one. But for now, we have only what we have."

"Quite so," put in Dedmore. "As my father used to say. On tomorrow's fact, we can start today."

"On the other hand," said Kallina, "if we had a more that could do all we would want to do, we would have a strong impulse to use it to avoid and that might not be so good for your Shipmates. And it would be expensive beyond. As it is, we used an electric field which is more costly of energy than a more would be and the price is only a little more work for me – and what of that?"

Mortson was quite certain the wasn't talking for his benefit. He said, "You always so philosophical?"

For a moment, her eyes widened and her mouth tightened, but only for a moment. Then she relaxed and said with a small smile, "No, who could be? But I try."

Brannon interrupted impatiently. "Through that, Sophia – Achady, you are clearly in touch with the Green. What's the deal?"

He had taken a long hard look, half trying to be sure to prevent its pain toward Brannon. "Patience, my captain. They want us to stay exactly where we are for two reasons. First, I'm sending out a carrier wave in three directions. They are locating each and using them to locate us in order to see if the location they determine (you will tell me it is dead-end-looking).

"How long will that last?"

"Who can say? A few minutes, at any rate. But then my carrier waves are not very intense and the location must be precise, so they may have to repeat the measurement several times and take a mean and calculate limits of error. After all, they have to be correct. For as my father used to say. "Almost right is no better than wrong."

"Yes, you. Achady. But that depends on the nature of the problem. What is the second reason we are waiting?"

"They're going through some observations on Pyotr Shapiro. His heartbeat has become slightly irregular."

Kauer looked up, his mouth falling open slightly and his thin cheeks looking gaunt under his high cheekbones. "What! Do they say it's anything we're doing?"

"No," said Dedmore. "So not because a irregular. They say nothing of the sort. And what can we be doing to Shapiro that is of any importance? We are merely a red compass among red compasses in the bloodstream, one among millions."

"Well, then, what's wrong?"

"Do know?" said Dedmore, clearly irritated. "Do they tell me? Am I a physician? I just minimize this record and they pay me to mind except as a part of hands on the controls."













Mortons be his lips. Off course. He had again forgotten how maintenance disturbed his perception. And again Kewer was completely right.

"It might be better, though," said Mortenson, fidgeting in self respect. "It's dangerous back to go forward and forward and forward and forward."

"We don't have to drive down. The same impulse results at a minimum of any moment past second to last safety, and it appears unlikely at our size that about seven times the end speed of light, the speed, however great it seems, is vital. Even if we are moving at the apparent speed of a rocket ship, the same impulse will be virtually meaningless."

Mortenson liked his aim in miniature and his features with Kewer. There was such a thing as being too tight. He saw a quick shadowy place at Kullin's, with the uncomfortable feeling that she would be showing her contempt. She was like plain whitey and with traces of a nose. He, for shudders (and rightly so though in fact Mortenson implied), "What do you expect of a woman?"

Rotations (Mortenson placed one to his left shoulder) seemed oblivious to the exchange. She was busy with her instrument and Mortenson understood what she could be intent on, considering that the ship's engine went off and they were merely drifting with the current.

As for Dufrene -- with the engine off -- he was the one crew member who, in truth, had nothing to do at the moment (except to keep half an eye at the material up ahead in case of an unexpected emergency).

He said, "Come, Albert, study the display waves and give us some answers. There we can have the plan. It's commonly exciting being inside a cell for those who like it, but about 1 am quite certain I have seen enough. My father used to say: "The most exciting part of any trip is reaching home again."

Rotations said, "Aahhh --"

"Yes, Morten."

"Just a few words for comment." Mortenson noticed the trace of a smile on her lips.

"Certainly, Morten. I expect an attempt at success, but I shall do it on my way." And though he supposed his mouth that with an exaggerated click of his teeth, he began to hum very quietly to herself, a tune in the minor mode.

Mortenson felt a little unsettled. They had been in the ship now for a little less than five hours -- but he felt the equivalent number of days, perhaps years. Yet, unlike Aahhh and despite his earlier feelings of terror, he was not ready to leave Shapiro's body. He felt a strong urge to explore the cell and he thought instead on the possibility.

Kullin must have been thinking along similar lines, for she said in a soft, introspective tone, "What a chance to be the first people inside the most complex of all living cells and to do nothing at all about investigating it properly."

"That is exactly --" began Mortenson, then thought better of it and let the words dwindle.

Kewer swung his arm as though he were driving off bands of insects. "I can't understand this. We are in the cell and we came here for a specific purpose. Albert, focus on the display waves."

"I am doing so," said Mortenson sharply. "In fact I have done so -- Look!"

Kewer turned his head, then swung himself: in fact he could see around and peer over the back of his seat. He stared at Mortenson's small count and said, "The waves were deeper."

"They are deeper. There's more motion and there's more fluctuations than I've ever seen. Come to think of it, I wonder how far they can get. Forward or back, an oscillation, if I am enough, will represent the working of a single electron -- and then we have to take into account the uncertainty principle."

"You forget," Mortenson interrupted and Plank's constant is more values of magnitude smaller for us than it is under standard conditions."

"You forget," pronounced Mortenson, eager to catch the other in a trap at this time. "The waves are reduced by that much before they reach us. There waves are exactly where they should be relative to the uncertainty principle, therefore."

Kewer hesitated a bare moment. "It doesn't matter. We're looking at something new and there's no perceptible uncertainty haunting. Where does it mean?"

"It supports my theory," said Mortenson. "This is exactly what I ought to see inside a cell of any interpretation of depth, wave activity is correct --"

"That's not what I mean. We began with the assumption that your theory was correct. Now it's no longer an assumption, it's a demonstrated fact, and I recognize you. But what does it mean? What do those deeper waves show Shapiro to be thinking?"

Mortenson shook his head. "There are data -- zero data -- on the correlation of such waves and specific thoughts. It would take years to gather such a correlation, if it could be done at all."

"The principle of the display waves, when they click and move, produce an inductive effect on your brain. Are you getting any of your father's images?"

Mortenson thought for a moment, then shook his head. "None."

Fresh behind him came a quiet voice. "The getting something, Albert."

Mortenson turned. "Yes, Morten?"

"Yes, it's odd -- but I am."

Kewer demanded, "What are you getting, Morten?"

Rotations hesitated, contemplating. "Certainly, Well, it's not exactly an image of anything, but an impression. I feel curiosity."

"And you might," said Mortenson. "It results on impression from outside to produce such a feeling under these circumstances."

"Yes, I have when my own thoughts and impressions are like. This is inspired from outside."

Mortenson said, "Do you find it right now?"

"Yes, it comes and goes a little, but I feel it right now."

"All right. What about now?"

Rotations looked surprised. "It stopped suddenly -- Did you turn off your machine?"

Rotations looked surprised. "It stopped suddenly -- Did you turn off your machine?"

"I turned it down. Now, you tell me when you feel the sensation and when you don't." He turned to look at Kullin, intending to tell her by way or do nothing that would indicate when he turned the machine down or up, but she was staring at the cell, obviously lost in the marvel of watching the interior of a neuron. He wondered if, at the moment, she heard -- or cared -- what was going on.

He turned away and said, "Morten, close your eyes and concentrate. Are you 'in' when you get the sensation and 'off' when you don't?"

For several minutes, she complied with his suggestion.

Mortenson asked Kewer, "Does the machine make a noise when it is turned down or up? Is there anything you can hear or sense?"

Kewer shook his head. "It's not aware of anything."

"That doesn't surprise. She's getting the sensation only when the machine is on."

Dufrene, who unlike Kullin, had followed everything, said, "But why? He eyes narrowed. "The brain waves are those whether your machine detects them or not. She should get the feeling of curiosity all the time."

"No," said Mortenson. "My device filters out all the components but the actual display waves. Without the machine, she just gets a confused mass of sensation, responses, combinations, and similarity of all kinds. With the machine, she gets only the display waves, which further demonstrates the usefulness of my theory."

"I don't get anything at all," said Dufrene, frowning. "Doesn't that deny your theory?"

Mortenson shrugged. "There are complicated mechanisms. Morten gets it. You don't. For that matter, neither do I. Maybe this particular display wave component fits something in Morten's brain, but not in ours. I'm not going to be able to explain everything at once -- or you get anything, Kewer?"

"No," he answered, as demonstrated by Dufrene had been. "I'm left with impressions when we were outside the neuron."

Mortenson shook his head and said nothing.

Kewer here on, "Can't you get anything but just a vague feeling of curiosity, Morten?"

Rotations, "No, Yes, I can't. Not at this moment. But you remember Peyer Shapiro? He was curious about everything."

"I remember, but that doesn't help. Albert, in what direction are we moving?"

Albert said, "Downward. It's the only direction in which we can move."

"No no." Then, in sudden anger, "Is that a joke? Are you trying to be funny?"

Mortenson said, "That's all. You asked in what direction we were going. What other answer could there have given you? Surely the compass directions have no meaning here."

Kewer said, "All right. Now, the answer goes this way here. On the other side of the cell, it goes the other way. It's a circulation. But the nerve impulse goes one way only. From the direction to the axis. Are we on the side of the cell that's taking on the same direction as the nerve impulse or is the other direction?"

"Does it matter?" said Mortenson.

"I think it does. Can your device tell you in which direction the impulse is traveling?"

"Yes, certainly. There should be a slight shift in the shape of the waves, depending on whether they are moving the device head-on or from the rear."

"And?"

"And we're moving in the direction of the impulse."

"Good! A stroke of luck. We're heading for the axis, then."

"So it would seem."

Rotations said, "And if we are heading for the axis?"

Kewer said, "Morten, think. The display waves travel along the surface of the cell. The cell itself is wide and relatively large. The display waves spread over a large surface and are weakened in intensity. As the cell approaches the axis, it narrows. The axis itself is long, very long and compared to the cell -- and very narrow. The waves most concentrated enormously as they race along the tube and they must give more intensity. What's more, the axis is insulated by a thick myelin sheath, so that the wave energy will not be lost to the outside, but will be kept tightly within the axis."

Rotations said, "You think, then, that we can receive more effectively in the axis?"

"Much more effectively. If you can detect curiosity now, it should be overwhelming in the axis. And you might be able to detect what Shapiro is curious about."

"It may not turn out to be totally unimportant," said Mortenson thoughtfully. "What if it's curious about why he should be lying there and not moving?"

"No," said Kewer sharply. "You would not interest him. I know Shapiro well. You don't."

Mortenson nodded. "That's true enough."

"All the making time was concerned with the information process," said Kewer. "All this drives you, I suspect. And I would be the end, in the last few weeks before the -- the accident took place, he was working, thinking, devising of the connection between quantum and relativity, thinking of how to minimize material and administration energy. Are you ready?"

"Surely," said Mortenson. "If that were the case, he must have given some hints as to some of the details of his thinking."

"No," he said in some ways. "We know what he was thinking of, but not whether he was making progress or in what direction. What he tried to do was to present it in a whole, complete. -- Remember, Morten, how he tried to do that? He did that with information itself. When he finally wrote his paper -- it was a young book --"

Mortenson said calmly, "Where was it published?"

Kewer seemed. "You know it wasn't published. It had a limited circulation to those who had to know. It's nonsense when you're likely ever to see it."

Rotations said, "You, that's mindlessly insulting. Albert is a fellow crew member and a poet. He is not to be treated as a spy."

Kewer said, "If you see us, Morten. Nevertheless, if Shapiro is curious, so intensely curious that Morten gets that message, it can be only about the quantum relativity connection. If we can get some details about that, any details at all, we'll have a starting point and can continue."

"And you think we'll get those details in the axis?"

"Yes, if we are off." Kewer checked his face and then decided preparing to get established on the facts.

Mortenson looked away. He was not sure of it. Technically, it was beginning to look as if he was as though morten were moving in another direction altogether and that that was just as well --

He had not to do it, but he was excited as Kewer was.

61.

Dist objects to either side loomed up ahead, diffused to one side, left or right, and fell behind. Ribosomes? Grigly apparatus? Fibers of one sort or another? Mortenson could not tell. From the vantage point of small molecule size, nothing, not even the shape, nor familiar intracellular objects, would look familiar, let alone recognizable.

They were racing through a strange land of infinitesimals and Mortenson could not, no matter how he tried, picture his surroundings as those with which he was familiar from electron microscopy.

He wondered if, somewhere beyond where the light of the ship's beam extended, there would be the endless volume of the cell's nucleus. Imagine being within ultramicroscopic distance of it and just never seeing it.

His concentration on the familiar surroundings -- a narrow trail, one again, that he might be able to make out the water molecules that made up 98 percent of all molecules in the cell, that huge percentage being the direct consequence of the fact that they were just about the smallest molecules there.

He could not see any. From his own thought he did not rightly see could, when he saw was only clear glass -- perhaps, perhaps, something off such a molecule and flitting back toward his vision. As he, he would only see one or two from any given water molecule.

He was suddenly aware of Kullin's head. Nothing toward him. Her head brushed his face and he noticed, as he had once or twice before, the fresh scent of her shampoo.

She said, "This is terrible, Albert."

Her breath was a little strong and Mortenson flinched before he could stop himself.

She noticed, for her fingers came up sharply, covering her mouth, and she murmured, "It's over."

Mortenson shook his head slightly. "My own breath isn't exactly a bad smell. -- Tentative, nothing much to eat. A drink of water might help, Morten."

Kullin repeated a small voice again. "Preparation done?"

Mortenson held out his hand and smiled. "It's a preparation."

Kullin's eyes flickered back toward Rotations and she gave a "Who-care" shrug. Having passed the drug to Mortenson, Sophie popped another in her mouth.

Then she said again, "This is terrible, Albert."

"What is, Sophie?"

"How can you pass through this cell without examining it in detail?"

"We have a specific mission."

"Yes, but we may be back within a brain cell for many years. Perhaps, never. When, in the future, someone will read that this ship and this crew merely raced through, looking nothing to right or left, what barbarians they will think we must have been."

She was whispering very softly and that back was her own regular. Morten's hand brushed her cheek, she stopped.

But he gave no comment on the threat of the situation -- the constant drifting along the edge of the sphere of quantum deconstruction, the possibility of quite second death at any moment -- that he could take joy from the trivial fact that his lips were so close to the juicy face of a woman?

Well, why quibble with that? Let the morten assimilate him, so that he might fit a woman's legs.

Mortenson remembered the sharp image he had had of her a time before of a happy, smiling, beautiful girl. He had not recognized the thought as his own, so unexpectedly had it come out of nowhere, and it didn't return, even now, but he remembered it distinctly and memory appeared to his heart with a warm feeling.

He had the momentary impulse to kiss her lightly, just a touch upon the cheekbone with his lips -- and maybe it down. If she decided to take it easier, he would feel like an incredible fool.

Mortenson said quietly, "The people of the future will know we have a mission. They will understand."

"I wonder," Sophie said, then passed and saw a quick shadow flit back in the direction of Kewer, who at always set off and detached at ally signs of speech or even motion from Kullin.

She turned to her companion, reached it on the word processor mode, and tapped out in rapid Russian. THERE IS A FANTASY WHO SACRIFICES EVERYTHING TO HIS MAMA. THERE IS NO CHANCE OF READING THOUGHTS, BUT HE PERVADES EVERYONE. She blinked it, then tapped out WE ARE HIS VICTIMS and blinked it at once.

For "we," said "I," thought Mortenson sadly. He looked at the woman intently but not. It seemed to him that the thought arose, which he had dreamed to love, never giving more notice. Mortenson looked out as though he might be able to tell just how near the woman they were now, but, of course, there was no way of knowing.

He masked the indication, switched to word processing, and printed out his Roman-Infused Roman III, YOO, IS HIS YCTIM.

*Kramer as once printed, simply: "I BELIEVE BELIEVE I BELIEVE ARE THEIR OWN YCTIM."*

Mortem thought only of his one-time wife, his two children, his own inability to proceed by theory, personally, or, alternatively, to walk away from it, and supposed not: I BELIEVE WE ARE EACH OF US MORE A VICTIM OF OURSELVES THAN OF ANYONE ELSE and assumed quickly to be the thoughtless one.

He walked to his beach chair. The water on his face had been high in intensity despite the fact that the device was still at low.

Mortem opened his mouth to comment on the fact, but Decker made that unnecessary. "Yes," he said. "No cell membrane is carrying it and we're carrying it with it."

This would account for it, thought Mortem. The cell was narrowing in toward the atom and the diatomic waves were being increasingly concentrated. His device, having filtered out everything else, would indicate the wave function of the diatomic waves throughout the interior of the ship. And with what needs?

Kramer said with delight. "We'll see what happens now. Albeit, keep your machine working at top intensity."

Decker said. "I hope that whatever happens gives us our answer or at least a start to our answer. I have given time's waiting."

"I don't blame you," said Decker. "As my father used to say: 'The longer it takes to get to a point, the blunter it turns out to be.'"

It occurred to Mortem that every line of Kramer's self-body were bombarded excitement and eager expectation. And Mortem had not yet to that expectation.

62.

Mortem stated outward. They were well into the atom now and being carried along by the field lines within the cell.

In the real world, the atom was exclusively this. But, in the microconstituted world of the ship, it might be the equivalent of a hundred kilometers across. As for its length, it was much, much longer than the cell itself. Going from one end to the other of the atom might very well be the equivalent of a trip from the Earth to the moon and back, a couple of dozen times over. On the other hand, their apparent speed on the microconstituted scale must mean, to themselves, to be a negligible fraction of the speed of light.

There was no indication of that incredibly rapid speed, however. The ship was moving with the current and there was far less in the way of microconstitutions or organisms in the atom than there had been in the cell body. There were no structures there, no matter and no matter continuing motion with respect to the cell membrane, the current swept them past them too rapidly for them to be visible, even if a visible number of photons were reflected from them – which, of course, they were not.

To get up. There was nothing to look at outside.

He might, in any case, to be looking at his screen. The diatomic waves were becoming even more intense. It had grown difficult to wipe out the monochromatic material. It was so strong that it flooded the capacity's receiving capacity.

What seems, the light, definite vibrations of the diatomic waves had become a series of singular photons. Even at full expansion, it was clear he wasn't getting all the detail that existed. Mortem had a clear vision of the necessity of a more potent camera to be placed under a microscope.

Kramer had changed himself and had held that himself over the back of his seat so that he might stare at the screen.

He said. "I haven't seen it like that before."

Mortem replied. "We have I and I had been studying diatomic waves for nearly twenty years. Nothing like this."

"I was right, then, about the atom?"

"Absolutely. Yes. The waves have concentrated themselves beautifully."

"And the meaning, then?"

Mortem opened out his hands helpfully. "There you have me. Since I have never seen anything like this, I obviously can't interpret it."

"So do," said Kramer, impatiently. "I'm busy concentrating on the screen and I keep thinking about induction. Our own mind as the true receptor – by way of your machine. What do you receive? Images? Words?"

"Nothing," said Mortem.

"That's impossible."

"Are you getting anything?"

"It's your machine. Adjusted to you."

"You've had images before, Yoo?"

Decker's voice broke in softly. "My father used to say: 'If you want to hear, you must begin by listening.'"

Decker said. "Decker's voice is coming. We can receive nothing if we fill our minds with comment and ideas."

Kramer drew a deep breath and said with confidence that was most characteristic of him. "Very well, then, let us concentrate."

An unusual quiet fell over the ship's crew.

Then Kallibus said breaking the silence rather timidly. "There is no time."

"No time for what, Sophie," said Decker.

"I mean that the phone I used. There is no time."

Mortem said. "Are you saying that you received it from Shapiro's diatomic waves?"

"I don't know. Is that possible?"

Decker said. "A moment before I had the same thought. It occurred to me that a better way of checking the problem might be to study the recorded diatomic waves on the screen and to wait for visible changes. It might be the change of phase rather than the pattern itself that would produce an image. But that I thought that the waiting might be an extremely long drive-out affair and for we lacked the time."

"So there was," said Mortem. "You thought. There is no time."

"Yes," said Decker. "That is my own thought."

"How can you know, Nately?" said Mortem.

"I know my own thoughts."

"You also know your own dreams, but sometimes dreams arise out of external stimuli. Suppose you receive the thought 'There is no time' because you are accustomed to receiving thoughts, you quickly build up a line of this association that makes it reasonable for you to feel that you have had the thought yourself."

"That may be so, but how does one tell, Albert?"

"You are sure, but Sophie apparently sensed the same phase and we might ask if she were thinking something independently that would give rise to the phase as a matter of course."

"No," he said. "I know Kallibus. I was trying to keep my mind empty. It just came in."

"I didn't sense anything," said Mortem. "How about you, Yoo?"

Kramer shook his head, frowning furiously at his fellow. "No, I didn't."

"In any case," said Mortem thoughtfully, "it isn't about anything. Nately felt it might be an idea though that arose out of a series of previous thoughts in a natural way and with him but the more superficial meaning. Even if the thought had arisen in Shapiro's mind, it might be equally superficial there."

"Perhaps," said Kramer. "But perhaps not. His whole life and mind were based up in the problems of microconstitutions. He would be thinking of nothing else."

"You keep saying that," said Mortem, "but, actually, that is romantic nonsense. No one thinks of nothing else. The more brilliant Roman is likely could just concentrate on his fellow forever. A twinge of cold, a distant sound, and he would be distracted at once."

"Nevertheless, we must take anything Shapiro says as possibly significant."

"Probably," said Mortem. "The real idea of his work was on the extension of the microconstitutions theory and decided to mean he had no time, but there was insufficient time to complete his work."

Kramer shook his head. "I cannot be freed off structure than in a clear negative. He said, 'There about this' what it seemed to Shapiro, that any microconstitutions that involved an increase in the speed of light proportional to the decrease in Planck's constant would involve a change that was instantaneous, that took no time. And, of course, as the speed of light increased totally, would the inevitable speed of a number – or nearly number – object be infinite, which it would, and could go up himself precisely. There is no time."

Decker said. "Very interesting."

"Of course," said Kramer. "No worth thinking about. We must record every impression we get, however odd, however apparently meaningless."

"I plan to do precisely that, Yoo," said Decker.

Kramer said. "That quiet again. Let's see if we can get anything more."

Mortem concentrated intently, his eyes half-closed under jarring eyeballs, but those same eyes were fixed on Kramer, who sighed and said in a whisper. "I got something over and over – 'be times equals to cube, a...'"

Mortem said. "I got that, too, but I thought it was 'be times equals...'"

"No," said Kramer softly. "Try again."

Mortem concentrated more, again shocked, said. "You're right. I got it. No. 'be times equals to cube.' What does it mean?"

"Who can we get first place? However, this is in Shapiro's mind, it means something. We can assume that no microconstitutions, the speed of light, and so on is the standard time – that is, the atom at rest under ordinary conditions. In the light of..."

Decker's voice filled with an administrative language appeared. Kramer stopped short and said uncharacteristically. "But that is neither here nor there."

Mortem grinned. "Classical material, eh, Yoo?"

And then Decker's voice sounded with an uncharacteristic politeness to it. "How is it," he said, "that you are hearing all these things about time and standard time and whatnot and I sense nothing? Is it that I am not a scientist?"

Mortem said. "I doubt that that has anything to do with it. Besides, any difference. Maybe they come in different types the way blood does. Blood is blood but you can't translate one person's blood into another. Your brain may be sufficiently different from Shapiro's so that there is sensory crossover."

"Only time?"

"No, only time. There may be billions of atoms that can pick up nothing from Shapiro. You're sure that Sophie and Nately can pick up the same things, which Yoo and I cannot – and vice versa."

"Yes, and vice versa," grinned Decker. "And so what?"

Kramer said impatiently. "You are wasting my time, Alady. Let's unambiguously discuss every tiny thing we pick up. We have more to hear and little time to do it. If you concentrate a little harder. Actually, you see, may some something."

Silence!

It was broken occasionally by a soft murmur from one or another who repeated meaning an image or a wisp of words. Decker contributed only one thing. "I sense a feeling of hunger, but it may be my own."

"Unbelievable," said Decker softly. "Consider yourself with the thought, Alady, that when we get out of here, you will be allowed seconds and think of every dish and unlimited snacks."

Decker grinned almost lasciviously at the thought.

Mortem said. "We don't seem to come across anything mathematical or even out of the ordinary. I mean that even Shapiro's must have the great majority of his thoughts concerned with time."

"Nevertheless," grinned Kramer under his breath, "we have."

"You have long, Yoo?"

"Till the end of the atom. Right down to the end."

Mortem said. "Do you then intend to run into the synapses or will you double back?"

"We will go on down to the synapses as possible. That will bring us into the immediate neighborhood of the adjoining nerve cell and the diatomic waves may be even more easily sensed at that critical point of transfer than anywhere else."

Decker said. "Yes, Yoo, but you are not the captain. – Nately, little flower, is that your wish, too?"

Decker said. "Why not? Yoo is right. The synapses is a unique spot and we know nothing about it."

"I ask only because half our power supply has now been consumed. How long does we continue to remain within the body?"

"Long enough," said Decker. "So much the synapses certainly."

And silence fell once more.

63.

The ship continued to move along the maximum length of the atom and Kramer dictated the actions of the others more and more.

"Whenever you get report. It doesn't matter whether it makes sense or not, whether it's one word or a paragraph. If it's an image, describe it. Even if you think it's your own thought, report it if there's the slightest doubt."

"You'll have meaningless chatter," said Decker, apparently still annoyed at his meaningless talk.

"Of course, but we do then meaningful bits will pay off. And we won't know what's meaningful until we examine everything."

Decker said. "If I sense something I shall tell you, but I know it's not."

"Yes, especially," said Kramer. "If you're so tentative as you seem to think, anything you do get may be particularly important. Now, please, no more talk. Every word of conversation may mean me some something."

And then began a period of dispersed phrases one of which, in Mortem's opinion, it was impossible to make sense.

One surprise came when Kallibus said suddenly. "Natal Priest!"

Kramer looked up sharply and almost responded – then, as though realizing who had said it, he subsided.

Mortem said, trying not to sound mocking. "Did you get that, too, Yoo?"

Kramer nodded. "So almost the same time."

"That's the first crossover between a man and woman," said Mortem. "I suppose Shapiro had his mind on it in connection with his extension of microconstitutions theory."

"Certainly," he said. "Natal Priest was used to it when he had already done in microconstitutions."

"Which is classified and classified addresses."

"Yes. But since we perfect the process, we'll no longer be unknown."

"Let's hope so," said Mortem uncharacteristically.

Kramer stopped. "We are no more sensitive than you Americans."

"All right. I'm not arguing," he Mortem grinned broadly at Kramer, who was peering over his shoulder at him, and that seemed to irritate the younger man even further.

As one point, Decker said. "Thinking."

Mortem's eyebrows lifted in surprise. He had not expected this.

Decker said, looking delighted. "What is it, Alady?"







He knew why the field might weaken – its tendency to minimize the surroundings. Why should it strengthen?

It would have to gain energy to strengthen. From where?

What about the surrounding molecules? They had more random heat energy per volume than he had because they were at a higher temperature. Ordinarily, he should find them too hot to stand his feet and he himself would be at a thermal temperature and he would die of his own inability to rid himself of the heat he had accumulated, so he should had not on either volume outside the ship.

But there was not only the heat energy intensity of his body, there was also the energy of the magnetization field. And, as he was struck suddenly by the water molecules, energy used not from him in the form of heat, but in the form of magnetization activation. The field would grow more intense and he would think.

This must be true all times when a magnetized object was surrounded by normal objects of higher temperature. The energy might flow from the surrounding to the magnetized object either as heat or as field intensity. And it must be that the smaller the object, the more intensely magnetized, the more it was the field that gained the energy and the object itself.

Probably the ship, too, was pulsating, growing larger and smaller constantly, but as an object so great strength would not be so easily lost from the surrounding. The energy might have had increased in fact as it might have and that was why the air conditioning could perform its function with less strain. The magnetization field formed a cushion in both cases.

But he – Mortson, alone in the cell – was much smaller, possessing less mass, and for him the energy inflow was far more into magnetization than heat.

Mortson's feet clanked helplessly. He let go of the computer and didn't care. Unconsciously, the others, Brunnera and Kriener certainly, knew of this and might have explained it to him. Once again they let him go into danger without warning him.

And now that he had realized it was for himself – what good did it do him?

He opened his eyes suddenly.

Yes, there was pulsation. Now that he knew what to expect, he saw them. The water molecules were expanding and contracting in an irregular rhythm as they gave up energy to the field and then extracted energy from it.

Mortson watched it with a mingled awing rhythm and he found himself staring wonderfully. "Larger, smaller, larger, smaller, larger, smaller."

It could only get so large, he thought. The expansion amounted to cross contraction and there was only so much energy to be pushed into him to govern the contraction. The cellular contents had a temperature only so high. On the other hand, they could take large quantities of energy from him, and once they took enough, what was left would go over and more quickly, and he would explode.

Therefore, when the water molecules expanded in size (and he himself was growing smaller) he was safe. He would not grow very small. When the water molecules contracted in size, however (and he himself was growing larger), he was not safe. If the water molecules continued to contract until they were too small to use that means he would be expanding toward instantaneous explosion.

"Larger, smaller – smaller – my contracting?"

Mortson let his breath go, for the molecules were expanding again.

Over and over? Each time – would the contraction stop?

It seemed to be playing with him and it didn't matter any more. No matter if it brought him to the brink of destruction, there reached him away, and if it did it a million times over, it wouldn't matter. Smaller or larger, he at would be gone and he would die a slow, suffocating death.

Here a quick death, surely.

He

Kathleen was screaming. She was the first to realize what had happened and she checked on her words.

"It's gone! He's gone!" she shrieked.

Brunnera was unable to stop herself from asking the obvious question. "What's gone?"

Kathleen turned wide eyes on her sister and said, "Who's gone? How can you ask who's gone? Albert is gone."

Brunnera stood helplessly until she felt the first tremor. Kathleen had known and now what? "What happened?"

Duchess examined Sophie. "Yes, we can. We can connect closely. Albert, attached to the controls of the ship, introduced an emergency, perhaps. I tried to make the ship stop from – from whatever it was. An adult's request, perhaps."

"A field macro-molecular expansion," said Kriener, who looked up now after having brushed his face in his hands, "escaped heat off. We've got to get back to him. He may have the information we need."

Brunnera by now clearly understood the situation. She unclamped herself with a quick movement and stood up. "Information?" she said lightly. "Is that what you find the loss of, Yusef? Information? Do you know what's going to happen now? Albert's magnetization field is inflated and he's only gone dead. The chance of his undergoing spontaneous demagnetization is at least fifty times gone. Given enough time, the chance will become one good. Information or not, we must get him. If the demagnetization, he will kill Sophie and he will kill ME!"

Kriener said, "We're just angling motivation. We both want him back. The reasons vary in accuracy."

"We should never have sent him out," said Kathleen. "I knew it was wrong to do so."

"It is done," said Brunnera gently, "and we must proceed from that point. Alakdy!"

"You stop!" said Duchesa. "Don't touch a dial or a key!"

"You are trying to reach you yourself, isn't that? Everything you. This avoid. But I'll back!"

"No," said Duchesa. "Let this old fool tell you that's collection. Do you want me to make a U-turn and back the control? You want me to try to force my way against?"

Brunnera said, "If you just stand still, the stream will bring him to us."

"It's not helping to anything. He will not be brought to us," said Duchesa. "When we must do him to the other side of the dial and let the stream stream carry us back."

Brunnera put both hands to her head and said, "I apologize for calling you an old fool, Alakdy, but if we go back by the commonness will miss him."

"We have no choice," said Duchesa. "We lack the energy to try to make our way against the stream we're in."

Kriener said, sounding a bit weary but reasonable. "Let Alakdy do as he wishes, Natsya. We will not lose Albert."

"How can you know that, Yusef?"

"Because I can feel him – Oh, unless some Shapiro's thought by way of his instrument, here and stimulated in the cell."

There was a momentary silence. Brunnera, clearly astonished, said, "Are you getting something?"

"Of course. In that direction," said Kriener, pointing.

"You can tell the direction?" said Brunnera. "How?"

"I'm not sure how. I just feel. It's in that direction?"

Brunnera said, "Alakdy, do as you were planning."

"I am doing it regardless of what you say, Natsya. You may be certain, but I am not sure with death staring me in the face. What have I to lose? As my old father would say: 'If you are dying from a rope over an abyss, don't bother stretching it or even that falls out of your pocket.' – It would be better if I had a real steering mechanism than this system of trying to measure three off-center engines."

Brunnera had stopped thinking. She pointed into the distance suddenly and said, "What is it you see, Yusef? Shapiro's thought will do – what?"

"Nothing at the moment. It is just noise, Alakdy."

Kathleen murmured, as though to herself. "Do you suppose part of Shapiro's mind knows he's in a coma? Do you suppose part of his mind feels stopped and is clamoring to go out? Like Albert – stopped? Like we ourselves – stopped?"

Brunnera said sharply, "We are not stopped, Sophie. We can move. We will find Albert. We will get out of this body. Do you understand, Sophie? She reached for the other woman's shoulder, her fingers slipping deeply.

Kathleen widened. "Please. I understand."

Brunnera turned to Kriener. "Is that all you got? Alakdy?"

"But strongly," then, certainly, staring at Brunnera, "Do you sense nothing?"

"Nothing at all?"

"But it is so strong. Stronger than anything I did when Albert was in the ship. It was right for him to sense certain."

"But can't you make out any actual thoughts? We wish?"

"Perhaps I am too far. Perhaps Albert hasn't got his machine properly focused. And you really sense nothing?"

Brunnera shook her head decisively and glanced briefly at Kathleen, who said in a low voice (talking one shoulder), "I sense nothing, either."

And from Duchesa came a disconnected, "I never got any of these repetitive messages."

"You got 'Thanking' Albert suggested there might be different brain types as there are different blood types and that he and I might be of the same type. He may be right," said Kriener.

Brunnera said, "From what direction does the sensation come now?"

"From there." This time Kriener pointed much closer to the face end of the ship. He said, "You are sensing, aren't you, Alakdy?"

"I can," said Duchesa, "and I'm sure fairly close to the distance between the two streams. I am planning to slip into the commonness so that we head back, but we're too quickly."

"Good," said Brunnera, "We don't want to miss him. – Yes, can you judge the intensity? Is it getting stronger?"

"Yes, it is," Kriener seemed a bit surprised, as though he had not noticed the rise in intensity until Brunnera had mentioned it.

"Is it imagination, do you think?"

"It might be," said Kriener. "We haven't really gotten any closer to him. We're just making a turn. It's almost as if he's approaching us."

"Perhaps he's washed off whatever is adhered to or fused himself loose. In that case, the current would carry him to us, if we're forcing a turn and staying essentially in the same place."

"Perhaps."

"Yes," said Brunnera's chin suddenly, "we just concentrate on the sensation. Keep Alakdy present at all times of the direction from which it comes, which means you will have to be pointing toward Albert steadily. – Alakdy, as you get closer to Albert, you will have to turn toward the original stream again and get into it as close to his position as possible. Then once we're moving together, it will be easy to drift closer by use of our masses."

"Any for me which we controlling the course," promised Duchesa.

"Any or difficult," said Brunnera, her beautiful eyes watching him. "It's a lot of – No, there is no 'I' in 'I'." "It's a."

Duchesa's lips moved, but no sound came and silence fell upon the ship – except for the subdued flood of sensation the aimed Kriener's mind but left the other mind empty.

Kriener remained standing, facing in the direction from which it seemed to him the sensation was coming. He murmured once. "Definitely stronger." Then, after several moments. "It seems to me I can almost sense words. Maybe, if it comes close enough."

His expression grew even more strained, as though it were trying to force the sensation, to strain it into his mind, while taking the sense apart and separating it into words. His finger kept pointing rigidly and he said finally, "Alakdy, begin carrying back into the distance and be ready to plunge into the original stream. – Quickly. Don't let him pass us."

"As quickly as the senses will let me," said Duchesa. "Then, in a lower voice, "I'll could maneuver this ship by the same magic with which the rest of you hear voices."

"Good enough for the moment," said Kriener, ignoring the remark.

It was Kathleen who now spoke up light like. "There's no 'I' in 'I' and not – That's the light in his case?"

"I don't have to see it," said Kriener to Brunnera. "The sense is a vague response in Kathleen's."

"Still sense. Yes? No words?"

"Fright," said Kriener, "inclusion high."

Brunnera said, "I'll be aware in any way of being stopped in a conscious body, it would be precisely how I would feel. – But how has he come to realize it now? Earlier we did make our words and even quiet and peaceful images."

Duchesa said, pointing a little in the excitement of the chase, which had him unconsciously holding his breath. "It may be something we've done with this ship. We've stirred up his brain."

"We're too small," said Kriener with contempt. "We can't even stir up the one cell unaidably."

"Sophie," said Brunnera, "can you detect the electrical pattern?"

"Faintly, Natsya."

"Well, there everything you've got into something complementary that will attract him tightly."

"He senses a little large. Natsya."

"It's oscillating, I'm sure," said Brunnera gently. "Once you attach him to the ship, he'll become part of our general magnetization field and his size will adjust. Quickly, Sophie."

There was a slight beep as Mortson was electromagnetically pulled against the side of the ship.

## CHAPTER 11 – DIALOGUE

Once the sea was, he grows dark, don't let that catch you by surprise.

– Duchesa's Sister

To

Mortson could not hear recall anything that took place – either just before or just after his return to the ship. Try as he might, he did not remember seeing the ship coming for him at any time, nor did he recall the moment of transfer, nor the removal of the plastic suit.

Going far enough back, he remembered the danger and loneliness of waiting to explode and die. Going far enough forward, he remembered looking at at the concerned face of Sophie Kathleen holding over him. There was nothing in between.

Hadn't it happened already? The two incidents, joined by Kathleen's care for him, were separated by several hours in time, but melted into one.

He said to a friend and almost unrecognizable voice. "Are we headed in the right direction?" He said it in English.

Kathleen looked down at him and slowly, also in English and with a considerably heavy accent. "Yes, Albert, but that was some time ago, when we were in the cockpit. You came back and that was not a second time. We are in a certain tone. Remember?"

Mortson frowned. "What was it, then?"

Slowly, as his, he seemed strained. He closed his eyes and tried to get it all straight. Then he said, "How did you find me?" He spoke in Russian now.

Kriener said, "I sensed – quite strongly – the thought waves of Shapiro as it came through your instrument."

"My computer? Is it valid?"

Kriener said, "It was still attached to you. Did you make our actual thoughts?"

"Actual thoughts?" Mortson stared at him finally. "What actual thoughts? What are you talking about?"

Kriener was clearly surprised, but he let his lips tightly together and then said, "I could make out Shapiro's thought waves reaching me across the cell by way of your device, but there were no actual words or images."

"What did you sense, then?"



Morrison said, "Well, then, Yui made alone. How are we to have her really sense anything? I don't see it as unlikely as he is. I don't see access bits of being -- but isn't possible that he will decide to sense something caused him to imagine he had?"

Kaiser: "How we when you agree, but the extra access for a slight moment, was not enough." "Forget all that. We have spent hours in the body and I'm asking for one last observation, one last experiment, that may justify all that has gone before."

"No," said Morrison. "Let your do. I've heard that before."

Braveva said, "Above, this time there will be no mistake. One last experiment."

Dedeev said, "It would have to be a last experiment. Our power supply is lower than I would like it to be. Finding you was costly, Ahmet."

"We will find you," said Kucer, "and without coming the cost. I found you." He suddenly smiled rightly and faintly. "And I wouldn't have found you if I did not about the transmission emanating from your device. It would have been impossible. There's the proof that what I sensed was not imaginary. And since I found you, you me back."

Morrison's mouth flared. "You came after me because my explosion would have killed you all in a matter of minutes, perhaps. What person do you expect for your anxiety to save your own life?"

The ship tilted suddenly without warning. It crept heavily and Kucer, who had been standing, turned and caught at the back of his seat.

"What was it?" called out Braveva, checking with one hand at her own control device.

Kathrin had one her computer. "I caught a photon, but you can't tell its flight. It may have been a photon."

"A photon," repeated Morrison in astonishment.

"Why not? They're scattered all over the cell. They're the protein manufacturing organelles."

"I know what they are," said Morrison indignantly.

"So it landed on a fiber. Or rather, as we discussed along, we landed it a fiber. It doesn't matter which way you look at it; we just had a plain piece of Borevian matter."

"Wrong then," said Dedeev, pointing outward in horror. "We're not getting here transfer, we're getting field oscillation."

Morrison, starting in despair, recognized the phenomenon he had seen when alone in the cell. The water molecules were expanding and contracting -- visibly so.

"Stop it! Stop it!" ordered Kucer.

"We're going," said Braveva through tight lips. "Actually, shut off the jet and make all the power available to me -- shut off the air conditioning, lights, everything!"

Braveva had one the big glove that marked her battery-powered computer.

Morrison could see nothing except for the light from Braveva's computer and, in the next next to him, Kathrin. He could not see, in the otherwise total darkness of a cell heated in the interior of a brain, the water molecules ceasing and subsiding.

There was no uncertainty about it however. He could feel the jarring in the jet of his stomach. It was not the water molecules that were oscillating, after all. It was the minimization field that was -- and the objects that were heated in it -- and he himself.

Each time the ship expanded (and the water molecules ceased to contract), the field contained some of its energy into heat and he could feel the flush that except over him. Then, as Braveva's limited field energy into the field, appearing it into connection, the heat vanished. For a while, he could feel the oscillation cease and subside.

But then they began to grow hotter and he knew that Braveva was failing. She could not find out the spontaneous deminimization that was on the way and, in ten seconds, he knew he would be dead. He -- and all of them, and the body in which they were heated -- would be an exploding puff of water vapor and carbon dioxide.

He felt dizzy. He was going to faint and, in his pessimistic way, he would thus anticipate death by a second and his last recognizable emotion would be one of intense shame.

"It's wrong," said Morrison suddenly. He closed a flick. He should be dead by now, shouldn't he? It was inevitable that the next thought should come: Can there be an alternate after all? -- He dismissed the possibility quickly.

He was aware of someone sobbing. Not it was harsh breathing.

He opened his eyes (he hadn't realized they were closed) and found himself staring at Kathrin in the dim light. Since all the energy available was being pumped into an effort to keep the ship from deminimizing, he saw her by the glow of her own computer. He could make out her head bent over, her hair in disarray and her breath whistling through her parted lips.

He looked around in a sudden marvel of hope and thought and life. The ship's oscillation seemed less common. They were settling downward into a kind of space even as he watched.

And then suddenly, Kathrin stopped and looked up at him, her face twitching into a painful smile. "It's done," she said in a hoarse whisper.

The light within the ship brightened slowly, almost unnoticeably, and Dedeev uttered a huge choking sigh. "If I am not dead now," he said. "I hope to live yet a little while. As my father once said: Life would be unbearable if death were not worse yet." "Thank you, Natasia. You may be my captain here."

"No," said Braveva, her face looking very old -- so the pain whose Morrison would not have supposed to see when she took in her last look. "I simply couldn't pump enough energy into the ship. Was it something you do?"

Kathrin's eyes were closed now. "What has become more still hearing. She uttered a little, as though she knew to control, reluctant to do anything but save life for a time. Then she said, "I don't know. Maybe."

Braveva said, "What did you do?"

Kathrin said, "I couldn't just wait for death. I made the ship the electric dipole of 2D photon molecules and hoped that it would do the normal thing and interact with molecules of ATP -- adenosine triphosphate. In doing so, it gained a photonium group full off. D: photonium again, another gain to energy, then neutral, and so on, over and over." "She stopped to pant a bit. "Over and over. My fingers were working so fast, I didn't know if I was hitting the right keys or not -- but I must have. And the ship gained enough energy to stabilize the field."

Braveva said, "How did you come to do that? No one has ever suggested in my hearing that this might --"

"Not to mine," said Kathrin. "It is mine. It was just wondering the morning before we got on the ship what would do -- or what anyone could do -- if spontaneous deminimization began. We'd need energy, but if the ship couldn't pump up enough -- I thought, Could the cell itself supply the energy? If it did, it would only be through ATP, which every cell has. I didn't know if it would work. That led to speed energy, forcing the electrical pattern on an off the ship, and I know I might spend more than I got from ATP. Or the energy of the ATP might simply not affect the ship in such a way to counter the deminimization. It was all such a gamble."

Dedeev said -- softly, almost as though to himself. "As my father would say: If you have nothing to lose, gamble freely." "Then, kindly, he said, Thank you, little Sophia. My life is yours from now on. We will give you my life. I will give you my life for another you to save a consciousness."

"A consciousness?" said Kathrin, smiling faintly. "But I wouldn't ask marriage of you. Your own life is -- it need -- would be gone enough."

Braveva was entirely bent over now and she said, "This will be closed about in five final steps. Your quick thinking and your quick action saved everything."

Morrison could not know how to make any speech at all. (Spontaneously, he did not see any --). He gambled for his life's alternative to Kathrin's ATP could do so much for Kathrin's hand, give to his lips, and kiss it. Then, after clanking his teeth together, he said with extraordinary williness, "Thank you, Sophia."

She looked embarrassed, but did not turn her head away immediately. She said, "It might not have worked. I didn't think it would work."

"Had it not," said Dedeev, "we would be no deaths."

Through all this, only Yui Kucer had not said a word and Morrison turned to look at him. He sat as he usually sat, very upright and very much turned away from them.

Morrison, finding his voice suddenly -- and his anger -- said, "Well, Yui, what have you to say?"

Kucer looked over his shoulder briefly and said, "Nothing."

"Nothing?" Sophia could not the repetition.

Kucer shrugged. "We did our job."

"Her job? He did much more than her job." Morrison leaned forward and reached wildly for Kucer, grasping his shoulder. "She invented the technique that saved us. And in doing so, she saved your life, you also. She's the reason you're still alive. You can at least thank her."

"It's all in photos," said Kucer, reaching his shoulder and then withdrawing out of Morrison's grasp.

Morrison's hands found their way around Kucer's throat. "You remarkable, spiritual barbarian," he panted out, appearing desperately. "You have in your own insane way and you won't give her a kind word. Not one kind word, you piece of dirt."

Again Kucer pulled himself loose and then the two were panting each other closely. They were half straggled by the man from which had partly risen and neither could maneuver properly under zero-gravity conditions.

Kathrin screamed, "Don't hurt him!"

He wasn't hurt so, thought Morrison, smiling slightly. He had not been engaged in this kind of physical combat since he was sixteen and, in thought in embarrassment, he wasn't doing any better now.

Braveva's voice rang out sharply. "Stop it. Both of you."

and they did break off their fight.

Braveva said, "Above, you are not here to touch anyone's matters. And Yui, you need not labor to be a hero, it comes natural to you. If you do not wish to acknowledge Sophia's --"

Sophia said with obvious effort, "I'm not asking for thanks -- from anyone."

"Thanks?" said Kucer angrily. "Let us all say thank. Before the deminimization started, I was trying to get this American come to me for receiving him. I didn't think it worth. This is a damn favor. We wouldn't have and sorry, I wanted him to show his thanks by getting out there and trying to sense some of Shapiro's thoughts. He refused. Who is he to touch me here and when you speak?"

Morrison said, "I said before the deminimization that I wouldn't do it and I repeat that now."

Dedeev interrupted and said, "We have a dead here here. We have consumed our energy supply at though it was waste at a walking. Between parents and deminimizations, we have very little to spare for the task of deminimizing under controlled conditions. We must get out now."

Kucer said, "It would take very little energy to have this man go out for a couple of minutes and come in again. Then we can leave."

For a moment, Kucer and Morrison stared at each other hotly and then Dedeev said in a voice that seemed drained of sense of his life, "My poor father used to say: "The most shining light in the Russian language is "That's odd!"

Kucer seemed angry and said, "That's odd, Akady."

Dedeev replied, "I mentioned that only because it is now true for me to say it. That's odd."

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Braveva pushed her dark hair back from her forehead (a bit wearily, Morrison thought, and noted the hair itself was clearly damp with perspiration). She said, "What is odd, Akady? Let us not play games."

"The current flow of cellular material is slowing."

"There was a brief silence, then Braveva said, "How can you tell?"

Dedeev said heavily, "Notably, dear, if you sit in my seat you would know that there are others alive causing the cell --"

"The probabilities," said Kucer.

"Thank you, about, my child," said Dedeev with a great wave of his hand. "My father used to say: "It is more important to know the thing than the name." Still, never said. The whenever -- you -- call it doesn't stop the cell flow and it doesn't stop the ship, but it can't stop it plain just. Well, it's glowing just more slowly now. I assume the others didn't notice, so take it very slowly. And since I'm not doing anything to slow the ship, I assume that it is the intracellular flow that is really slowing -- This is called lag, Ahmet, so you don't have to release me on that point."

Kathrin said in a small voice, "I think we have damaged the cell." She sounded conscious-until.

Morrison took it as said. "One brain cell gone, more or less, won't hurt Shapiro in any way, especially in the condition he's in. I wouldn't be surprised if the cell were gone, though. After all, the ship came after me in my father's race. I imagine -- and I think you all agree that -- and probably strayed itself nearly to death and have obtained the entire cell as well."

Kucer said, frowning darkly. "That's mad. We're molecule sized -- and a small molecule at that. Do you suppose anything we can do, whether moving or jiggling, to bring to damage an entire cell?"

Morrison said, "We don't have to reason it out. Yui, it's an observed fact. The intracellular stream is stopping and that isn't normal."

"In the first place, that just Akady's impression," said Kucer, "and he's no neurologist."

"Do there is to a neurologist to have eyes?" demanded Dedeev's body, one arm raised as though to strike at the younger man.

Kucer saw that point as Dedeev's, but made no acknowledgment of his remark. He said, "And maybe, we can know that it's normal in a living brain cell from the level of absorption. There may be cables and cables in the flow, so that even if something like this is observed, it might be only temporary."

"You're whistling just the opposite, Yui," said Morrison. "The fact is, we can't see this cell any more and we don't have sufficient remaining energy to wander around searching for another cell."

Kucer ground his teeth. "There must be something we can do. We can give up."

Morrison said, "Notably, make the decision. Is there any point in investigating the cell any further? And we are in a position to seek out another cell?"

Braveva raised her hand and bowed her head in a moment of thought. "The others seemed to look at her and Kucer seized the opportunity to grasp Morrison by the upper arm and pull him about. His eyes were dark with hostility. He whispered, "There is a you think I am to love with --" he jerked his head in Kathrin's direction. "What gives you the right to think of? Tell me that."

Morrison looked at him blankly.

As the point, Braveva spoke, but it was not to answer Morrison's question. She said mildly, "Actually, who is it you are doing?"

Dedeev, who was bent over her computer, lifted his head. "I am rearranging the wiring back to what it was in my homeing up communication organs."

Braveva said, "Then I tell you to do that."

Dedeev said, "Necessarily has told me to do that."

Kucer said, "Does it occur to you it will be impossible to meet?"

Dedeev ground and said in softer tone, "And does it occur to you that there may be no more meeting to do?"

"What is the necessity that drives you, Akady?" said Braveva patiently.

Dedeev said, "I don't think it's this cell alone that is out of order. The temperature around us is going down -- slowly."

Kucer sneered. "By your measurements?"

"No. By the ship's measurements. By the background infrared radiation we're getting."

"You can't tell anything by that," said Kucer. "In our case, we get very few infrared photons. The level would vary all over the lot."

Dedeev smiled at Kucer and said, "Like this." He had moved up and down frantically. "Still, it can warm up and down like a thermostat in a telephone and yet do so at a lower and lower average level." And his hand sank over lower as it continued its ranting.

Braveva said, "Why should the temperature be dropping?"

Morrison smiled faintly. "Come on, Natasia. I think you know why I know that Yui knows why. Akady must find out and for that reason necessity in forcing him to get back communication."

An uncomfortable silence fell, except for Dedeev's occasional grunts and muttered epithets as he struggled with the ship's wiring.

Morrison passed out in the surroundings, which he could sense again in the usual amorphous fashion now that ship's lighting had been removed. There was the usual dim glimmer of molecules, large and small, that twinkled with noise. Now that Dedeev had mentioned it, he saw the occasional reflection of light from the star stretched across the path before him and then moved over (or under) and behind at express speed.

There was, undoubtedly, very thin collages from that preserved the shape of the regular waves and kept its own covering from into a roughly spherical shell under the pull of its own surface tension. That he been watching for it, he would have noticed it before. It occurred to him that Dedeev, as organized, had not watched for anything and, in the entire unpredictable situation in which the ship found itself, Dedeev had not set goals, no instruction, no experience to be his know what to watch for. There was no question but that Dedeev's work had placed him under greater tension than the others had allowed for.

"Careful, Brava, Morrison said. Dedeev had not taken for granted the heat of the star. He was still Morrison thought now. "I shouldn't be able to establish communication." He said, "Are you there? Green -- Green."

That he smiled. "Yes, we are, in the public talk -- I'm sorry, but I told you, was other communication or none -- How is it at your side? -- What? Repeat that, more slowly -- Yes, I thought we --"

He turned to the others. "Commence," he said. "Academician Pyotr Lvovovich Shapiro is dead. Thirteen minutes ago, all vital signs ceased and our task now is to leave the body."

CHAPTER 17 -- EXIT

If trouble were as easy to get out of as this -- this would be one great thing.

-- Dedeev's rant

75.









Victor Fabron, her hand expression shifting rapidly into surprise, had one foot raised, as though she was about to knock.

"What do you want?" said Kallitina lightly.

"I?" said the woman. "I want nothing. It is a question of whether you do. I have come to ask if you would like some tea."

"We have not asked for any."

"I did not say you have. I come out of courtesy."

"Then go out of courtesy. And do not return."

Fabron, nodding, looked from Kallitina to Morrison and said between her teeth, "Perhaps I envisage a wider occasion."

"Leave!" said Kallitina. She closed the door, waited long enough to count to ten in a deliberate manner (her lips moving soundlessly), and then thng it open again. No one was there.

She closed the door and locked it, walked to the opposite end of the room, and said in a low voice, "She had been out there, probably, for quite some time. I heard her shuffling."

Morrison said, "Highly unlikely, I guess, then? I suppose there is a position on old-fashioned eavesdropping?"

"As for the others?"

"Do you suppose she does it for Yuri? It doesn't seem likely that he would have the money to hire spies — or does he?"

"It might not take much money. A woman like that might do it for pleasure."

There was silence for a moment and then Morrison said, "It is possible that you're bored by spies, Sophia, why not come to America with me?"

"What? She seemed not to have heard him.

"You might be in trouble for getting me out, you know."

"Why I have official papers that will place you on the plane. I am under orders."

"That might not care for it or accept it or think. Why not just get on the plane with me, Sophia, and come to America?"

"Just like that? What would happen to my child?"

"We'll send for her afterward."

"We'll send for her?" What are you suggesting?"

Morrison flushed slightly. "I'm not sure. We can be friends, certainly. You'll need friends in a new country."

"But it can't happen. Albert, I appreciate your kindness and concern — or pity — but it can't happen."

"Yes, it can. This is the twenty-four century, not the twentieth, Sophia. People may move about much more than they used to anywhere in the world."

"Our planet," said Kallitina, "you did not tell me in theory. Yes, people can move about, but every nation has its occupation. The Soviet Union will not allow a highly trained scientist with experience in administration-related fields to leave the country. Think about it and just let me that's reasonable. If I do accompany you, there will be an immediate Soviet protest, a war claim that I have been kidnapped, and there will be a bad level from all corners of the world that I've been kidnapped to avoid a crisis. Besides, will not a quickly for me as she has the plan."

"But you can. I was kidnapped."

"There is no many who will believe it was — or who might prefer to believe it — and I will be sent back by the United States, as you are being sent back by the Soviet Union. We're prepared to do this. Besides, dozens of others over the last six decades or so — and isn't that better than war?"

"If you say, finally and frequently, that you want to stay in the United States..."

"Then I never see my child again and my life may be at risk, too. Besides, I don't want to go to the United States."

Morrison looked surprised.

Kallitina said, "Do you find that hard to believe? Do you want to stay in the Soviet Union?"

"Of course not. My country — I like myself."

She said, "Clearly, I'm not entirely about humanity, about the importance of a global view, but if we escape you down to your statistics, it's your country. I have a country, also, a language, a literature, a culture, a way of life. I don't want to give you up."

Morrison sighed. "So you see, Sophia,"

Sophia said, "But I cannot endure it here in this room any longer. Albert, there is no one waiting. Let us go into the car and I'll drive you to where the Swedish plane is waiting."

"It probably won't be them."

"Then we'll wait at the airport, rather than here, and we'll at least be certain that as soon as it arrives you can board it. I want to see you safely gone, Albert, and I want to see his face afterward!"

She was out the room and clattering down the stairs. He followed hastily. He was, in truth, not sorry to be going.

They made along a carpeted corridor and through a door that led directly out to the side of the hotel.

They pulled close to the wall, was a highly polished black limousine.

Morrison, a little breathless, said, "They're certainly equipped to whisk anyone inexpensively. Can you drive that thing?"

"Like a dream," said Kallitina, smiling — and then came to a full and sudden halt, her car's fingertips.

Around the corner of the hotel stepped Kriev. He, too, looked sad for long moments (they did not sit, either of them — as though they were a pair of Garguys, each of whom had thrown into error at the glance of the other).

It.

Morrison was the first to speak. He said a little harshly, "Have you come to see me off, Yuri? If so, good-bye. I'm leaving."

The phrases sounded false in his own ears and his heart was pounding.

Yuri's eyes flared just enough to glance quickly at Morrison and then moved back to their original position.

Morrison said, "Come, Sophia."

He might as well have said nothing. When she spoke — finally — it was to Kriev. "What do you want?" she demanded harshly.

"The American," said Kriev in a voice no softer than his.

"I'm taking him away."

"Don't. We need him. He has discovered us." Kriev's voice was becoming quieter.

"So you say," said Kallitina. "I have my orders. I am to take him to a plane and see that he goes in. You cannot have him."

"It's not I who must have him. It's the nation."

"Tell me. Go on and tell me. Say that Holy Mother Russia needs him and I'll laugh in your face."

"I'll do as I wish. This Soviet Union needs him."

"You can only let yourself. Stop out of my way."

Kriev moved between the two others and the limo. "No. You don't understand the importance of his staying here. Believe me. My report has already gone to Moscow."

"We were and I can guess to where it's going, too. But did you'd—and wouldn't be able to do anything. He's a blackhead and we all know that. He won't dare say a word in the Politburo and if he does, Albert will be long gone."

"No. He's not going."

Morrison said, "I'll take care of him, Sophia. You open the limo door." He felt himself trembling slightly. Kriev was not a large man, but he looked wary and he was clearly determined. Morrison did not believe himself to be a successful gladiator under any conditions and he certainly didn't feel like one now.

Kriev looked surprised. "No. Of course not. Carrying a load weapon is illegal."

"Didn't I have one?" She drew it from her jacket pocket, a small thing almost invisible in her fist, its small muzzle glinting as it slipped through the space between her first and second fingers.

Kriev backed away, eyes widening. "That's a nice weapon."

"Of course. Worse than a gun, isn't it? I thought you might prefer, so I'm prepared."

"That's also illegal."

"Then report me and I'll plead the need to fulfill my orders against your criminal interference. I will probably get a commendation."

"You watch, Sophia — I'll work a way around her."

She took a step back. "No closer. I'm ready to shoot and might do so even if you stand where you are. Just keep in mind what a monster does. It scurries before her, but that's what you once said to? You'll be unconscious and you'll wake up with partial amnesia and it may take you hours to recover or even days. Do you even heard that some people never quite recover. Imagine if your magnificent brain didn't quite regain its full edge."

"Sophia, we need you."

She said, through closed lips, "Why do you see my name? The last time I heard you see it, you said, Sophia, we will never speak again, never look at each other again." You are never speaking to me, looking at me. Go away and keep your promise, you miserable..." (She said, a Russian word that Morrison didn't understand.)

Kriev, who he to lips, said a third time, "Sophia — Listen to me. Believe that every word I have ever said to a lie, but believe to me now. This American is a deadly threat to the Soviet Union. If you love your country..."

"I'm tired of living. What has it gotten me?"

"And what has it gotten me?" whispored Kriev.

"You love yourself," said Kallitina bitterly.

"Not. You keep saying that, but it's not so. If I have some regard for myself now, it is because only I can save our country."

"You believe that?" said Kallitina, wondering. "You really believe that — You are mad to do so."

"No. All I have to ever work. I would do anything for me — not even you. For the sake of our country and my work. I had to give you up. I had to give up my child. I had to save myself in two and there the better half of myself away."

"You child?" Kallitina said. "Are you choosing responsibility?"

Kriev's head bent. "How else could I drive you away? How else could I see I would work unimpeded? I love you. I have always loved you. I have known all along it was my child and that it could be no one else."

"Do you want Albert so much?" She seemed not to wait. "Are you willing to say that it is your child — say you love me — believe I will, for that, give you Albert — and then deny it all again? How low an opinion you must have of my intelligence."

Kriev shook his head. "You can't continue your — Well, if I deliberately there is all way, I can't expect to get it back again, can I? Well you, that case, give me the American for the sake of our nation and then show me away? Would you let me explain the need for him?"

"I wouldn't believe the explanation." Kallitina threw a quick glance in Morrison's direction. "Do you hear this man, Albert?" she said. "You don't know with what cruelty he can cut my daughter and me aside. Now he expects me to believe that he would not do all again."

And Morrison heard himself say, "The man to trust, Sophia. He loves you and he has always loved you — desperately."

Kallitina threw a glance for a moment. Her face lit had glimmered at Morrison while her eyes remained fixed on Kriev. "How do you know that, Albert? Did he tell you, too?"

But Kriev showed no reaction. "Do believe the others is that you see? He's named it with his tongue. If you see for me explain, you will believe everything."

Kallitina said, "Is this true, then, Albert? Do you confirm, Yuri?"

And Morrison, too him, clamped his mouth shut, but his eyes gave him away.

Kriev said, "My love has been answering, Sophia. As much as you have reflected, so much I hear. But give me the American and there will be no more of it. I will no longer ask that I be spared any chance of freedom. I will do my work and have you and the child, but I will be content if I don't manage him."

Kallitina stared at Kriev, her eyes suddenly widening in tears. "I want to believe you," she whispored.

"Then believe. The American has told you."

As though she were disappointed, she moved toward Kriev, holding the steamer out to him.

Morrison turned. "You cannot — in the plane?" He looked sadly at them.

But as he did so, he noticed hastily with another body. Arms were extended, holding him closely, and a voice in his ear said, "Take it easy, Communist American. Do not attack your good Soviet citizens."

It was Victor Fabron, who held him in a strong and unshakable grip.

Kallitina clung as closely to Kriev, though with different effect, the steamer still gripped loosely in her right hand.

Fabron said, "Academician, Doctor, we could become conspicuous here. Let us go back to the American's room. Come, Communist American, and come quietly or I will be compelled to harm you."

Kriev, catching Morrison's eye, looked rightly in absolute triumph. He had it all — his woman, his child, and his American — and Morrison saw his dream of entering to America pay like a soap bubble and vanish.

## CHAPTER 11 — THRESHOLDS

It is the most thought, however, there are no books.

—Dante's Inferno

It.

Morrison sat in the hotel room that he had, for some fifteen minutes, though he would never see again. He was close to despair — close, it seemed to him, then he had been even when he was alone and lost in the cellular streams of the ocean.

What was the use? Over and over again, he thought this, as though the phrase were recirculating in an echo chamber. He was a fool. He had always been a fool.

For a day or so, he had thought that Sophia Kallitina had been attracted to him, but, of course, the truth. He had been nothing more than her weapon against Kriev and when Kriev had called to her — beckoned to her — she had returned to him and had then no further use for her weapon, either for Morrison or for her steamer.

He looked at them daily. They were standing together in the sunlight streaming through the window — they in the sunlight, he in the shadow, as it moved slowly by.

They were whispering together, so lost to each other that Kallitina could not understand that she was still holding the steamer. For a moment, her hands were as though she was going to drop it in the bed, but then Kriev said something and she was all attention and again steamer of the steamer's existence.

Morrison called out harshly, "Your government will not authorize this. You have orders to return now."







There was a bright green and finally Kublan said, "Yes, I think he's right there, too. Of course, there'll be levels from every direction, but we can't risk the Soviets getting there first. Everyone will see that. They'll have to."

"And the Soviets will see us in one?"

"They'll have to, also. They can't risk us getting there first. Besides, the rest of the world will undoubtedly get wind of what is going on and they will clamor for a piece of the action and demand that an armistice be signed. It may take some years, but in the end we will cooperate."

Kublan then shook his head and said, "But do you know what really strikes me as peculiar, Professor Frier?"

Frier said, "What in this whole course of events can possibly strike you as peculiar?"

"Nothing, I suppose, but what strikes me as most peculiar is this. I met Morrison last Sunday afternoon to urge him to go to the Soviet Union. At the time, my heart sank. He struck me as a man without guts, as a man, as a being, as someone who wasn't even bright except in an academic sense. I didn't think he could be relied on to accomplish anything. I was simply sending him to his death. So I thought -- and so I said to a colleague the next day -- and so help me, so I will think. It's nothing and it's simply a mistake that he survived and that's only thanks to others. And yet --"

"And yet he remained heroic, made an incredible scientific discovery and having set in motion a process whereby the United States and the Soviet Union will both be forced, against their separate wills, to cooperate. And, to top it off, he has made himself the most important and, once we publicize these events, the most famous scientist in the world -- possibly of all time."

"He has, in a sense, altered the political system of the world and built a new one -- or at least initiated the process of building a new one -- and he has done it all between the afternoon of last Sunday and the afternoon of today, Saturday. He has done it in six days. Somehow that's a frightening thought."

Frier leaned back and laughed aloud. "It's more frightening than you think. He plans to run on the seventh day."